

The First Stage of the History of Orthopaedics in Norway: The Therapy of «Self-correction»

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SUMMARY

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RESUMEN

En este artículo se investiga el primer estadio de la historia de la ortopedia en Noruega, que transcurre desde 1838 a 1880 y que se caracterizó por un peculiar método de reducción de las curvaturas de columna, la llamada terapia de «autocorrección». Se indagan, en particular, las posibles causas de la elevada estima que esta terapia ortopédica recibió en Noruega.

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1. INTRODUCTION

It seems reasonable to divide the Norwegian history of orthopaedics, before the second world war, into three time periods. The first runs from 1838 up to about 1880 and is characterized by a peculiar method for the straightening out of spine curvatures, the so-called therapy of «self-correction». The next runs from 1880 to 1916 and is marked by the introduction in Norway of a new form of treatment, the Swedish physiotherapy. The last time period runs from the beginning of World War I to the beginning of World War II. This phase is distinguished by the development of a much tighter link between orthopaedics and the organized care for cripples, which originated in 1892 as a philanthropic activity geared to the needs for craft training. In this contribution, however, I will limit myself to account for the earliest stage, and in particular indicate some possible causes of the high degree of recognition this orthopaedic therapy received in Norway.

2. THE ORTHOPAEDIST GUNDER NIELSEN KJØLSTAD

The first medical orthopaedist in Norway, Gunder Nielsen Kjølstad, was born in 1794 in Modum, a municipality in the eastern part of Norway. His parents were fairly well off farmers with an educational level some above average. By a small inheritance and the assistance of two parsons he managed in 1820 to pass the preliminary degree and set to study medicine. Seven years later he passed his medical degree. Afterwards Kjølstad held different offices as army surgeon until he in 1836 was appointed medical officer of health for the district of Gudbrandsdalen.

Already during his period of study Gunder Kjølstad began to develop his peculiar orthopaedic therapy. Later in life he stated:

«... as a medical student I got the idea that gymnastics had to be the proper remedy which really had the ability to straighten crooked peoples. It had only to be suited to the particular aim and developed as an exercise in self-correction ...» (1).

The starting incident was that a young girl, a close relation of Kjølstad

(1) *Forhandlinger ved De Skandinaviske Naturforskeres 7. Møte i Christiania 1856* (1857). Christiania, Carl C. Werner & Comp., p. 445; KLÆR, F. C. (1887). *Norges Læger i det Nittende Aarhundrede*, Christiania, Alb. Carmermeyer, p. 609.

who his family had taken daily care of, developed a serious curvature of the spine. Kjølstad tried to teach the girl to correct the curvature herself, by physical exercises. According to his own statement she was completely cured.

Having passed his medical degree Kjølstad only sporadic got the opportunity to develop further the new therapy. It took ten years before he chose to appear in public as orthopaedist. In 1838, however, he used the first months of the year to intensive self-tuition of available orthopaedic literature. The sixth of June he advertised for patients and opened, as the first physician in Norway, an orthopaedic institute located in the small town Lillehammer. The announcement caused quite a sensation and the responses were not altogether positive. Kjølstad was accused of immodesty, foolhardiness, charlatanism, etc. (2).

3. THE ESSENTIAL FEATURES OF THE THERAPY

On the Continent specialized orthopaedic institutes were established in the last decades of the eighteenth century. The institutes focused their attention on the different techniques for the straightening out of spine curvatures. The reason that this disease seemed primarily to strike women, especially teenage girls, was much discussed in orthopaedic and medical circles. The reports from the Norwegian institutes confirm that they were no exception, they mainly received girls and women with spine-diseases, suffering for the most part from scoliosis. The patients distribution on age indicate a gradual shift towards an increasingly marked accumulation of teenagers (3). This may have been due to a common assumption at the time that among the patients suffering from scoliosis, the teenagers had the best prognosis.

In contrast with most foreign institutes where mechanical pressure- and traction-devices were the most dominating elements in the therapy, Kjølstad developed a form of treatment where the patients by particular physical and muscular exercises should straighten out the crooked spine themselves.

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- (2) KJØLSTAD, G. (1849). *Orthopædiske ephemerider*, n.^o 1, Christiania, Carl C. Werner & Comp., p. 29.
- (3) *Ibidem*; TIDEMAND, A. (1876). *Distriktslege Kjølstads Selvretningsorthopædi*, Christiania Chr. Schibsted, p. 46; SALVESEN, J. M. (1855). *Det orthopædiske Institut i Bergen. Norsk Magazin for Lægevidenskapen*, Forhandlingene, pp. 157-172, 301-318.

A total cure consisted of six hours of daily exercise, three hours in the morning and three in the afternoon. The therapy started normally with ten minutes of standing mechanical traction in a device so constructed, according to Kjølstad, that the degree of extension depended on the patients ability to self-correction. Every day two such tractions in a standing position was carried out. The essential element of the therapy, however, was the so-called «foot-walk». It consisted of a very slow walk, where the weight of the body was gradually moved from one foot to the other, while at the same time the patient tried by image to keep the body in a so stretched out position as possible. After ten minutes of walk, the patients were allowed ten minutes of rest on a bed, lying on their back. In addition, during the three hours of exercise two short mechanical tractions in bed rest was undertaken. According to Kjølstad only to aid the method of self-correction.

4. *THE THEORETICAL FOUNDATION OF THE THERAPY*

The orthopaedist Gunder Kjølstad regarded the spine curvature as a bodily collapse caused by the weight of the upper part of the body on the spine. This weight had in his opinion won over the forces which normally kept the body stretched out. The task of the orthopaedist was thus to awake these dozing forces. The right method for this was the therapy of self-correction, also called the therapy of mental gymnastics. Using this method implied, according to Kjølstad, that «... the Mind and Matter flows together in the self's Consciousness to One and Unity ...» (4).

By this peculiar spiritual-physical method the forces which had the ability to straighten out the crooked spine should be activated. The orthopaedics of self-correction was a method where the physician urged the patient to straighten himself out as much as possible, and to keep himself in this extended position. Several sources have stressed Kjølstad's own ability in this field, figuratively speaking he has been described as being able to «electrify» his patients during the exercises (5).

According to Kjølstad, however, the strength of will was not in itself sufficient to straighten out the patients. A suitable method was necessary,

(4) KJØLSTAD (1849), *op. cit.* (n. 2), p. 6.

(5) LAACHE, S. (1911). *Norsk Medicin i Hundrede Aar*, Christiania, Steenske Bogtrykkeri, p. 133.

the so-called «pointuation». This essential method consisted of imagining different points, especially the vertex-point, the heel-point and the toe-points. During the physical exercises the patient had to strive to assume a position where an imaginary vertical line drawn through the vertex-point and the navel touched the so-called bow-point between the heel-point and the toe-points.

Gunder Kjølstad tried to make his theories and method more scientific with some peculiar mathematical and geometric arguments. For instance he insisted on the significance of the so-called «geometric element» as a sixth human sense, positioned in the navel, and the «ideal principle» comprehended as a line drawn from the zenith of heaven through the human axis to the centre of the earth, and the importance of the individual human being's specific weight in its relation to the centripetal force, as the «instinct of self-preservation» (6). In this manner Kjølstad's own theoretical interpretation of his therapy indicate a clear bent towards nature-philosophical reflections.

5. THE SPREAD OF THE THERAPY

Kjølstad's activity got offshoots in Christiania and Bergen. The following institutes, all practising Kjølstad's method of self-correction, were in operation in shorter or longer periods from 1838 towards the turn of the century (7).

| Period: | Number of institutes: | Directed by: |
|-----------|-----------------------|---|
| 1838-1847 | 1 | Dr. Kjølstad |
| 1847-1850 | 3 | Dr. Kjølstad, Dr. Tidemand, Dr. Salvesen |
| 1850-1855 | 2 | Dr. Kjølstad, Dr. Salvesen |
| 1855-1860 | 1 | Dr. Kjølstad |
| 1860-1862 | 1 | Dr. Tidemand (Miss Dina Brown*) |
| 1863-1865 | 0 | |
| 1866-1869 | 1 | Dr. Tidemand |
| 1869-1883 | 2 | Dr. Tidemand, teacher Stokstad |
| 1883-1897 | 3 | Teacher Stokstad, examinee Kjølstad, Miss Tidemand and Miss Gundersen |

(*) Miss Brown did not have her own institute. She was a former assistant of Salvesen who practised in Bergen in the 60s.

(6) KJØLSTAD (1849), *op. cit.* (n. 2), pp. 1-25.

(7) *Tidsskrift for praktisk medicin* (1888), pp. 345-350.

The orthopaedics of self-correction had its flourishing period in the years between 1847 and 1850, with three institutes in operation, all directed by fully qualified physicians. Both Dr. Salvesen and Dr. Tidemand had learned the method as assistants of Kjølstad at his institute, Dr. Salvesen had also undergone a treatment for his crooked spine by him. Five years later only Kjølstad's institute was still in operation. After his death in 1860 the orthopaedic enterprise was tried continued by Dr. August Tidemand, until also this institute was closed in the fall of 1862. Three years later Tidemand resumed his orthopaedic work and was able to keep it up until his death in 1883, the first six years by means of public grants. In 1869 a new institute was established in Bergen, by the teacher Cristian Stockstad, an earlier patient of Kjølstad and assistant of Tidemand. After the death of Tidemand the therapy of self-correction was maintained for some years, but now entirely by orthopaedics without formal medical education. Stockstad continued his enterprise in Bergen, assisted by some of the physicians in the town, Dr. Tidemand's institute was maintained by his two assistants, one of them his daughter. At the same time the examinee Thorvald Kjølstad, the oldest son of the founder of the method, opened an orthopaedic institute in the capital. During the 70s and especially after 1880, however, other forms of treatments, notably the various forms of physiotherapy, became the fashion (8).

6. *THE VALUATION OF THE METHOD OF SELF-CORRECTION: FROM SCEPTICISM TO APPROVAL*

The success of new medical therapies is usually contingent on the social valuation of them. As the following account indicate the approval of the therapy of Kjølstad was in particular dependent on the assessments of the medical profession, the state and the public.

