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BAD-NAUHEIM.

ITS SPRINGS AND THEIR USES.

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J. GROEDEL, M. D.

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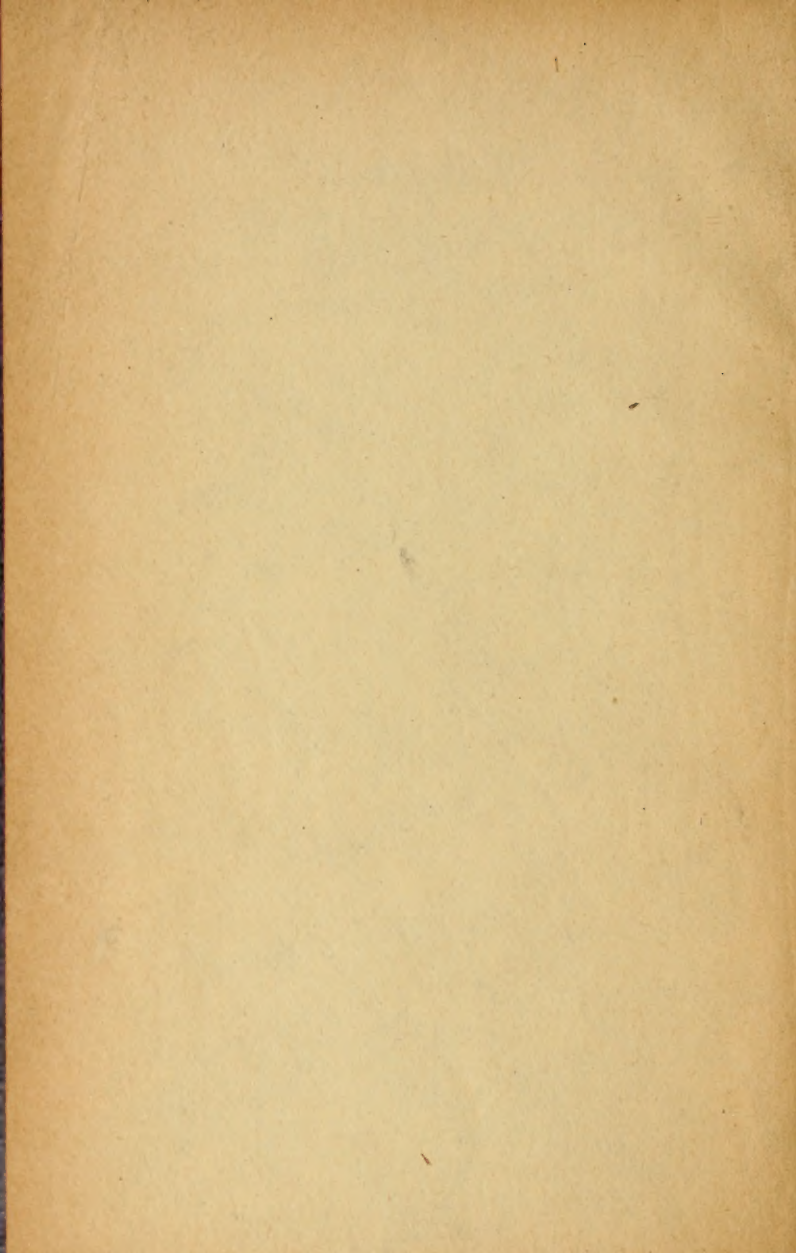
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# BAD-NAUHEIM

ITS SPRINGS AND THEIR USES

WITH

USEFUL LOCAL INFORMATION AND  
A GUIDE TO THE ENVIRONS

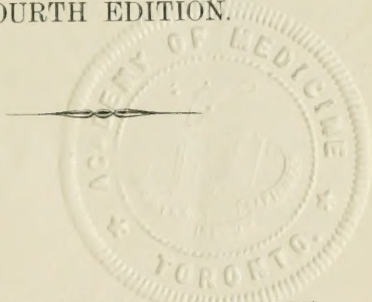
BY

*Isidor assimilian 1850-*  
**J. M. GROEDEL, M. D.,**

GRAND-DUCAL HESSIAN MEDICINALRAT. PROFESSOR.  
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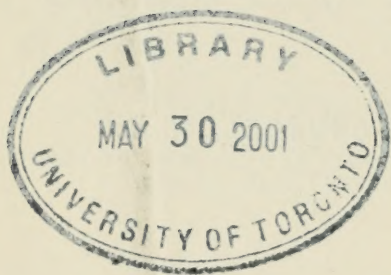
FOURTH EDITION.




FRIEDBERG AND BAD-NAUHEIM.

CARL BINDERNAGEL, PUBLISHER.

1907.



## PREFACE.



At the special request of the publisher I have undertaken to edit a book in the English language describing Nauheim, its baths, mineral waters etc. with special reference to a similar work in the German language edited by myself and the late Mr. O. Weiss, Geheimer Bergrat and President of the Grand-Ducal Badedirection.