6.1. *The evaluations of the medical profession*

The first three years of his orthopaedics the attitudes towards Kjølstad's

(8) *Tidsskrift for Den Norske Lægeforening* (1897), p. 41 and (1903), pp. 743-744; PIENE, R. D. (1979). *Mellom beskjeftigelse og profesjon. Utvikling av sykegymnastyrket fram til offentlig autorisasjon*, Universitetet i Tromsø, pp. 44-47.

enterprise was negative, both with the public and with the medical profession. One reason for the professional scepticism might have been due to the method's distinctive new and original features. Several conditions indicate, however, that this was not a very determining factor. The reason that Kjølstad in the beginning of his orthopaedic career was met with suspicion seems to be that he violated a standard for medical work which at that time was active in the medical profession, at least in the leading medical milieus. The fact is that Kjølstad instructed his patients not to express themselves about the cure and its effect, and kept secret his own experiences. This practice seems to have violated some ideals about frankness and the importance attached to a systematic valuation of the effects of new therapies. The activity of Kjølstad was discussed in the medical association in the capital in 1841 and more information about his method and its effects was expressed to be required. In July this year the editor of the *Weekly review of medicin and pharmacy* called attention to Kjølstad's enterprise and characterized his practice as «decidedly unworthy» a medical practitioner. The editor indicated that the public medical authorities ought to take an initiative to get hold of the long wanted information (9).

Kjølstad's own justification for his concealment was evasive and peculiar. All the same he stated: «... no deadly power will force me to speak where I can and ought to keep silent ...» (10). The reason for the whole episode seem to have been that Kjølstad was still uncertain as to the effects of the cure and wanted to keep the results secret until he with greater confidence could argue for its suitability. Gradually, however, Kjølstad must have felt the pressure put on him by his profession. A short time after the criticism of his practice by the editor he declared in a capital newspapers that he exempted his patients from their promise of secrecy.

There are indications that the professional attitudes towards Kjølstad's therapy at that time was changing. One physician stated in the *review*, with regard to the cure: «the effects seems, all considered, to be positive ... many patients shall have become considerably better and some even fully cured ...» (11). Another physician accounted for «brilliant effects» with regard to isolated cases (12). Having given up to keep secret his experiences, in the

(9) *Ugeskrift for Medicin og Pharmacie* (1842), n.º 28, p. 256.

(10) KJØLSTAD, G., quoted in: *Ugeskrift for Medicin og Pharmacie* (1842), n.º 28, p. 256.

(11) *Ugeskrift for Medicin og Pharmacie* (1842), n.º 29, p. 380.

(12) *Ugeskrift for Medicin og Pharmacie* (1842), n.º 50, p. 405.

decade from 1842 Kjølstad took a lot of initiatives to get the therapy approved by the medical profession. In the fall of 1842 he got two colleagues to evaluate the therapy. The physicians oversaw the cure for half a year, and stated subsequently in the newspapers that one third of 34 cases had been completely straightened and that all the patients, with one possible exception, had improved their large and often very old curvatures (13). In 1844 Kjølstad held a lecture about his orthopaedic method at the «Fifth meeting of the Scandinavian nature-scientists». On this occasion, however, he did not succeed. The lecture was characterized as «fumbling with philosophical and mathematical phrases ...» (14).

This experience seems only to have led Kjølstad to intensify his campaign for the therapy of self-correction. In the following years he at several occasions tried to demonstrate to the medical association in the capital, with the use of plaster casts, the effects of his cure. He also got in touch with the medical association to have a committee of physicians appointed to evaluate the therapy. The deliberate intention was to attain a statement from the committee to be used at the sixth meeting of the Scandinavian nature-scientists in 1847, where he once more tried to give an account of his therapy. On this meeting Kjølstad distributed the committee's statement, which was positive but not very concrete regarding the effects of the cure. Two of the physicians of the committee gave an additional statement, declaring that they had witnessed the straightening out of severe cases of curvatures, in a degree they had not thought was possible (15). It was probably more important, however, with regard to the recognition of Kjølstad, that it was some of the most distinguished physicians in Norway that made these statements. At the meeting Kjølstad also distributed declarations from the other medical orthopaedists in Norway, Dr. Tidemand and Dr. Salvesen, which stated that the therapy was superior to other orthopaedic techniques. In addition he demonstrated the effects of the cure with the help of plaster casts. According to Kjølstad's own statement his lecture and exhibitions at the meeting was highly accepted and he at last obtained the recognition he had long hoped for (16).

In the next years Kjølstad was able to contribute to some more positive

(13) KJØLSTAD (1849), *op. cit.* (n. 2), p. 49.

(14) LAACHE (1911), *op. cit.* (n. 5), p. 132.

(15) KJØLSTAD (1849), *op. cit.* (n. 2), p. 59.

(16) *Ibidem*, p. 53.

statements about his therapy and in 1849 he published a book about his orthopaedic method and theory, with all the advantageous statements from other physicians included. He also got in touch with the medical association in the capital to see that it continued its evaluation of the therapy. The committee's final statement was made in 1852. It declared that the patients had been extended about one inch lying down and a little more than one and a half inch in a standing position. Regarding the effect of the therapy on the patients general health the committee stated that it seemed to be very advantageous (17).

When Gunder Kjølstad opened his orthopaedic institute in 1838 he was met in the surroundings by scepticism and suspicion. Gradually the attitudes changed and his method achieved considerable fame as a well suited therapy for the treatment of «crooked». Many of his colleagues and some of the most credited physicians in Norway also declared themselves in favour of the method. The professional attitudes towards Kjølstad's therapy seem to have altered chronologically in the following manner:

| Period: | Attitude: |
|-----------|--------------------------------|
| 1838-1842 | Scepticism, rejection |
| 1843-1846 | Some acceptance |
| 1847-1851 | Approval |
| 1852-1860 | Regarded as a superior therapy |

After the death of Kjølstad in 1860 August Tidemand was regarded as the most competent orthopaedist in Norway. Otto Lund, the chairman of the medical association in the capital, spoke of Tidemand as «... the person that with us is the greatest authority in this matter ...» (18). The orthopaedic activity of Tidemand was discussed several times at the meetings of the medical association during the 60s. It is evident from the reports that his orthopaedics was generally approved. On one occasion, however, the physician Joachim A. Voss drew attention to the fact that the acknowledged Danish orthopaedist A. G. Drachman had declared that the therapy of self-correction was a figment. Drachman had stated in a Danish medical journal:

(17) *Norsk Magazin for Lægevidenskapen*, Forhandlingene (1852), p. 265.

(18) LUND, O. quoted in: *Norsk Magazin for Lægevidenskapen*, Forhandlingene (1867), p. 176.

«If a person suffering from scoliosis is asked to straighten out his body at the outmost, it is immediately observed that the deformity appears even more clearly ... any self-correction, solely by the muscular force of the patient, without the use of an external mechanical devices or other remedies, is impossible ...» (19).

This piece of information gave rise to a discussion at the meeting. Joachim Voss encouraged Tidemand in a scientific manner to show that Drachmann was mistaken. This request was complied by Tidemand about a year later, at a meeting in October 1962. In order that the members could be satisfied as to the effects of the method, he presented a patient that had been cured by Kjølstad. The teacher Christian Stokstad, who run an orthopaedic institute in Bergen, practising the method of Kjølstad, was invited by Tidemand to attend the meeting, and participated in the demonstration of the therapy. Tidemand claimed that Drachman had misunderstood the method of self-correction, and stated:

«In the same way as the attempt of self-straightening implemented by Drachman mainly activates the muscles on the back, it is in the method of the self-correction developed by Kjølstad mainly the muscles of the abdomen that are activated ...» (20).

If any of the members of the medical association was in doubt as to the effect of the therapy, the account of Tidemand seems to have convinced them. Joachim Voss claimed that this evidence had to be regarded as entirely valid, as «... everyone has to believe his own eyes ...» (21).

During the meeting of the Scandinavian nature-scientists in Christiania in 1868, Drachman took the opportunity to visit the institute of Tidemand to get an insight into the practical application of the therapy. According to the orthopaedist Christian Stokstad the outcome of the visit was that Drachman for the future became an advocate of the method (22).

During the latter half of the 1860s Tidemand on several occasions gave

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- (19) DRACHMANN, A. G. quoted in: *Norsk Magazin for Lægevidenskapen*, Forhandlingene (1863), pp. 51-52.
- (20) TIDEMAND, A. quoted in: *Norsk Magazin for Lægevidenskapen*, Forhandlingene (1863), p. 54.
- (21) VOSS, J. quoted in: *Norsk Magazin for Lægevidenskapen*, Forhandlingene (1863), p. 99.
- (22) STOCKSTAD, C. (1912). Doctor Kjølstads selvretningsmetode. *Tidsskrift for Den Norske Lægeforening*, p. 172.

an account of his orthopaedic activity at the meetings of the medical association. He often took the advantage to give theoretical interpretations of the method of self-correction. It has been claimed that the peculiar philosophical reflections of Kjølstad to some extent impaired his reputation as medical orthopaedist. The *Illustrated Magazine* stated in the obituary of Kjølstad in 1860:

«As easy as the patients in a practical manner could acquire the therapy of Kjølstad, almost as difficult it is to form a clear conception of his written accounts. This has to a considerable extent interfered with the recognition of his orthopaedics and his competence ...» (23).

By contrast, the descriptions of Tidemand, with regard to how it was possible that the thought could be used as a remedy for self-correction, was well received by the medical association. The director of the Gaustad lunatic asylum in the capital stated at a meeting in 1869 that the account of Tidemand ought to be printed in the *Scandinavian medical journal*, as it gave «... a clear and intelligible explanation of the method of self-correction ...» (24). This idea was accomplished. The professor Ernst Lochman declared on a meeting the next year that the cure of Tidemand was «rational» and that the photographs presented by him «... has given the best proof of the excellence of the method ...» (25).

These assertions indicate that the orthopaedics of self-correction maintained its approval by the medical milieu in Norway in the 1860s and the first half of the 70s, at least. As will be shown in the forthcoming discussion the efforts of the medical association to attain public grants to the orthopaedic undertaking of Tidemand, is an additional indication of this approval.

6.2. *The assessments of the Norwegian government*

Opening his orthopaedic institute in 1838, Gunder Kjølstad applied the Norwegian government for 1.200 N kr. as an advance of his salary as a medical officer of health. The request was recommended by the county. At

(23) *Illustreret Nyhedsblad* (1860), n.º 7, p. 31.

(24) *Norsk Magazin for Lægevidenskapen*, Forhandlingene (1869), p. 101.

(25) LOCHMAN, E. quoted in: *Norsk Magazin for Lægevidenskapen*, Forhandlingene (1870), p. 108.

that time, however, the orthopaedics of Kjølstad had not been approved by the medical profession. The government refused the request on recommendation of the medical faculty.

In 1845 Kjølstad repeated his request. The government submitted the request to the department of internal affairs, who refused it, presumably on recommendation of the medical office.

In 1848 the financial problems of Kjølstad were so heavy that he considered to close down the institute. Thus he once more repeated his application to the government. This time, however, he could refer to the favourable statements by several acknowledged physicians in Norway. The parliamentary committee handling the request lay emphasis on these statements. It declared: «... it is entirely established and currently acknowledged that the therapy of Kjølstad has obtained great attention and recognition ...» (26).

Kjølstad, however, still had difficulties to pay his expenses. In his opinion the government did to little to support his enterprise. His request of a new grant in 1851 was refused. Two years later, however, Kjølstad was assigned full salary as medical officer of health, even though he had retired from this office in 1844, as he moved the institute from Lillehammer to the capital. The parliamentary committee responsible for the handling of salaries and pensions stated that the assignment was awarded in appreciation of the orthopaedic enterprise of Kjølstad and to ensure that he in future could devote his full attention to this undertaking (27).

As mentioned, no orthopaedic institutes were in operation in Norway from the fall of 1862 until november 1866. At a meeting of the medical association in october 1862 the question of what could be done to support the orthopaedics of self-correction came up for discussion. The physician Christian Kierulf stated that experience had shown that non of the orthopaedic institutes was able to keep up the activity without financial support. He called attention to that fact that both the orthopaedic institute and the institute of physiotherapy in Sweden received grants from public funds. The professor Andreas Christian Conradi pointed out that in this matter it was essential to take advantage of the authority of the medical association. On recommendation of the chairman Otto Lund, a committee consisting of Christian Kierulf, the surgeon Wilhelm Boeck and August Tidemand was

(26) *Stortingsforhandlingene* (1848), D 6, p. 923.

(27) *Stortingsforhandlingene* (1854), Indstillinger, Første del, p. 40.

appointed to outline a request of public grant. On a meeting in november the current year it was decided on a unanimous vote to put forward a request to the department of internal affairs. In the request the superior qualities of the orthopaedics of self-correction was emphasized, along with the significance to retain the therapy of Kjølstad for «country and science».

The department declared in its recommendation that it assumed that it was desirable to establish a new orthopaedic institute to retain the invention of Kjølstad for medicine. By contrast with the grants to Kjølstad, however, the department now took measures to regulate the orthopaedic undertaking, to some extent. Advance was made that physicians who wanted to learn the method of self-correction should be given instruction free of charge at the institute. The fee of the patients was fixed by negotiations between the department and Tidemand, who in addition had to bind himself to establish one place for patients without means at the institute (28). The Parliament consented the recommendation of the department to comply with the request. It set up the claim, however, that it was guaranteed that a competent person was willing to learn the orthopaedic method.

As mentioned, Tidemand opened his new orthopaedic institute in the fall of 1862. The physician Tycho D. Lange, who run an institute of physiotherapy in the capital, agreed to attend the cure at the institute of Tidemand. His training was interrupted, however, as he become preoccupied with his own enterprise.

At a meeting of the medical association in 1868 it was decided to put forward a new request for public grant. In the statement the favourable qualities of the method of self-correction was again emphasized, as the significance to retain the therapy. The department in its recommendation referred to the main objective of the earlier grant, that younger physicians was taught the orthopaedics of self-correction. The department remarked that this had not proved a success, but stressed the fact that a medical student was now being instructed the method. It recommended that the institute of Tidemand was granted half the amount of the earlier financial support and the Parliament consented.

Having granted the institute at two occasions, the Norwegian government refused to support it financially, any further. The market for orthopaedic

(28) *Norsk Magazin for Lægevidenskapen*, Forhandlingene (1866), pp. 520-521, 941-942.

and physiotherapy expanded in Norway during the 1870s, however, and Tidemand was able to maintain the institute until his death in 1883. Unfortunately, the medical student also had his instruction at the institute interrupted, and it did not prove a success to have other physicians taught the therapy of self-correction.

These public grants to Kjølstad and Tidemand must be assessed in relation to the general engagement of the state in the health service in the previous century. This engagement was limited. The new Norwegian state of 1814 took some steps to secure the population a minimum of access to health services. The most important measures were the supervising and partial financing of the local infirmaries and hospitals, the founding of new state asylums, the regulation of the retail pharmacies, the financing of the education of locally employed midwives, and above all the gradual expanding of the system of state employed medical officers of health.

The state also took measures to advance and expand the knowledge of formal medicine in Norway. The new Norwegian University in Christiania was founded in 1811, the teaching in medicine started in the autumn of 1814 with three students. Both the medical faculty and the university hospital were gradually consolidated and extended during the century.

What distinguished the health policy of the state in this time period, however, was above all the many different law reforms, decrees and regulations aimed to prevent and fight the threatening epidemics of leprosy, plague, smallpox, typhoid fever, dysentery and, in particular, the cholera. It has been claimed that the epidemics of cholera were an important motive force of both the organization of the physicians in Norway, the professional development within medicine and of the transition to a modern public health policy (29). In the first half of the century the steps taken were mainly situational measures of isolation, quarantine and the establishment of sporadic health commissions. In the latter half, however, a development was gradually brought about towards a more active, permanent and locally anchored public policy of sanitation and hygiene.

This review indicates that the most surprising feature of the public grants to Kjølstad and Tidemand in the previous century is the fact that the state chose to engaged itself in this field at all. This kind of public financial

(29) LARSEN, Ø.; BERG, O.; HODNE, F. (1986). *Legene og samfunnet*, Universitetet i Oslo, Seksjon for medisinsk historie, pp. 101-102.

support of private medical practices, external to the instructed responsibility of the state medical officers of health, was quite uncommon. To the extent that the state engaged itself to the advance of the stock of medical knowledge and therapies, this was principally limited to the probing of formal medicine at the university. In this light, how can the public grants to the private orthopaedic enterprise be explained?

The requests of Kjølstad for public grants were refused as long as the medical profession did not acknowledge his enterprise. The requests were complied when Kjølstad could refer to favourable statements of recognised physicians in Norway. The indications are strong that the approval of the medical profession was a premise to gain favour by the state. It seems reasonable to assume, however, that this approval normally would not have been sufficient. An additional circumstance is uncovered, however, if light is thrown on the question of how the medical expertise was tied to the central bureaucracy of the state in this time period.

In this respect, the time period as a whole was marked by frequent and for the most part unsuccessful attempts by the medical profession to secure a stronger element of medical expertise in the departmental structure of the state, otherwise heavily dominated by jurists. The physicians tried at several occasions to get a top medical collegium founded within the central health administration. The attempts failed, however, due to opposition in the department or in the Parliament. The central bureaucracy ensured itself the accessibility of medical expertise by the following arrangements (30):

1816-1845: The medical faculty at the university was imposed an advisory capacity vis-a-vis the central health administration, in addition a pharmacist functioned in the position as assistant secretary of the health office in the department until 1842.

1846-1849: The department was authorized to appoint an expert as «confidential principal» — appointed at first was Carl Wilhelm Boeck, university lecturer in medicine, as he resigned in 1847 Andreas Christian Conradi, professor of medicine, was appointed.

(30) SVALESTUEN, A. A. (1988). Medisinalvesenets Sentraladministrasjon 1809-1940. *Norsk Arkivforum*, n^o. 8, pp. 1-34.

- 1850-1857: The arrangement of «confidential principal» was extended to an advisory committee with some room for independent initiatives — professor Conradi was appointed chairman of the committee, appointed as additional members were Frans Christian Faye, professor of medicine and Henrich Steffens, chief physician.
- 1858-1874: An office of deputy secretary with medical knowledge was founded in the department of internal affairs, as head of the health service — appointed was the physician Christian Kierulf, the former secretary of the advisory committee.

In this context it is not the gradual strengthening of the medical professional element in the central state bureaucracy that is the most interesting feature, but the fact it is possible to relate all the physicians that was appointed to these offices to statements or initiatives in favour of Kjølstad or Tidemand. The professor Carl Wilhelm Boeck participated in the committee appointed by the medical association to evaluate the therapy of Kjølstad, and with the physician Otto Lund he gave a very advantageous supplementary statement of its qualities at the meeting of the Scandinavian nature-scientists in 1847 (31). The chief physician Heinrich Steffens assisted Kjølstad at the meeting so that he was able to show a big case of plaster casts to illustrate the effects of the cure (32). The professor Frans Christian Faye also involved himself in favour of Kjølstad at this meeting. He personally requested the acknowledged Danish orthopaedist Johann Christian A. Bock to carry out experiments to document the value of the therapy of Kjølstad (33). Professor Conradi was among those physicians expressing themselves most in favour of the orthopaedics of Tidemand in the 60s. As mentioned it was Conradi who suggested to use the authority of the medical association to obtain public grants to the enterprise of Tidemand (34). The physician Christian Kierulf also involved himself in this initiative. Kierulf had himself a strong professional interest in orthopaedics. In 1852 he published a paper on the causes and treatment of the spine curvatures. As will be

(31) KJØLSTAD (1849), *op. cit.* (n. 2), p. 59.

(32) *Ibidem*, pp. 52-53.

(33) FAYE, F. C. quoted in: *Forhandlinger ved De Skandinaviske Naturforskere 5. Møte i 1847* (1849). København, Gyldendalske Boghandling, p. 917.

(34) CONRADI, A. C. quoted in: *Norsk Magazin for Lægevidenskapen*, Forhandlingene. (1863), p. 101.

elaborated later he in this work pictured the orthopaedics of Kjølstad as a superior therapy (35).