This work will be found to contain all the information about local matters that physicians and visitors residing in Nauheim can desire, with some useful hints concerning the mineral springs, their uses in various kinds of chronic diseases, and some remarks about the diseases themselves. I have likewise added a short guide describing the walks and excursions in the environs of Nauheim.

This guide will, I hope, meet the requirements of those English-speaking visitors, who are not thoroughly conversant with the German language, and have the effect of making the well-deserved popularity and repute of Bad-Nauheim even more widely known than they are at the present day.

Bad-Nauheim, August 1895.

J. M. Groedel.

**PREFACE**

TO THE THIRD EDITION.

The success attending the first edition of this English guide-book has been repeated with the second edition. This being now entirely out of print, I feel induced to proceed to a third, which is in the main a repetition of the other two. A considerable number of changes and additions, however, seemed necessary, owing to the great many improvements that have taken place in Nauheim during the past few years; *e.g.*, the boring of a new spring; the building of a new bathing-house; the introduction of baths of a new description; renewing and deeper boring of a mineral spring, and the erection of a large inhalation house, all of which have had to be duly mentioned in this new edition. In the coming years, too, some more grand buildings are to be erected; among others, several new bathing-houses, a new and extensive drinking-hall, a large new concert hall, etc. That this will occasion some changes in the work of the bathing-houses and in other respects is obvious; for this reason a supplement to this book will appear from time to time which will be given gratis to owners of this edition. May the third edition acquire as many friends as the last.

Bad-Nauheim, April 1905.

J. M. Groedel.



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# FIRST PART.



## SOME REMARKS ABOUT THE HISTORY, CLIMATE, AND SANITARY ARRANGEMENTS OF BAD-NAUHEIM

ITS NATURAL REMEDIES AND  
THEIR USE FOR DIFFERENT KINDS  
OF CARDIAC  
AND OTHER DISEASES.





## HISTORICAL FACTS ABOUT BAD-NAUHEIM.



To the north of Frankfort-on-the-Maine (by railway 40 minutes from that town) and situated on the north-eastern slopes of the Taunus, 460 ft. above the level of the sea, lies the town of Nauheim. Although there have been valuable mineral springs in this place for many centuries, yet it is only during the last 70 years that they have been made use of for medicinal purposes. From the many old Germanic and Roman remains that have been discovered near Nauheim, it has been concluded that in the neighbourhood, close to the Roman boundary walls (the so-called *Pfahlgraben*) and in the vicinity of numerous Roman forts, the old Germanic races maintained a constant struggle with the Romans for the possession of the valuable salt-springs. We have, however, no trustworthy account either of the opening of the salt-works or the origin of the town of Nauheim. It is not until the 13th century that we find the first documental evidence of the existence of Nauheim: another document bearing the date of 1457 informs us that a

guild of salt-makers had been in existence for many years. The salt-works and the town of Nauheim changed hands frequently in the course of centuries, partly through inheritance and partly in consequence of wars. Since 1866 the town, which has now about 5000 inhabitants and about 800 dwelling-houses, has belonged to the Grand Duchy of Hesse-Darmstadt.

The erection of the first bathing establishment containing only 9 baths took place in 1835. It was situated in the open place between the Usa and the Kurstrasse, quite near the drinking springs. As these were soon found to be inadequate, another larger bath-house, provided with 32 baths, was added in the year 1850 and then, two years later, another of exactly the same size; these are the two still-existing bath-houses Nos. I and II. The old bath-house was then turned into a restaurant, the little "*Hotel Kur-saal*", as it was called, which was pulled down in the autumn of 1903 to make room for the new Protestant Church. Opposite this there was then built a provisional casino that served as assembly rooms for the visitors until the year 1864, in which year the present casino, the *Kurhaus*, erected on a higher elevation, was completed and opened. During this time a new quarter of the town had sprung up, called into existence by the necessity of providing accommodation for the ever-increasing number of visitors. Near this new part there now arose an extensive and beautifully laid out park, bounded

on the north side by a large lake and on the west by the well-wooded Johannisberg.

Fresh borings were then made and new mineral-springs added to those already in existence; these new springs were, and are still, employed partly for bathing purposes and partly as drinking waters. This unusual abundance of natural remedies and the good results thereby achieved in many different sorts of diseases, in addition to the comforts and conveniences offered, caused the number of visitors to increase continually. It was soon found necessary to erect a third bathing house, No. III, containing 52 bath-rooms, which was opened in the year 1866. Some time before this a large hall and a covered promenade flanked by two pavilions had been erected near the drinking fountains. In one of these pavilions all kinds of mineral waters, fresh milk, and whey are supplied to visitors; whilst the other contained a hall used for the inhalation of saline and other medical sprays from the year 1880 until the erection of a new Inhalation Hall in the year 1902. Between the years 1871 and 1880 a comparative standstill occurred in the development of Nauheim; this was however soon followed by a still more rapid growth. To give a more exact idea of the progressive development of this watering-place I here quote a few figures, showing the number of visitors to Bad-Nauheim and baths taken at different periods.