It follows that the state's financial support of the orthopaedics of self-correction both was related to the fact that this therapy obtained the approval of the central medical milieu in Norway and to the circumstance that leading members of this milieu, all positive in their attitude to the therapy, occupied the positions as medical experts of the central bureaucracy in this time period. It seems likely that the attitudes and involvements of these professionals with regard to the orthopaedic enterprises of Kjølstad and Tidemand in a large measure were conducive to the recommendation of the department to meet the requests for public grants.

6.3. *The appreciations of the clients and the public*

How did the clients view the therapy? Regrettable, there is less information left to throw light on this issue. It has been claimed, however, that the therapy of self-correction got a reputation among people as a suitable therapy for the treatment of «crooked» (36). The approval of the cure must be assessed in relation to the variant therapies available to the patients at the time. It seems reasonable to assume that the protracted mechanical pressure and extension-therapy usually must have involved long and heavy sufferings. It was claimed that the cure in many instances was injurious to health. As distinct from this cure, the therapy of self-correction entailed that the patients were allowed to move about and they were instructed to do physical exercises that probably had a favourable effect on their general health.

The orthopaedics of Kjølstad, however, was no bed of roses. The therapy required great patience and tenacity of the patients. Both Kjølstad and his colleagues complained as to how difficult it was to sway the patients to be sufficiently persistent during the therapy. Rumours spread on how tough the cure was and how strict the teacher could be. In 1856 Kjølstad found himself obliged to make a public pronouncement stating that he intended

(35) KIERULF, C. T. (1853). En kritisk Fremstilling af de forskjellige Meninger om Rygradskrumningens Aarsager og Behandling. *Norsk Magazin for Lægevidenskaben*, Forhandlingene, p. 87.

(36) *Illustreret Nyhedsblad* (1857), n.º 30, p. 152; (1860), n.º 7, p. 30.

to found an association of elderly ladies to supervise the institute. The statement was concluded by the names of 26 venerable ladies of the bourgeois, all engaged in social work (37). This may indicate that the method of self-correction never became as popular with the public as with the medical profession. The fatigous and strenuous features of the therapy may have been a reason of the seemingly decreasing popularity of the cure in the 1870s, as other more pleasurable forms of physiotherapy came into fashion.

The general impression is still that the therapy of self-correction during the two decades from about 1840 obtained a recognition in Norway as a well suited and even superior method for the curing of crooked spines. In what follows I will emphasize some circumstances which may have contributed to this approval. No attempt will be made to weigh the relative significance of the different conditions revealed, or to trace the relations between them. This would have required a more theoretical informed analysis, which is not the aim in this round.

7. *PREVAILING IDEOLOGICAL TRENDS*

There is an enchanting affinity between the teaching and theory of Kjølstad and the prevailing ideological trends in Norway in the period from 1840 to 1870. In this time period pietism attained hegemony in religious life and liberalism became the prevalent economic doctrine. Pietism emphasized the significance of asceticism as a way to purification and salvation. Analogous, Kjølstad regarded comfort, indifference and frivolity to be vices of grave danger to his therapy. He stated:

«As in Divine, Religious and Moral life indifferentism is the most cunning and dangerous Enemy, as well as here in the orthopaedic life ...» (38).

The ideology of liberalism stressed the necessity to distinguish between the worthy and the unworthy in the society and to restrict the public commitment. Only the worthy ought to have certain rights of public support and the relief ought preferably to be given as a way to help people to help themselves. The theoretical basis of the method of self-correction highlighted

(37) *Byminner* (1982), nr. 1, p. 6.

(38) KJØLSTAD (1849), *op. cit.* (n. 2), p. 9.

the significance of the patients own effort and persistence and seems to have been well adjusted to the prevailing liberal ideas. Tidemand stated:

«Self-help is the claim of our time. In the same manner, however, as the lack of will to help oneself, if this is possible, make the person unworthy of the support of others, upright aspire to relieve one's own distress by work and diligence, constitute the essential conditions for progress in the relevant cause. To bring this principle to bear within a branch of the practical oriented medicine, this was the idea of our compatriot, the deceased medical officer of health, Gunder Kjølstad ...» (39).

It seems reasonable to assume that some of the theoretical reflections of Kjølstad and Tidemand, well adjusted to the prevailing ideological trends, must have had a legitimating effect with regard to their orthopaedic activity. It remains to be examined, however, if this accommodation is maintained as to the professional development in the same period.

8. A METAPHYSICAL THEORY IN A METAPHYSICAL MILIEU

Gunder Kjølstad's philosophical and partly religious reflections was not accepted without restraint by the medical profession. His lecture at the meeting of nature-scientists in 1844 was not received with enthusiasm, as mentioned, because of his tendency to philosophical and mathematical expressions. The general impression is still that the nature-philosophical theories of Kjølstad to some extent was fully accepted by his colleagues, otherwise considered as a necessary element of his method. The chief physician Otto Lund, later chairman of the medical association in the capital, stated in 1842 that Kjølstad's therapy seemed to be «... based on a more accurate understanding about the principles for the treatment of spine curvatures ...» (40). The corps physician Thorvald Wetlesen stated at about the same time that the method «... seems to be based on a comprehension of the actual character of the crooked spine ...» (41).

A medical prize paper on the different opinions of the causes and

(39) TIDEMAND (1876), *op. cit.* (n. 3), p. 1.

(40) LUND, O. quoted in: *Ugeskrift for Medicin og Pharmacie* (1842), n.^o 50.

(41) Wetlesen, T. quoted in: KJØLSTAD (1849), *op. cit.* (n. 2), p. 49.

treatment of the spine curvature was published in Norway in 1852 by the physician Christian Thorvald Kierulf. It is likely that the account was based to some extent on the experiences of Kierulf as army surgeon in the war between Denmark and Germany in 1848 and as surgeon at the field hospital in Augustenborg during the armistice. In his description Kierulf represented the orthopaedic method of Kjølstad as a superior therapy. Regarding Kjølstad's philosophical and religious reflections Kierulf stated:

«It seems to me that a lot of this has to be a part of his method and not without harm can be separated from it ... all this mystical speech that he intensely impresses his pupils, make their whole spirit oriented on him and as a result they keep their minds on the teachings, remember the purpose and never forget the self-straightening ...» (42).

Kierulf obviously did not regard Kjølstad's reflections as entirely scientific valid, but considered them all the same as an essential therapeutic measure, and as a well suited method to evoke the spiritual force of the patient.

The essential ideas of Kjølstad, on which he based his orthopaedic method, the conception of an intimate link between the mind and the body and the idea of the significance to activate the spiritual-physical force of the patient, seem for the most part to have been accepted by the medical profession in Norway, and by many acknowledged physicians considered as the one right principle for the cure of the spine curvature.

This approval is easier to understand if it is realized that although medicine at the middle of the previous century had taken a step towards an empirical based science, many of the traditional metaphysical and nature-philosophical reflections survived and continued to constitute the base of many therapies. The new scientific orientation did not give fast profits in the form of new and more efficient therapies. The modern, empirical based medicine was for a long time characterized by biological basic scientific research within the fields of anatomy, physiology and pathology, while most of the medical cure was still based on the classical, holistic teachings of the Middle Ages, regarding illness as a result of an interruption of the liquid balance of the human body. There are some enchanting similarities between this teaching and Kjølstad's own reflections of the spine curvature, regarding it as a result of an uneven division of the bending and straightening

(42) KIERULF (1853), *op. cit.* (n. 35), p. 91.

forces in the human body, emphasizing the significance of the unity of mind and body in the therapy. One reason that his theory and method did not meet with more resistance may be related to the fact that it matched nicely to some fundamental, though maybe receding, perspectives on health, illness and treatment.

In the Norwegian medical milieu many of the traditional conceptions was still viable, among them the common assumption of *constitutio epidemica* — the idea that unknown atmospheric forces had great influence on the spreading of epidemic diseases —, or the presumption that it was possible to transfer illness from human beings to animals, not to mention the faith of many recognized physicians in a lot of different healing remedies like rings and ointments against arthritis (43). This indicates that the distinction between formal medicin and the quackery was not very sharp in the middle of the nineteenth century. Against this background it is easier to comprehend why the theoretical reflections of Kjølstad did not give rise to eager objections.

For a medical milieu that still had strong links to nature-philosophical conceptions it was not hard to accept a new therapy based on similar reflections.

9. THE NEW IMPORTANCE ATTACHED TO PHYSICAL EDUCATION

During the nineteenth century people's attitudes towards the body and the importance they attached to the health of the body experienced a marked change. As a result of the interaction of a number of social forces the society's prejudice viewing the body with a lot of contempt and suspicion, was shaken. The alteration of these attitudes has been seen in relation to such various circumstances as the new doctrine of man and nature propounded by Spencer and Darwin, the diffusion and popularization of the new insight into the medical fields of pathology and physiology, the new inquires into the living conditions and physical sufferings of the working classes and, in some countries, the particular interest of the state to have military recruits of strong physique (44).

(43) GRØN, F. (1933). *Det norske medicinske selskap 1833-1933*, Oslo, Steenske Bogtrykkeri Johannes Bjørnstad A/S, pp. 60-92.

(44) CRUNDEN, C. (1981). The concept of the body. In: MCNAIR, D.; PARRY, N. A., *Readings in the History of Physical Education*, Hamburg, Verlag Ingrid Czwalina.

Simultaneously to these changes in the conceptions of health and body, a new attitude toward the importance of physical education developed. A clear indication of this alteration is the introduction of gymnastics in the schools. In Norway, during the entire century, the teachers of physical training was recruited almost exclusively from the non-commissioned officers of the military. As early as 1805 the corps of chasseurs sent an officer to the military institute of gymnastics in Copenhagen. Not until the 1850s, however, was physical training introduced at the primary schools in the towns, twenty to thirty years later at the schools in the country. At the colleges of education gymnastics were introduced during the 1860s. Here too, the teachers were officers of the military. In 1861 the «Central association for the spreading of physical exercises and the use of arms» was founded. This organization took a leading role in the promotion of physical education in Norway, both at schools and in other institutions. In 1870 the «Central Public School of Gymnastics» for the education of teachers of physical training was founded in the capital.

Kjølstad introduced his variant of physiotherapy in a time period distinguished by a radical alteration of the popular attitudes towards the body and the health of the body. Throughout the century the importance of physical training and athletics for health reasons was paid attention to an increasing extent. It seems likely that this development offered favourable conditions for medical therapies emphasizing the significance of movements for the prevention and cure of diseases and deformities.

In respect of women's participation in sport and physical training, objections was raised in Norway as in other countries that this would be injurious to health or that it was the antithesis of womanhood. The Norwegian orthopaedists claimed, however, that the method of self-correction showed unique qualities even in this field. Dr. Salvesen, the former student and assistant of Kjølstad, stated:

«The objection have been raised to gymnastics that it is improper for young girls, unwomanly and destructive to the female ideal in beauty. This objection, however, does not at all apply to the gymnastic method invented by Kjølstad. This method ought, in my opinion, to be introduced in every school for girls ...» (45).

(45) SALVESEN (1855), *op. cit.* (n. 3), p. 317.

It seems likely that the new attention payed to physical education contributed to the approval obtained by Kjølstad. With regard to the military physical training, however, it is possible to establish a more specific relation to his therapy.

In his period of study Gunder Kjølstad was appointed squadron surgeon at the corps in the district of Telemark. This office he hold for one and a half year posted in Kristiansand, participating also in the camp of Swedish and Norwegian troops in Skåne in 1824. In 1828 he was appointed corps physician at the musketeer corps of the district of Hedemark, until he in 1836 was appointed medical officer of health for the southern district of Gudbrandsdalen.

Kjølstad had, as many of his colleagues, a military career before he settled for a civilian office. It is most likely that he was influenced by the military physical education when he began to develop his orthopaedic method, in particular by the military keep-fit exercises. This gymnastics had a long tradition and, according to an instruction book from 1872 the intention was «... to develop and strengthen the Soldiers limbs and increase his control over them ...» (46). There are some alluring similarities between the therapy of self-correction and some of the reflections the military gymnastics was based on, as indicated by the following quotation from the instruction book:

«... by the contraction of it the muscle is exerted, and by repetition of this exercise experience is gained, the muscle is strengthened and it is brought under the control of will ...» (47).

Within the method of Kjølstad it was the foot-walk, the most essential part of the therapy, that most clearly indicated the connection to the physical drill of the military. The foot-walk was arranged as an organized form of exercise where the patients were divided into two rows and moved themselves under the orders of the therapist. As the orthopaedist sounded the number «one» both rows of patients raised their heels as high as possible and stood tiptoe until the number «two» was sounded. Now the patients moved their right foot forward and down at heel. As the number «one» once more was sounded the patients again had to raise their heels

(46) *Instruktion i Gymnastik og Bajonettefegning for Infanteriet* (1872), Christiania, p. 1.

(47) *Ibidem*, p. 5.

and stand tiptoe until they now moved their left foot forward and down at heel as the number «two» was sounded, and so on (48).

Military background was not, however, something that distinguished the career of Kjølstad. In the first half of the nineteenth century most of the medical practitioners in Norway were employed by the military for a shorter or longer part of their professional career. In the 1830s about one third of the physicians had military appointments (49). There is reason to believe that this common experience with the military physical education constituted an additional factor contributing to the approval of Kjølstad.

10. *THE MUSCULAR THEORY*

In the last decades of the eighteenth century specialized orthopaedic institutes were established in several of the continental cities. In the first phase of this development of orthopaedics as a distinct therapeutic field, the assumption was that accidents like falls and blows or, more common, poor deportment when walking or sitting, were the principal causes of the spine curvatures. Postural faults, one assumed, could entail that some groups of muscles contracted, with a wryness of the spine as the inevitable result. Stretch-bandages, pressure-corsets, life- and breast-belts were correspondingly considered to be suitable correcting remedies.

A reaction to this assumption developed within the next decade. In some orthopaedic milieus the presumption gained confidence that it was diseases in the bones and the softness of the bones that caused the crooked spines. According to this theory the use of stretch-bandages and life belts could affect the bone structure and give rise to wryness. As a result the therapy increasingly took the form of treatment by long lasting horizontal bed rest, usually combined with pressure and extension of the body. Gradually this became the dominant cure at most orthopaedic institutes, a therapy often utilized for several years and as the only remedy to straighten out the spine. The constant use of the bed rest, however, had a very bad influence on the patients general health. The orthopaedists tried to remedy these defects by different therapeutical adaptations like the supine position on

(48) *Forhandlinger ved De Skandinaviske Naturforskeres 7. Møte i Christiania i 1856* (1857). Christiania, Carl C. Werner & Comp., p. 466.

(49) LARSEN; BERG; HODNE (1986), *op. cit.* (n. 29), p. 350.

an inclined plane or on a plane that could be switched between a horizontal and a more vertical position.

The orthopaedic field in the eighteenth and nineteenth century was characterized by many different theories and schools of thought and by an often bitter and lasting conflict between the different milieus. The various therapies seem, however, to have been guided by one of two basic considerations. The bed rest, combined with pressure and extension-devices, was particularly utilized by those who sought the causes of the spine curvature in the bones and vertebrae of the body. Rival milieus took to a greater extent the muscular system of the body as their basis. It had been noticed that most of the crooked spines was bent forward to the right. This observation led to the development of a theory that the spine was easily affected if an uneven muscular force acted on it. It was known that the muscles on the right side of the body usually are stronger and more advanced. It was thus supposed that the muscles on the concave side of the curvature had defeated its left adversaries and contracted. The muscles on the convex side of the curvature had been extended correspondingly and had lost much of their force. This theory legitimized the development of therapies that emphasized the significance of restoring the muscular balance of the body.

In 1828 the acknowledged French orthopaedist Jaques Mathieu Delpuch published a work where he rejected the long and continuous bed rest and introduced gymnastics and bath as means to strengthen the weakened muscles of the patients. In short time physical exercises were introduced as a preventative remedy at most orthopaedic institutes. Gradually this led to the development of more specialized orthopaedic gymnastics, of which the physiotherapy of Pher Henrik Ling in Sweden became the most famous. The intension of this therapy was, by the execution of accurate physical exercises, to strengthen specific groups of muscles in such a way that they could counteract the force of the opposite muscles and draw the spine into a natural position. When the physicians in Norway during the second or third decade of the nineteenth century began to take an interest in the orthopaedics, it was the muscular theory that had caught the wind. Gymnastics had already been introduced as a therapeutic or preventive remedy at most orthopaedic institutes.

One of the first medical practitioners in Norway that took an interest in the spine curvature and its treatment was Christen Heiberg. Heiberg

passed his doctor's degree in 1830 and was appointed professor at the University in Christiania six years later. The subject of one of his lectures for the doctorate dealt with the treatment of the spine curvature, with a special attention to the scoliosis. In his lecture Heiberg referred to the question of the causes of the disease. He rejected the explanations that sought the causes in the bones and vertebrae and stated that the muscular theory was «... without any doubt the correct one ...» (50). This theory also seemed to explain, in his opinion, why girls more often than boys seemed to suffer from scoliosis. According to Heiberg this was due to the weaker muscular system of girls and was also a result of the fact that girls to a lesser extent than boys were allowed to participate in physical activities. Heiberg emphasized that a rational therapy for the scoliosis had to be directed towards the real causes of the disease. He expressed his own critical attitude towards the mechanical cure, expressing that it seemed «... almost to have regarded the human body as a dead machine ... which they at pleasure could give the shape they wanted ...» (51). The most significant therapeutic remedy, according to Heiberg, had to be physical exercises aimed to strengthen the force of particular groups of muscles.

At that time few efforts or initiatives had been taken in Norway to develop therapies for the cure of scoliosis or the other variants of the spine curvature. Heiberg himself had experimented with branding the skin along the concave side of the scoliosis. This cure did not, however, gain any ground within the medical milieu in Norway (52). Normally well-to-do families sent their «crooked» children to orthopaedic institutes abroad, where they often stayed for several years. Heiberg and other physicians often expressed themselves critical with regard to these institutes, where mechanical pressure and extending-devices still dominated the therapy. In Norway it was a fashion to send crooked young girls to Leithof's orthopaedic institute in Lubeck. With regard to this custom, Christian Kierulf stated in 1852: «they often came back after two or three years of expensive stay with doubtful improvement of the curvature and an injured health ...» (53).

The therapy of Kjølstad, however, was not developed as a reaction

(50) HEIBERG, C. (1830). Om Skævhed i Ryggen. *Eyr*, 5 (1), p. 14.

(51) *Ibidem*, p. 18.

(52) NICOLAYSEN, J. (1933). *Kirurgien i Norge i det 19de århundre*, Oslo, Centraltrykkeriet, pp. 79-80.

(53) KIERULF (1853), *op. cit.* (n. 35), p. 81.

against the use of mechanical devices in orthopaedics, according to his own statements. With regard to outset of his orthopaedics he stated: «... I knew at that time so little about the machine cure that I, thanks to my ignorance, could not possibly think of utilizing it ...» (54).

By his contemporaries, however, his therapy was undoubtedly interpreted as a reaction against the mechanical devices. The physician Otto Lund stated in 1842:

«Kjølstad seems right from the outset of his treatment of crooked and curved to have realised how insufficient the therapy is that predominantly consist of a mechanical extension of the contracted and shortened parts of the body ...» (55).

Ten years later Christian Kierulf declared in his prize paper that the method of Kjølstad was an improvement, not only in relation to the mechanical cure, but also regarding the Swedish physiotherapy developed by Ling (56).

The growing criticism of the mechanical therapy, the evolution of the muscular theory and the development of physiotherapy in its various forms, constituted a theoretical and therapeutical alteration within the field of orthopaedics which the physicians in Norway seem to have been aware of, and must have offered favourable conditions for the undertaking of Kjølstad. When Kjølstad introduced his variant of physiotherapy the idea of the prevention and cure of many diseases and deformities by physical movements had already been accepted within many medical milieus.