Year	Visitors	Baths
1835 . . . . .	95 . . . . .	2346
1845 . . . . .	405 . . . . .	7251
1855 . . . . .	2525 . . . . .	22599
1865 . . . . .	3866 . . . . .	27360
1871 . . . . .	5249 . . . . .	56664
1875 . . . . .	4479 . . . . .	53118
1880 . . . . .	4459 . . . . .	53355
1885 . . . . .	5248 . . . . .	71545
1890 . . . . .	8555 . . . . .	112289
1895 . . . . .	14136 . . . . .	186884
1898 . . . . .	19534 . . . . .	260119
1900 . . . . .	22017 . . . . .	319252 *)
1903 . . . . .	24340 . . . . .	348491 *)
1904 . . . . .	24102 . . . . .	357738 *)

The rapid increase in the number of visitors to Bad-Nauheim during the last 20 years necessitated the erection of other bathing establishments. Bath-house No. IV, with 32 bath-rooms, was finished in the year 1888, No. V, with 50 bath-rooms, in 1892, and No. VI, with 62 bath-rooms, in 1898. In the year 1900 a new spring was bored, of which I shall have occasion to speak later on.

To utilise this new supply of water for the purpose of effervescent baths (Sprudel-baths) another bathing-house was erected close to the spring in 1901. It contains 22 bath-rooms, all

\*) In the figures for 1900, 1903 and 1904 are included about 12000 baths which were given in the bathing establishment of the children's hospital ("*Elisabethhaus*") and are not included in the figures of former years.



fitted out with the same comforts as the older houses; there are also several rooms where patients can repose after having taken their baths, a convenience which has since been introduced into the other houses. Thus we have now about 300 bath-rooms at our disposal.

In order however to meet all requirements likely to occur in the future, the Grand Ducal government has resolved to erect new bathing establishments during the next few years so as to raise the number of bath-rooms to 450. There will be occasion to refer to this scheme somewhat later on.

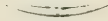
All the bathing houses except No. IV are grouped round the springs which supply them with water. No. IV is situated at some distance off near the *Gradirhäuser* (brine-graduating works), two of which are also used for therapeutic purposes about which there will be more to say later on. The Medico-Mechanical (Gymnastic) Institute, in use since 1893, is likewise in the vicinity.

It will be easily understood that, with the number of visitors always on the increase, the dwellings necessary for their accommodation also multiply in a corresponding degree. Thus a great many beautiful, airy, well-built villas and hotels have sprung up, mostly situated on the outskirts of the park and comfortably fitted up, containing all the latest sanitary improvements. Much has also been done to embellish and improve the town. Beautiful promenades

have been laid out in the vicinity, and pleasant walks made through the woods and on the neighbouring hills.

The arrangements intended for the amusement and entertainment of the public have been increased, improved, and embellished. The enlargement of the park and the laying out of new promenades in the neighbouring wood are especially welcome.

It is intended to make a number of other improvements in the course of the next few years, so that a patient coming here may not only find health and strength, but also take away some agreeable recollections of a stay at Bad - Nauheim.



# CLIMATE OF NAUHEIM

## AND ITS

### SANITARY ARRANGEMENTS.



The climate of Bad-Nauheim is in general that of Central Germany. Observations made for about forty years by the late senior physician of Bad-Nauheim, Dr. Friedrich Bode, show that the average temperature for the different months of the year in Fahrenheit was:

January . . .	32,2 <sup>o</sup>	July . . .	59,5 <sup>o</sup>
February . . .	34,6 <sup>o</sup>	August . . .	58,7 <sup>o</sup>
March . . .	38,7 <sup>o</sup>	September . . .	53,8 <sup>o</sup>
April . . .	46,1 <sup>o</sup>	October . . .	46,2 <sup>o</sup>
May . . .	52,1 <sup>o</sup>	November . . .	38,6 <sup>o</sup>
June . . .	57,3 <sup>o</sup>	December . . .	33,7 <sup>o</sup>

The average temperature for the whole twelvemonths is therefore 46,0<sup>o</sup>.

A few years ago a meteorological Observatory was erected at Bad-Nauheim and the results of the observations made there during the short time correspond approximately with those made for so many years by Dr. Bode.

From these figures it is evident that Nauheim does not show any unusually high temperatures. Individual hot and sultry days occur here

as everywhere else; but invariably, as I have noticed from personal observations extended over a period of many years, the temperature of Bad Nauheim is a few degrees below that of the surrounding towns, such as Frankfort and Wiesbaden, and does not exceed that of Homburg. Days with a maximum temperature of 86° Fahr. are very rare and higher temperatures are extremely exceptional; during the past thirty years I have only once known it to be more than 90° Fahr.

Although Bad-Nauheim cannot perhaps lay claim to all those attributes which belong, in the strictest sense of the word, to a climatic health-resort, yet it possesses many advantages wanting in other watering-places.

Its being situated near a range of mountains and in close proximity to extensive woods gives the air a certain freshness which delights every one, more especially those who habitually dwell in large towns. For the same reason the nights are always cool, even after the hottest days, and the open situation of the town, combined with the fact that many of its streets have houses only on one side and these surrounded by large gardens, effectually prevents any stagnation of the air. The large park and the long avenues offer sufficient shade, so that, even in the hottest season, the heat seldom becomes oppressive. For those who like to seek out cool places during the warm weather, the *graduating-house* will be found a most reviving

and refreshing resort; others may prefer the breezy summit of the Johannisberg, or the cool shade of the wood.


The purity of the air of Bad-Nauheim is universally commended and although one patient may occasionally find it "*too mild*", another think it is "*too bracing*", yet the same thing may be said of every health-resort. It is merely the result of idiosyncrasy caused by the wonderfully varied reactions of the nervous system in different persons, even under exactly the same external influences. How frequently do we find, for instance, that sea-air will agree best with one patient, whereas for another, under the very same circumstances, mountain-air is found most beneficial.

Moreover, the sanitary arrangements of the town, and especially the improvements that have been made during the last few years, would satisfy the most scrupulous and exacting physician. The whole town is now intersected by a network of drains, which are laid down according to the latest system. All the waste and drain water is carried far outside the town to a distant clarifying basin, where the water is purified and conducted to the Usa at half an hour's distance from the town lower down the river.

All the houses are, by means of mains supplied with a pure, fresh drinking water, which is at stated periods examined and analysed at the Hygienic Institute of the University of Giessen. The closets are everywhere sup-

plied with flush-water and are under the control of the sanitary police. The streets are kept as free from dust as possible by repeated watering, either with the hose or the watering-cart. Every year the paths in the park are, at no small cost, strewn with fresh crushed gravel, which is almost entirely free from dust. For this reason, and owing to the fact that Nauheim is situated on the slope of a mountain-range, the paths quickly become dry even after the heaviest shower of rain, and also after continued rainy weather the under-surface of the ground is not wet to any depth.

There are three hospitals in Nauheim for poor people suffering from chronic diseases: the *Kurhospital Konitzky-Stift* for adults, the *Elisabethhaus* and the *Israelitische Kinderheilstätte* for children. The two first-mentioned have bathing houses of their own. Some years ago a long felt need was supplied by the erection of a new hospital for cases of acute disease. The regulating of the bed of the Usa river, when finished, will complete all the sanitary improvements that could be desired for the town and we shall then, with justice, be able to say that Bad-Nauheim has reached the summit of perfection as regards its sanitary arrangements.



## THE NATURAL REMEDIES AND OTHER CURATIVE RESOUR- CES OF BAD-NAUHEIM.

Of all the numerous brine springs and wells that have, from time to time been sunk so as to obtain as high a percentage of brine as possible, only six are still in use; three of these are employed to supply the baths, viz., the Grosser Sprudel, or Spring No. 7, the Friedrich-Wilhelms-Sprudel, or Spring No. 12, and the Ernst-Ludwig-Sprudel, or Spring No. 14. The sinking of the first of these springs was begun as early as 1839, but the desired result not being obtained the works were entirely abandoned in the year 1841, after having reached a depth of 160 metres. Quite unexpectedly, however, on December 22nd, 1846, a powerful spring with a temperature of 31.6° Cels. (88.9° Fahr.) and more than 3 per cent of salt forced its way through the covered up sinking-shaft. As this spring was the most powerful of any existing at that time, it received the name of the "*Grosser*" (i. e. Great) Sprudel. At present, however, this is no longer the most

powerful, for the one situated close to it, sunk in the years 1852—55 to a depth of 180 metres (Spring No. 12, or the Friedrich-Wilhelms-Sprudel) surpasses it by far in the quantity of water produced, and has 1 per cent more salt being also  $3\frac{1}{2}^{\circ}$  Cels. ( $95.5^{\circ}$  Fahr.) warmer. When the regulating cock of the discharge pipe is turned on full, which takes place from time to time especially on festivals, the column of water mounts to a height of 14 metres.

Owing to the ever-increasing number of visitors at Bad-Nauheim, the danger became more and more imminent that, in spite of the abundance of water yielded by the two large Springs 7 and 12, there would ultimately be an insufficient supply for the baths. For this reason it was resolved in the year 1899 to bore a new spring. The work was begun in October of that year. On the 7th of March, 1900, after a depth of 680 ft. had been reached, the water suddenly burst forth. The new boring was called Spring No. 14, or "*Ernst-Ludwig-Sprudel*", in honour of His Royal Highness, the Grand Duke of Hesse.

The new spring is situated 100 ft. to the north-east of the two older ones, having about the same amount of carbonic acid gas, 3 per cent of salts, and a temperature of  $90^{\circ}$  F. It now throws up 800 cubic metres of water every twenty-four hours. As Spring No. 7 yields 500 cubic metres, and Spring No. 12 1200, the three together give a supply of 2500 cubic metres



(550 000 gallons), a quantity sufficient for 6000 baths a day. Up to the present day, however, the maximum number of baths given per diem has only reached about 3300.