Several circumstances related to prevailing ideological trends, main professional currents and the development of knowledge and new techniques within the orthopaedic field, seem to have lent themselves to the therapeutic activity of Kjølstad. In respect of the previous discussion it is easier to understand why his method was approved by his colleagues. It remains, however, to assess to what extent the occupational ambitions of the medical professions in the previous century had a similar influence. Considering these circumstances, three sets of conditions seem to have been of particular importance: the expectations of the physicians to expand their sphere of activity and societal influence, the need of the profession to improve the

(54) Kjølstad, G. quoted in: KIÆR (1887), *op. cit.* (n. 1), p. 609.

(55) LUND, O. quoted in: *Ugeskrift for Medicin og Pharmacie* (1842), n.º 50, p. 406.

(56) KIERULF (1853), *op. cit.* (n. 35), pp. 86-87.

status of medicine and the relation to the clients as it was framed by the therapy of self-correction.

11. *THE RENEWED INTEREST OF THE PHYSICIANS IN THE ORTHOPAEDIC FIELD*

The practical oriented orthopaedics was originally an activity performed by the vocationally trained barber surgeons. The university educated physicians was taught only theoretical, so-called «higher» surgery, after first having studied philosophy, philology and medicine. In the last decades of the eighteenth century, however, all this changed. The education of the surgeons gradually became academic and their status approached the status of the physicians. At the same time a more specialized orthopaedic field developed, oriented in particular towards the treatment of the crooked spine. This therapeutical field, however, did not take part in the movement of surgery towards theoretical medicine, but was to some extent left over to instrument makers and artisans without formal medical education, but with an ability to invent ingenious pressure and extension devices.

The physicians in Norway, in particular those who worked within surgery, show from about 1820 onwards a stronger interest in orthopaedics. The surgery, however, constituted a small part of the medical field in the first part of the eighteenth century. Operations was for a long time the last therapeutical alternative and amputations the characteristic intervention. At the Norwegian central hospital thirty surgical operations annually was carried out on average until 1847 when the ether narcosis was introduced. Afterwards the number of operations increased rapidly. The result of surgical treatment, however, was very unpredictable in the hole period until the introduction of the antiseptic and aseptic methods in the 80s, the rate of infections high or low, addicted to, it was believed, *constitutio epidemica* (57).

Part of the surgical activity in the first part of the previous century had strong links to orthopaedics. The leading surgeons in this period were the first Norwegian professor in surgery, Magnus Andreas Thulstrup, his successor Christen Heiberg and the latter two students Carl Wilhelm Boeck and

(57) NICOLAYSEN (1933), *op. cit.* (n. 52), p. 38.

Christian Egeberg. All had professional interests in the borderland between surgery, orthopaedics and surgical orthopaedics. In addition to his attempts to treat scoliosis, Heiberg carried out some peculiar surgical treatment of flatfoot in 1847 and constructed a special bandage for clavicle fractures. Christian Egeberg, combined surgeon and physician, implemented the first surgical treatment of clubfoot in 1839 and constructed a special boot for this suffering in 1855. In Norway, however, it was primarily Wilhelm Boeck who took up the work of surgical orthopaedics, introduced by George Stromayer in the 30s. In 1842 Boeck developed a combined surgical and bandage treatment of clubfoot, and he also constructed a clubfoot boot five years later. He invented a more convenient double inclined plane to be used in the treatment of femur fractures and he described the anatomic conditions regarding hip-luxation as early as 1844 (58).

This review indicate that some of the leading and acknowledged surgeons in Norway worked with medical techniques which was close to the orthopaedic field. Both Boeck and Egeberg took interest in the orthopaedic activity of Kjølstads and involved themselves in favour of the therapy of self-correction.

In the middle of the nineteenth century, however, medicine was not very specialized in Norway. This is reflected both in the medical practice and in the discussions taking place in the medical association in the capital. The individual physicians expressed their opinions within several different medical fields. The surgeons discussed questions related to internal medicine and it was not unusual that internists carried out surgical operations (59). This unity in medicine may have contributed to the fact that not only the surgeons, but also many other physicians took interest in the orthopaedic activities. Five out of nine physicians that hold the position as chairman of the medical association in the capital in the years from 1833 till 1859 contributed to one or several initiatives taken to support Kjølstad's enterprise.

In the first decades of the nineteenth century critical statements expressed themselves, as mentioned, regarding the treatment at the orthopaedic institutes. This criticism coincide in time with the medical professions renewed interest in the orthopaedic field and seems primarily to have been generated within the medical milieus. The physicians considered the orthopaedic treatment as a part of the therapeutical device of medicine

(58) *Ibidem*, pp. 22-23, 79-84.

(59) GRØN (1933), *op. cit.* (n. 43), p. 50.

and claimed that it ought to be led and developed by themselves. They maintained that the therapeutical problems of orthopaedics arose from the fact that the field was dominated by craftsmen without formal medical education. On the sixth meeting of the Scandinavian nature-scientists in July 1851 in Stockholm, the well-known Danish medical orthopaedist, professor J. C. Bock stated, with regard to the treatment of scoliosis:

«We are still far from the solution of the main questions in connection with scoliosis, on the contrary, both vociferous and disgraceful disputes have continued to this time, regarding the causes, prognosis and therapy of the disease. The main reason to these controversies should be sought in the fact that this disease until the latest time has been out of the field of the scientific physician and has been let to laymen like artisans, glove-makers, bandagists, stays-maiden, physical therapists or industrial enterprisers ...» (60).

A similar point of view was expressed by Christian Kierulf in his prize paper, published the following year. Kierulf stated at the outset of his account that orthopaedics ought to be considered as a branch of the surgery. He claimed that while the development within plastic surgery and the surgical part of orthopaedics had been considerable, the orthopaedics proper, the treatment of the crooked spine, had only made slow and insecure progress. With regard to the underlying causes to this slow advance, Kierulf stated:

«The field have only to an insufficient degree been raised to a level above the empiricists or the mechanics, to whom this branch of surgery at the beginning of the century had fallen ... hence the discredit the orthopaedics proper for a long time has been subjected to, the raw empiricism that have prevailed it and the theoretical obscurity that still prevail ...» (61).

The positive attitudes of the physicians in Norway towards the activities of Kjølstad must to viewed in relation to the wish of the medical profession to bring the orthopaedics back under the control of formal medicine. It

(60) BOCK, J. C. A. (1855). *Praktiske Bemærkninger til Prognosen af Skoliosis*. In: *Forhandlinger ved De Skandinaviske Naturforskeres 6. Møde i Stockholm 1851*, Stockholm, Nordstedt & Söner, p. 368.

(61) KIERULF (1853), *op. cit.* (n. 35), p. 754.

must have been essential in this connection that Kjølstad did not try to form the basis of an independent practice, like the Swedish physiotherapists did. He did not claim that the method of self-correction ought to be valued according to some other criteria than the normally used in medicine. On the contrary, he repeatedly took initiatives to have the therapy valued by other physicians. In this way he demonstrated that he accepted the assessments of his colleagues as the decisive criteria to value the suitability of the therapy. In a period where the status of the medical profession in Norway was low and the occupation had to fight for the approval of medicine in preference to the quacks, this must have been considered an advantageous practice.

It has been argued that the scepticism and suspicion Kjølstad experienced at the outset of his enterprise was gradually turned to approval as he demonstrated his subjection to the valuation of his colleagues. The fact that it was primarily physicians within the medical milieu in the capital that involved themselves to the favour of Kjølstad may be related to the fact that the front against the quacks was more clear-cut here than in the country (62).

12. THE PREVENTIVE QUALITIES OF THE THERAPY

The theoretical reflections regarding the causes of the spine curvature, particularly with regard to scoliosis, normally took as a point of departure the fact that this clientele chiefly consisted of teenage girls. The German and French authorities for a long time claimed that it was the use of corsets that was the main cause of the curvatures. As late as in 1841, this theory was for the most part accepted by the acknowledged professor Loven at the meeting of the Scandinavian nature-scientists in Copenhagen. The professor stated that it was not the corsets themselves, however, but the ignorant use of them that caused the injuries. On this basis he argued that the assembly ought to approve a common statement about the danger involved in the use of corsets (63). This theory of the harmful effect of female clothing

(62) BERG, O. (1973). *Medisinen som samfunnsinstitusjon*, Institutt for statsvitenskap, Universitetet i Oslo, p. 48.

(63) LOVEN, N. H. (1841). Om orsakerne til snedhet i ryggraden. In: *Forhandlinger ved De Skandinaviske Naturforskeres andet Møde i Kjøbenhavn 1840*, Kjøbenhavn, Bianco Luno's Bogtrykkeri, pp. 187-188.

died hard, but had gradually to give way to another perspective which in its different variants emphasized the congenital weakness of girls and their unfavourable upbringing.

Kjølstad himself seldom expressed his opinion regarding the specific causes of the crooked spine. A statement he made in 1856, however, indicate that he went far towards accepting the theory of the female weakness. With regard to the weakening of the spine he stated that it often seemed to be the effect of «young girls long and unscrupulous sitting at school, imposed both there and at home with too much intellectual work and needlework in proportion to their age and sex ...» (64).

Kjølstad's assistant, Dr. Salvesen, expressed himself in a similar manner: «... how easy the one-sided strive for the tender girls intellectual education is done at the expense of her physical health and due to this break down her figure ...» (65).

The theory of the female weakness combined with too much sedentary work as a main cause of the crooked spine seems gradually to have been accepted by most orthopaedic and medical milieus. Regarding the most prevalent curvatures of the spine Christian Kierulf stated in 1852, with reference to the experiences at the orthopaedic institute at Tuborg in Denmark: «... normally, in fact almost without exception, it has a deeper cause and that is weakness ...» (66). Regarding the evolution of scoliosis in these tender girls he claimed that it most often could be observed that «the curvature evolves at the time when their schooling is most exhausting ...» (67).

A decade later the acknowledged Danish medical orthopaedist A. Drachmann expressed a similar opinion as he stated with regard to scoliosis: «... it injures almost exclusively slight, pale, lean and weak girls and most often during the phase of fast physical growth ...» (68). In respect of the social distribution of scoliosis the orthopaedist claimed:

(64) KJØLSTAD, G. (1857). En nærmere Forklaring over Selvretningssmetoden, end hidtil er givet gennem det skriftlige og trykte Ord. In: *Forhandlinger ved De Skandinaviske Naturforskeres 7. Møde i Christiania 1856*, Christiania, Carl C. Werner & Comp., p. 450.