The projecting force of the springs is the carbonic acid which, in endeavouring to make its escape, throws the water up into the air, much in the same way as it does on opening a bottle of sodawater or champagne. Carbonic acid is altogether the most important ingredient of our springs: they contain in fact a larger quantity than any other known mineral water. Another peculiarity distinguishing these springs is the great quantity of salts that they contain, especially of some very strong salts, such as chloride of calcium, chloride of potassium and chloride of magnesium. They also contain a great quantity of iron. Added to these peculiar properties they also have the advantage of natural warmth. An exact analysis of all the springs at present in use will be found annexed to the first part of this book.

By means of existing contrivances the water of the three springs can be applied for a great number of different sorts of baths, which I will now endeavour to enumerate and explain.

## THE DIFFERENT SORTS OF BATHS.

1) ORDINARY BRINE BATH (*gewöhnliches Soolbad*). The water that rises with great force from the interior of the earth falls directly into large reservoirs, from which it is carried, by

means of pipes, partly to the different bathing-houses and partly to the salines or salt-works, where the brine is made into salt. A line of pipes conducts the water from Spring No. 7 to bath-house No. IV. Before entering it the water is made to pass through a graduating-house, whereby the carbonic acid is removed and the water purified from undissolved particles. This water is then only used for preparing baths free from carbonic acid, i. e., the so-called "simple" brine baths, which greatly resemble the Kreuznach baths, but are considerably stronger. These baths can be given with any temperature or strength required; fresh water being added if a weaker bath is desired, or some of our excellent mother-lye (*Mutterlauge*), when a stronger bath is prescribed.

## 2) THERMAL BRINE BATH (*Thermalbad*).

These baths are given in the bathing-houses No. II, III and VI. Here the brine comes direct from the spring-reservoir with almost its natural warmth — thence the name "thermal" brine bath — that is to say  $29\frac{1}{2}$  —  $32\frac{1}{2}^{\circ}$  Cels. ( $85$ — $90\frac{1}{2}^{\circ}$  Fahr.), according to medical direction, either from one spring alone or from both, mixed in varying proportions and containing from 2 to  $3\frac{1}{2}$  per cent of salt, just as may be desired. These baths contain a considerable quantity of carbonic acid held in solution — not the full amount possessed by the spring, as a part of it is lost in the rising and falling of the fountain.

By this escape of carbonic acid a certain part of the calcareous and ferruginous salts, which is kept dissolved in the water by the carbonic acid, becomes insoluble, as can be clearly perceived by looking at the fountain: this gives the water a dull yellowish colour.

3) EFFERVESCENT BATH (*Sprudelbad*). To the main pipes which lead directly to the fountain itself lateral subterranean pipes have been attached, so that the water is brought straight from the interior of the earth into the baths, without anywhere coming in contact with the air. It is in this way that bathing-house No. I is supplied from spring 7, bathing-house No. V from spring 12 and bathing-house No. VII from spring 14.\*) The water thus containing its full amount of carbonic acid, reaches the bath in an integral state and as clear as crystal, with only a slight diminution in its natural warmth, having  $30\frac{1}{2}^{\circ}$  and  $33\frac{1}{2}^{\circ}$  Cels. ( $87^{\circ}$  and  $92^{\circ}$  Fahr.) respectively. The amount of salt contained is the same as that in the thermal baths and can be both increased and diminished. The temperature of the baths can also be altered at will: this is frequently done by cooling it down with ice.

4) EFFERVESCENT THERMAL BRINE BATH (*Thermal-Sprudelbad*). For many years

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\*) Early and late in the season Sprudel-baths from spring 12 are given in bathing-house No. VI and from spring 7 and 14 in bathing-house No. VII.

J had desired a bath which should form a gradual transition from the relatively weak thermal baths to the very strong effervescent baths. In the year 1901 my proposals in this direction were adopted by the Grand-ducal authorities and carried out in the most satisfactory manner. The water for the new baths flows through special pipes to subterranean reservoirs from whence it is conducted to the baths without having come into contact with the air. The pipes and reservoirs are all enclosed in air-cases, which causes such a perfect isolation that the natural warmth of the mineral water is preserved. In these reservoirs only so much carbonic acid gas escapes as corresponds with the diminished atmospheric pressure, whereas in the open reservoirs for the thermal baths a great quantity evaporates. In the strong effervescent baths (Sprudel-baths), on the other hand, the whole quantity of carbonic acid gas is retained, as the water comes directly into the baths from the interior of the earth. The novel kind of baths is thus midway between the two older sorts hitherto in use, the Thermal and the Sprudel-baths, wherefore the new baths bear the name of Thermal-Sprudel-baths.