(65) SALVESEN (1855), *op. cit.* (n. 3), p. 317.

(66) KIERULF (1853), *op. cit.* (n. 35), p. 781.

(67) *Ibidem*, p. 11.

(68) DRACHMANN, A. quoted in: *Bibliothek for Læger* (1861), p. 95.

«It exists principally as a cultural disease in larger places and among the well-to-do classes that educate their children in a soft manner and keep them to teaching and long sedentary work at an early age ...» (69).

This review indicates a favourable relation between the theory of the female weakness, the therapy of self-correction and the growing ambitions of the medical profession at the middle of the nineteenth century. The orthopaedics of Gunder Kjølstad became attractive not only because of its suitability to prevalent ideological and theoretical trends but as well owing to the fact that the method, in a period where the medical profession had the ambition to assert itself in new fields, could be used as a prophylactic, as contrast with the mechanical therapy.

Kjølstad had the vision that the therapy of self-correction ought to be made general, it ought in his opinion to become an essential part of education, both in the family and at school. In that case Kjølstad had the conviction that «all curvatures like all powerlessness, weakness, sickness and a lot of specific diseases will vanish from earth ...» (70).

Within the medical association questions relating to school hygiene were subjects of discussion, particularly in the 1830s and 1860s. In 1835 the Norwegian professor Frederik Holst claimed that the schools for girls had an injuring effect on the pupils health and put forward as evidence the fact that the pupils were less of growth than girls that did not attend school. He argued that the physicians ought to involve themselves in this matter (71).

The therapy of self-correction did not only have a potential as a prophylactic, the Norwegian orthopaedists took concrete initiatives in that direction. In 1849 the former assistant of Kjølstad, Dr. Salvesen, introduced a preventative physiotherapy for young girls at his institute in Bergen. Most of the girls, but not all of them, suffered from small curvatures. In cooperation with the theologian Dahl he also succeeded to bring in physical exercises of self-correction at the largest school for girls in the town (72). Kjølstad, on his side, gave orthopaedic cure by the hour, chiefly with a preventative adaptation, designed for patient with small or incipient curvatures (73).

(69) *Ibidem*.

(70) KJØLSTAD (1849), *op. cit.* (n. 2), p. 9.

(71) GRØN (1933), *op. cit.* (n. 43), p. 54.

(72) SALVESEN (1855), *op. cit.* (n. 3), pp. 316-318.

(73) KJØLSTAD (1849), *op. cit.* (n. 2), p. 11.

The growing interest of the physicians in Norway in school hygiene, the focus of the theory of female weakness on the unfavourable effects of protracted school attendance and the apparent preventative qualities of the method of self-correction, it seems likely that the combination of these circumstances contributed to the acknowledgement that Gunder Kjølstad obtained. It follows that the attraction of his orthopaedics may be related both to the wish of the physicians to reinforce their control of this therapeutic field and to the growing ambitions of the medical profession to expand the field of activity and societal influence of the occupation.

13. *THE EFFICACY OF THE THERAPY*

In 1897 the acknowledged German orthopaedic surgeon Albert Hoffa stated: «In my opinion, the problem of the treatment of scoliosis is the main problem of the orthopaedics of the future ...» (74). He seems to have been right. More than fifty years later the English orthopaedist Osmund-Clark stated: «Scoliosis is remarkable for the stubbornness with which throughout the ages this deformity has defied explanation ...» (75). In 1981 the three recognised American orthopaedists T. Taylor, P. Gosh and G. Bushell, declared:

«It is regrettable that the last two decades have not seen a single major advance in the treatment of scoliosis based on a scientific understanding of the aetiology and mechanisms of curve progression ...» (76).

The treatment of scoliosis seem for the bulk of the twentieth century to have been characterized by a shortage of scientific knowledge and a non-availability of a fairly reliable therapy. There is no reason to believe that this situation was any more advantageous in the middle of the previous century.

At the middle of the nineteenth century, however, formal medicine was on the defensive not only with regard to the treatment of scoliosis. It has been claimed that the confidence in the physicians in Norway, during the first half of the previous century was impaired and that large parts of the

(74) LE VAY, D. (1990). *The History of Orthopaedics*, London, The Parthenon Publishing Group Ltd., p. 529.

(75) *Ibidem*.

(76) *Ibidem*.

population rather consulted the quacks. At the middle of the century the medical profession seems to have had a lower status than ever before (77).

It may be assumed that the recognition that Kjølstad and his orthopaedic colleagues obtained to some extent was tied up with the effects of their therapy. The evaluation of Kjølstad's activity by other physicians gave, as mentioned, a favourable result. Both his two colleagues that valued the method in 1842 and the committee appointed by the medical association in the capital, which made its final statement ten years later, spoke in favour of the therapy. According to the estimations of Tidemand, about 20% of the approximate 200 patients suffering from spine-curvatures he treated in the period from 1866 to 1874 were cured or nearly cured, another 60% were improved, while 5% did not benefit from the therapy. With respect to the remaining 15% the results were uncertain or the patients were not measured (78). This assessment correspond in the main to the evaluations of the practices of Kjølstad and Salvesen.

It is not easy today to reckon the validity of these nineteenth century evaluations. It seems, however, that the physicians often payed serious attention as to the proper way to accomplish exact measures. The committee of the medical association stated:

«We soon realised how very difficult it is to obtain a fixed and accurate conception of, and to control the alterations, that the spine undergoes by orthopaedic treatment. Several methods were tried ... We came to the conclusion to use plaster casts of the spine, and it was decided to take a cast of each patient at the intake and discharge ...» (79).

Employing this method the committee concluded, as mentioned, that the patients had been extended an inch to an inch and a half on the average, dependent on whether the measures were done while the patients were standing or lying down. If these measures and evaluations are credited it is indicated that the effect of the treatment was favourable. Of no doubt, however, the medical milieu in Norway did credit these valuations and gradually came to consider the therapy to be both efficient and superior.

(77) REICHBORN-KJENNERUD, I.; GRØN, F.; KOBRO, R. (1936). *Medicinens historie i Norge*, Oslo, Grøndahl & Søns Forlag, p. 125.

(78) TIDEMAND (1876), *op. cit.* (n. 3), Beretning om anstaltens virksomhet fra 1-11-1866 til 31-12-1874, pp. 16-20.

(79) *Norsk Magazin for Lægevidenskapen*, Forhandlingene (1852), p. 263.

The approval of the method of self-correction, however, must be seen in relation to the other available therapies at the time. It is indicated that the physicians experienced that they had few remedies to suggest when faced with patients suffering from spine curvatures. The physician Wilhelm Boeck stated in october 1862:

«... we are in our practice badly off with regard to the treatment of spine curvatures, and not many have the opportunity to send their children to the expensive institutes abroad ...» (80).

Moreover, the confidence in these institutes had been impaired due to the unfavourable effects of the protracted, bed-ridden mechanical extension therapy. As mentioned, Christian Kierulf claimed in 1852 that the young girls often returned from these institutes with a broken health.

At least until the second half of the 1870s the medical profession, or at any rate the university teachers and the physicians in the capital, regarded the orthopaedics of Kjølstad as superior not only in comparison with the mechanical cure, but also as compared with other treatments like the Swedish physiotherapy. The physician Joachim A. Voss expressed at one of the meeting of the medical association in 1862 that he thought it unfortunate that Tidemand had been compelled to close his institute, and stated: «... as a temporary expedient we now have to refer the patients to physiotherapy or to the treatment by electrification at the hospital ...» (81).

An institute for physiotherapy was opened in the capital in 1867 by the physician Tycho D. Lange. The discussions at the meetings of the medical association indicate, however, that the method of self-straightening had a higher status at least until the second half of the 1870s. Lange repeatedly complained that his colleagues did not show an interest in his work and did not refer patients to him that would benefit from physiotherapy. Without doubt, the therapy of self-correction was by far the most credited orthopaedic therapy in Norway in this time period.

The approval of the therapy must also be assessed in relation to the general curative ability of formal medicine in the previous century. It ought

(80) BOECK, W. quoted in: *Norsk Magazin for Lægevidenskapen*, Forhandlingene (1863), p. 100.

(81) *Ibidem*.

to be remembered, in this connection, that until the last decades of the century the physicians had no or very dubious remedies to suggest against the most common sufferings dominating every medical practice, the infectious diseases (82). Many of the therapies prescribed by the physicians were still to an essential degree based on the classic, holistic teachings of the Middle Ages, and the effects of their treatment were usually slight. The peasants did not normally seek their services. Formal medicine was no temptation owing to its efficacy and it frightened most people due to the cultural differences between the physicians and the public. Instead, they consulted the local quacks, whom they trusted. It has been claimed that the physicians had to be pushed the people by public offices and laws against quackery (83). The peasants fought this policy and succeeded in 1871 to liberalize the quack-law.

Against this background it is easier to comprehend that the physicians, especially the university teachers and the physicians practising in the capital who were least reasonable towards the quacks, came to approve the orthopaedics of Kjølstad. In the first place, it is no wonder that the physicians appreciated an attempt to introduce a new medical activity, previously dominated by laymen. In addition, it is not unlikely that the therapy of Kjølstad was a hit, compared to most of the medical work in the previous century. It is quite plausible that the method of self-correction, after some preliminary problems, came to be considered by the medical profession as a great success, as one of few opportunities to improve the status of the occupation.

14. THE SOCIAL COMPOSITION OF THE CLIENTELE

In the period from 1847 to 1850 three orthopaedic institutes were in operation in Norway, all practising the method of Kjølstad. Thirty to forty patients were treated at the same time. The market for orthopaedic institutional treatment was, however, very restricted at least until the 1870s. This made it difficult to maintain the institutes. Dr. Salvesen, the former assistant of Kjølstad, stated that the treatment was often broken of too early, partly because of the impatience of the patients, but as often due to the limited

(82) EVANG, K. (1955). Helsestelletts utvikling i Norge i 75 år, i. *Tidsskrift for den norske lægeforening*, p. 53.