Numerous comparative tests made by Dr. Theo Groedel II. in the year 1902 as to the amount of carbonic acid gas contained in the different kinds of baths from the three springs showed the following average results, expressed as volume percentage:

	Spring VII	XII	XIV
Sprudel-bath . . . .	37,5	35	34
Thermal-Sprudel-bath .	30	31	24
Thermal-bath . . . .	21,5	21	—*)

The Thermal - Sprudel - bath is admirably adapted as an intermediate stage to avoid the sudden change from the Thermal-bath to the Sprudel-bath. The consequence of this is, from the experience I have made since the installation of the new kind of baths, (*i. e.*, in the course of the last three years), that many can now support Sprudel-baths who were formerly unable to do so. In the few cases where Sprudel-baths can not be endured, the Thermal-Sprudel-baths afford an adequate substitute, whereas in former times we were obliged in such cases to restrict ourselves to the prescription of Thermal-baths. The Thermal - Sprudel - baths from spring 7 are given in bathing-house No. III, from spring 12 in bathing-house III and VI.

5) CURRENT THERMAL BRINE BATH, CURRENT EFFERVESCENT BATH and Current Effervescent Thermal-Bath (*Thermalstrombad, Sprudelstrombad and Thermalsprudelstrombad*). A greater effect on the organism is to be obtained from the thermal baths, as well as from the effervescent baths and effervescent thermal baths by keeping up a continual flow

\* Thermal-baths from spring XIV can not be given till an open reservoir has been erected for it: this will probably be done next year.

of water through the baths; this is effected by leaving the filling and emptying pipes open and letting the water run continually into the bath and out again with an ever equal temperature. These baths are a specialty of Nauheim.

6) SHOWER-BATHS (bathing-houses Nos. III and IV). These baths are sometimes used in connection with other baths, but can also be taken by themselves. The existing improvements enable us to apply brine and fresh-water shower-baths of all sorts in many different degrees of strength and temperature.

7) HIP-BATHS. These baths are prepared either with thermal brine containing gas or with brine free from carbonic acid. (Bathing-houses II, III, IV, VI.)

8) FRESH-WATER - BATHS in bathing-house No. IV all day long, in bathing-house No. VI only during the afternoon.

The erection of another establishment for swimming-baths has been proposed.

THE BATHING-HOUSES are all, except No. VII, built on a common ground-plan. In the centre lies the waiting-room, with two long wings containing bath-rooms on either side. In the waiting-room of bathing-house No. VI is a ticket-office for bath-tickets and in the northern wing of the same building another for season-tickets (*Kurkarten*). In the northern wing of bathing-house No. VI is the consulting-room of the President of the *Bade-direction*; in the centre building of bathing-house No. III is the dwelling

of the Commissioner-of-baths, in the south pavilion the dwelling of the President of the Bade-direction, and in the north pavilion of the same house lives the manager of the bath-attendants. The fittings of the older bathing-houses are very simple, every later building, however, is more complete than the preceding one, so that the three last — bathing-houses No. V, VI and VII — are in every respect models of their kind and excite the admiration of every beholder. The bath-tubs are made of wood in all the houses without exception, as this has been found after many trials with other materials (porcelain, glass, metal etc.) to be the most serviceable, both as regards its power of resistance against the destroying influences of the thermal brine, and for its greater comfort in use. Over each bath is fixed an appliance for shower-baths, which can be used either as a strong water-spout or a gentle spray douche. By the side of each bath there is a receptacle for the warming of the bath-linen. Steps, benches, and other arrangements to facilitate the getting in and out of the baths are kept at hand in all the bathing-houses and are to be had by applying to the bathing attendants.

The prices and other information concerning the baths are given in an extract of the bathing-regulations, and will be found in the appendix of the first part of this book.

Ever desirous to improve and complete the bathing establishments, the Hessian government

has now resolved to construct two large new bathing-houses. Each will contain four departments, so that there will in reality be eight houses. The old houses I, II and III will be pulled down as well as house No. VII which was built only a few years ago. It is intended that the new bathing-houses shall be finished within a few years and the old ones are not to be pulled down until this is accomplished. By degrees the number of bath-rooms will thus be raised from about 300 to 450. The longitudinal position of the two large houses will be correspond with that of bathing-house V. Between the two there will be the three effervescing fountains in new basins of architectural beauty. When this change is carried out, people coming from the railway-station will be able to see the large springs which are now hidden by bathing-house III and to pass straight between the bathing-establishments into the park. The various departments of the two new houses are to be built on much the same plan as bathing-house VII, that is, an open space surrounded on all four sides by the building, though of course on a much more lofty scale. The interior space will be laid out as a garden. The front of each department will contain the entrance and waiting room, the three wings have only bath-rooms. Looking to the garden there will only be corridors and all the bath-rooms will look outside, or into a smaller inner court, which is between every second department and contains reservoirs



for the thermal baths and thermal effervescent baths. The long facing sides of the two houses, which are about 600 ft. in length, are to be provided with a colonnade where the patients may sit down or walk about. The interior arrangements of the bath-rooms will be similar to those of bathing-houses V and VI. I have proposed to the Administration of the bathing-establishments to provide a number of "*reposing rooms*", where the patients directly after the bath can repair and rest in a recumbent position for an hour. I trust that the government will accept this proposal, which is of the greatest importance for many patients.

The beginning of these changes will be made by erecting one of the departments behind bathing-house III. *i. e.*, facing the railway-station, and then half of No. III house will be pulled down. Two new houses, intended for offices and dwellings of the officials which have hitherto been located in bathing-house III, are to be erected in Ludwigstrasse directly opposite the new bathing establishments. All these buildings will be built in modern baroque style.

During the construction of the new and the demolition of the old bathing-houses, it is to be expected many essential changes may be made in the above-outlined distribution of the different kind of baths in old and new bathing-houses and in many other ways and it is therefore intended to issue from time to time a supplement to this book which will be

presented gratis to all those in possession of this edition.

## THE GENERAL EFFECTS OF THE BATHS.

The views and opinions of medical men on this subject, which were for a long time so diverse, are now becoming clearer and more unanimous. In this place it will only be possible to touch upon the principal points.

It is now universally acknowledged that the chief aim of taking these baths is not that the body should absorb anything from the bath thus influencing the composition of the blood and tissues, but that all the baths have a peculiar irritating effect on the ramification and completion of the nerves in the skin; this irritation is then transferred from the terminal nerves to the central parts of the nervous system thus producing an effect on the entire body. The irritation of the cutaneous nerves caused by the baths is partly of a thermic, partly of a chemical, and partly of a mechanical nature. By its means we are enabled to influence the heart's action, the respiration, the blood-pressure, the entire circulation of the blood, and the warmth of the body, etc.: it is thus in our power to promote and regulate the change of tissue to an astonishing degree, to effect the absorption of products of diseases and their excretion and expulsion from the body, to excite the formation of healthy tissues by means of

suitable dietetic regulations, and to produce a better nourishment and strengthening of the whole organism, as well as of any locally diseased part of it.

That which especially distinguishes the Nauheim baths from others is the variety of irritants they contain, and this, as above mentioned, constitutes the chief efficacy of all baths. The Nauheim springs have a natural warmth, which is exactly the temperature we need for the treatment of very many diseases: they are abundant in salts and possess a quantity of iron and carbonic acid unsurpassed by any other chalybeate baths. Thus we have here a fortunate combination of all those properties, each one of which if found alone would be sufficient to establish the reputation of a watering-place. Thus Bad-Nauheim in the natural warmth of its baths, resembles Wildbad, Ragatz, Gastein, Bath, Wiesbaden etc., for the amount of its salts Kreuznach, Reichenhall etc., and in its abundance of carbonic acid and iron it resembles Schwalbach, St. Maurice, Franzensbad, Pyrmont, Spa etc. Moreover the arrangement is such as to allow baths of all kinds to be given, from the weakest to the strongest.

One point more I will not fail to mention, as it is of especial importance in the method usually employed here of prescribing baths for some kinds of diseases, namely, that the large amount of carbonic acid found in our baths makes it possible for us to prescribe a much

cooler temperature than is the case with other baths, as the peculiar irritation caused by the carbonic acid increases the circulation in the skin and produces a sort of warm feeling, so that the unpleasantness of cool baths is much less felt. I cannot, enumerate here all the advantages of cooler baths compared with warmer ones for diseases in general, and for some in particular, as it would lead me further than the limits of the present work permit.

### THE MINERAL DRINKING-WATERS.

We have three springs at our disposal for supplying drinking-waters, two of these (the Kurbrunnen being the stronger and the Karlsbrunnen the weaker) belong to the so-called effervescent saline purgative waters whereas our Ludwigsquelle is an effervescent alkaline water serving not only for medicinal purposes, but also as a table-water in the same way as Selzer-water (for analysis of these springs see appendix). The two first-mentioned springs are situated near the drinking-hall, behind the "*Dankeskirche*" and the Park-hotel. The Ludwigsquelle lies about five minutes farther off on the road to Friedberg, but its waters can also be had, when desired, at the springs near the drinking-hall.

In the course of the next few years the drinking-hall will be substantially enlarged, especially along the side of the *Usa* in the direction of the Karlsbrunnen which was completely transformed two years ago.

Formerly the old Karlsbrunnen was frequently preferred to our other purgative water, the Kurbrunnen, but did not yield more than about 600 gallons in 24 hours. This quantity not being sufficient, a new and larger pipe penetrating 12 ft. deeper into the earth was inserted. The water, which is still of the same quality as before, now issues forth at the rate of 15000 gallons a day. Whilst the Kurbrunnen is similar to the Rakoczy in Kissingen, the ingredients of the Karlsbrunnen are the same as those of the Elisabethbrunnen in Homburg, and the water is not only used to aid the bath-treatment in cases of rheumatism, gout, etc., by increasing the metabolism, but also, in the same way as the Homburg water, for diseases of the digestive organs. The arrangements for drinking and filling are such as meet every hygienic requirement.

The waters of the three springs are taken according to medical prescription, each one by itself or mixed, as the physician may think best: they are taken at their own natural temperature or made still warmer, and from 1-3 glasses containing 5-8 ounces each: they are mostly taken in the morning while fasting. Many other kinds of mineral waters (Marienbad, Karlsbad, Schwalbach and others) are frequently prescribed by physicians and are always to be had in a perfectly fresh condition in the drinking-hall.