(83) BERG (1973), *op. cit.* (n. 62), p. 39.

will or ability of the relatives to pay the expenses (84). To cushion these circumstances both Salvesen and Kjølstad were in many instances forced to reduce the regulated fee. Kjølstad stated:

«Economic conditions and other circumstances has made it impossible for many to make use of the ordinary cure ... in Norway the money have a too restraining effect on the orthopaedics ... far more would have been straightened it not the lack of money had prevented a longer cure ...» (85).

In spite of some public grant the maintenance of the orthopaedic institutes in Norway was chiefly based on the fees from the patients. Only a few places at the institutes were reserved for patients of limited means. In the 60s, at Tidemand's institute the payment for the board was 48 N kr., a month, the washing of clothes not included. The cost of the treatment was 32 N kr. a month. It decreased to some extent, however, if the cure lasted more than half a year (86). It is highly probable that the therapy was considerably cheaper than the earlier practice to send the patients to recognised institutes abroad. Nevertheless, a cure at the institute was both long lasting and expensive. At that time the salary of teachers at the board schools in Bergen was about 1.000 N kr. annually, a male telegraph operator had an initial annual salary of 1.000 to 1.200 N kr., unskilled workers most certainly were payed far less (87). It may be assumed, without much doubt, that the cure at the orthopaedic institutes must have been far too expensive for most people. It is likely that the client basis was mainly constituted by patients from well-to-do families. This restricted the market for orthopaedic practice. It is plausible, however, that this influx of a high status clientele accounts for some of the acknowledgement that the orthopaedic institutes obtained.

The professional approval of the therapy of self-correction has now been assessed both with regard to its apparent therapeutic qualities and the social composition of the clientele. It still remains, however, to consider how the recognition was tied to the shaping of the relation between the

(84) SALVESEN (1855), *op. cit.* (n. 3), p. 159.

(85) KJØLSTAD (1849), *op. cit.* (n. 2), pp. 11, 49-50.

(86) *Byminner* (1982), n.º 1, p. 10.

(87) HAGEMANN, G. (1992). *Skolefolk. Lærernes historie i Norge*, Oslo, Ad Notam Gyldendal a.s., p. 50.

therapist and the patient, as a consequence of some remarkable features of the method.

15. *THE RELATION TO THE CLIENTS*

The physicians had, as mentioned, undoubtedly an ambition to bring the orthopaedic field back under the control of formal medicine. They had voiced severe criticism against the orthopaedic institutes, led by laymen. It may be assumed, however, that if the physicians had engaged themselves in this field without being able to show good results, the status of the occupation could easily have been further reduced. Fortunately, in this respect, the method of self-correction exhibited another sympathetic feature. It altered the relation between the patient and the therapist in a favourable direction.

It is very much to the point that Kjølstad translated the word «orthopaedics» as «right education» (88). With regard to the therapy he stated: «... it's whole curative ability and its healing of mind and body is based exclusively on instruction, teaching, conviction and improvement, both morally and intellectually ...» (89).

Thus Kjølstad declared: «... the exercise of my orthopaedics is tied to teaching in an inseparable manner ...» (90). He defined his medical work in a pedagogical, to some extent also in a theological, direction. The patient was assigned an active role in the therapy. The cure was described as a method to teach the patient to heal himself. The role of the therapist was depicted as to teach the patient the quality of the curvature and how it was sustained, and what the patient could do to counteract it. The effects of the cure, however, Kjølstad regarded as directly conditioned by the persistence, patience and strength of will of the patient.

In case of the passive treatment with mechanical pressure and extension devices the patient could hardly be blamed if the results of a long lasting and expensive cure fell short of the expectations. The criticism was in that event levelled at the therapist or the owner of the orthopaedic institute. The method of self-correction altered this circumstance in a significant

(88) KJØLSTAD (1849), *op. cit.* (n. 2), p. 10.

(89) *Ibidem.*

(90) *Ibidem*, p. 13.

manner. The method implicated that the patient to a large extent could be held responsible for the results of the cure. If the effects of the treatment did not meet the expectations of it, this could be explained as the result of a weakness of the patients persistence, effort or moral. Tidemand stated:

«The effects of the cure are essentially dependent on the efforts of the patient, to the extent that the faithful and hard-working may attain greater progress in a certain period of time, than the lazy and careless may never gain ...» (91).

In this manner the method of self-correction took the sting out of criticism. In a way the therapy was «immunized». All favourable effects could be attributed the qualities of the therapy, all unfavourable results ascribed to the patient. Regarding the need of the medical profession to improve its status, this must have been a sympathetic feature.

16. CONCLUDING REMARKS

My interest in this story was aroused by the observation that the orthopaedics of self-correction obtained a high degree of approval in Norway in the time period from 1840 until the second half of the 1870s, in particular by the medical profession. This acknowledgement seemed in the first round astonishing, both in respect of the peculiar, almost «impenetrable» theoretical basis of the cure and with regard to the practical accomplishment of the therapy, the slow, curious «footwalk» and the method of «pointuation» being the essential elements.

My intention has been moderate, simply to specify some possible connections between the approval of the orthopaedics of self-correction and other cultural elements of the Norwegian society in the previous century.

On one hand, an affinity between the therapy and some contemporary ideological trends and values has been indicated. The orthopaedics of self-correction seem to some extent to have been legitimated by a theoretical accommodation both to the ideology of pietism in religious life and to the predominant liberal doctrine of economics. In addition, the therapy derived

(91) TIDEMAND, A. quoted in: *Norsk Magazin for Lægevidenskapen, Forhandlingene* (1869), p. 98.

advantage from a new comprehension and valuation of physical education as a prerequisite of good health.

Within a more limited context some specific relations between the orthopaedics of Kjølstad and the scientific community of medicine has been assessed. It was emphasized that formal medicine in this period still maintained many of its traditional links to metaphysical and nature-philosophical conceptions, and that the absence of more eager resistance toward the theory of self-correction must be viewed in this light. Further, it was argued that the gradual acceptance of the idea that physical exercises could prevent and cure diseases and deformities, the development of the muscular theory, and, in addition, the common experiences of many physicians in Norway with military gymnastics, offered favourable conditions for the new orthopaedic enterprise.

The approval of the orthopaedics of self-correction has thus been assessed by referring to its accommodation to prevailing ideological trends and main professional currents of the previous century. The attraction of the therapy, however, has also been assessed in relation to social interests, particularly with regard to the demands of the medical profession in the previous century. Obvious, the development of orthopaedics was in this time period a peripheral movement within medicine. It has still been indicated that the recognition of the Norwegian orthopaedists was to some extent tied to the growing ambition of the medical profession to improve its status and societal influence.

The approval of the therapy of self-correction seems in the first place to have been related to the wish of the medical profession to bring orthopaedics back within the subject of medicine, and to the fact that Kjølstad repeatedly demonstrated that he accepted the assessment of his colleagues as the decisive criteria to value the suitability of the therapy. The orthopaedics of Kjølstad, however, also exhibited several other sympathetic features. To some extent the attraction of the therapy seems to have been related to its preventative qualities. The medical profession had a growing ambition to assert itself in new fields, paying increasing attention to questions related to school hygiene and problems in connection with protracted school attendance. In contrast with the mechanical therapy, the method of self-correction could be used as a prophylactic and the Norwegian orthopaedists took concrete initiatives to make such use of it, notably it was introduced at primary school. Further, the approval of the therapy seems to have been

related to the fact that it attracted a high status clientele, that it presumably was a hit compared to most of the medical work in the previous century and thus one of few opportunities to improve the status of the occupation. In addition, the method of self-correction altered the relation between the patient and the therapist in a favourable manner, almost «immunizing» the therapy from possible criticism as to the effect of the cure.

The positive valuation of the medical profession with regard to the orthopaedics of self-correction seems thus to have been related both to the accommodation of the therapy to main professional currents in the previous century and to the fact that the therapy exhibited several qualities which made it well adjusted to the growing self-conceit and ambitions of the medical profession in this time period.

The recognition of the therapy, however, seems to have been impaired rapidly during the 1870s. During this decade the therapy no longer became a subject of discussions at the meetings of the medical association. The central medical milieu took no further initiatives intended to retain or spread the orthopaedics of Kjølstad. What was the cause of this new lack of interest?

The most obvious explanation is the fact that it did not prove a success to spread the knowledge and skill of the therapy within the scientific community. This may have been due to the circumstance that the orthopaedic undertaking for a long time was a venture and thus hardly of much attraction to young physicians. It may also have been the case, however, that the therapy required some personal qualities not easily disseminated to others. The committee of acknowledged physicians appointed to evaluate the medical practice of Kjølstad tended toward this opinion. It stated:

«The exceptional stamina required of the orthopaedist who wish to practise the therapy successfully may render the generalizing of the method difficult and may often make it fail when practised by others ...» (92).

During the 1870s the demand for health services increased in Norway. For the first time medical help began to be sought after by the common man. This development also had an influence on the orthopaedic field.

(92) *Norsk Magazin for Lægevidenskapen*, Forhandlingene (1852), p. 265.

The demand for physiotherapy increased, and remedial gymnasts, most of them educated in Sweden, set up as therapists in the capital and other Norwegian towns. Gradually the Swedish physiotherapy became popular with the public. This variant of physiotherapy seems to have been more pleasurable than the fatiguing therapy of self-correction. An assumption is thus that the orthopaedics of Kjølstad was unable to meet the competition of the Swedish variant of physiotherapy.

Another circumstance, however, is the fact that more Norwegian physicians during the 1870s and 1880s, by stays abroad at remedial institutes or educational establishments, got some knowledge of massage and physiotherapy. They must have experienced that the Swedish physiotherapy both had long traditions, a safe national basis and offshoots in several countries, notably in Denmark, Germany and England. The knowledge and skill of the orthopaedics of self-correction, to the contrary, was not appreciably diffused to other countries, the only known exception being the introduction of the therapy in St. Petersburg (93). The Norwegian medical milieu was still highly influenced by foreign models, above all engaged with the search for and introduction of new medical knowledge and techniques developed abroad. This being the case, it seems very unlikely that the leading medical milieu in Norway should uphold its support of the orthopaedics of self-correction as the knowledge of the Swedish physiotherapy was to some extent generalized. The result was a gradual lack of interest in the orthopaedics of Kjølstad.

(93) LAACHE (1911), *op. cit.* (n. 5), p. 136.