Smoking is forbidden in the drinking-hall and the promenade near it during the morning

whilst the mineral waters are being taken. Dogs are not allowed at either of these places.

### THE GENERAL EFFECT OF THE MINERAL WATERS.

The drinking of mineral waters is followed by several curative effects; I shall endeavour to enumerate them in a few words. By prescribing a course of mineral waters we are enabled to stimulate the metabolism in several ways and to promote the absorption and excretion of exudata and other remains of diseases; moreover we can exercise a direct influence upon the stomach and bowels and by exciting the action of the intestines we can indirectly change the circulation in the abdominal organs as well as those in more remote parts of the body.

Mineral waters are frequently taken for kidney and bladder diseases. We are often enabled, by incorporation of the chemical ingredients of the waters, to promote the reformation of the entire constitution, as in cases of gout, and to produce a transformation of the blood, as for instance, with chlorosis and other forms of anaemia.

From these few observations it is not difficult to perceive, that for a great number of complaints the drinking waters alone can be beneficial, but they are still more efficient when taken in connection with the baths.

A course of mineral waters demands constant medical supervision by an experienced

physician just as much as with a course of baths, because these as well as other waters are capable of doing irreparable injury, and I have not unfrequently seen cases of severe stomach and intestinal irritation brought on by their unrestricted and indiscriminate use.

### OTHER MEANS OF TREATMENT IN USE AT NAUHEIM

1) FRESH MILK AND WHEY. Goats' whey prepared fresh every day by a Swiss dairyman is to be had in the western wing of the drinking-hall, and likewise every morning and evening fresh milk just taken from cows examined by veterinary surgeons. During the day time both fresh and sour milk, Kefir, and sterilized milk from Swiss cows, are on sale at a little cottage near the bridge in front of the fountains.

2) INHALATION. The old inhalation-hall in the eastern wing of the drinking-hall that had been in use for about 20 years was no longer up-to-date: several years ago I proposed the erection of a new inhalatorium. This wish has now been granted and the new building, situated in the little park behind bath-house No. IV, was opened in 1902. It contains two large halls for the inhalation of brine-vapours and two rooms fitted out with a great number of different apparatus for direct inhalation through mouth and nose. In two other rooms there are pneumatic apparatus required in treatment with compressed and rarefied air, and in another

room the same for the inhalation of oxygen. The whole establishment is the most perfect of its kind, both as regards the apparatus and for comfort, cleanliness, and ventilation.

The diseases mostly treated here are catarrhs of the pharynx, the larynx, the bronchial tubes, and emphysema, the latter of which often leads to a disordered circulation of the blood, in which case, particularly, the baths in connection with a pneumatic treatment often do excellent service. As to the results that may be obtained in cases of disturbed circulation by the inhalation of oxygen I am not yet in a position to express a definite opinion.

The Graduating House, or *Gradirhaus*, near bathing house IV is also used for purposes of inhalation, and therefore provided with a covered promenade and a number of seats. The air impregnated with ozone and saline particles is remarkably beneficial in cases of catarrh of the respiratory organs and of nervous ailments, but it is also strengthening, refreshing and reviving for every one, especially on hot summer days. In this *Gradirhaus* the water is only put in action during the usual bathing hours (Sundays in the morning only), but in another larger house, lying more to the south and also provided with seats it is at work every day without interruption. Lately the grounds, halls, and terraces near the evaporating buildings have been considerably extended and made more commodious, especially by providing them with



roofed wicker - chairs and basket - chairs for lying down.

3) MASSAGE AND SWEDISH GYMNASTICS. These are applied in part manually, in which case thoroughly trained servants are employed, and partly mechanically, in the new Medico - Mechanic Institute, by means of very ingeniously constructed machines invented by Professor Zander of Stockholm. (For this reason the Institute is also called the Zander Institute.) These machines execute all the passive and active movements and other exercises required by the Swedish Gymnastics with the greatest exactitude, thus enabling us to prescribe any given exact amount of exercise, which is absolutely impossible where manual force is applied. The Institute is situated somewhat to the south of bathing-house IV and is managed by a tried gymnast of many years' standing, under the control of the physicians. The Institute, which was greatly enlarged three years ago, may be inspected at fixed times and is indeed worthy of a visit.

4) ELECTRIC BATHS are to be had in the above-mentioned Zander Institute. They are given in all the customary forms, the most usual at present being the "*four-celled baths*" and the alternating current baths which are said to have a special influence on several heart-diseases. The matter, however, still requires more reliable data.

5) MUD - BATHS are given in the bath-house of the Konitzky - Stift until, as we hope,

a special house will have been erected for the purpose.

6) TERRAINKUR (pedestrian exercises), for which purpose a number of paths, both level and with varying steepness of ascent and corresponding fingerposts, have been provided. A map explanatory of the *Terrainkur* is to be had in all bookseller's shops.

I may here mention that a *Röntgen rays chamber* was erected last year in bathing-house III by the government.

Taking into consideration how much has been done in the past few years by the administrative authorities and all that is planned for the coming years to strengthen Nauheim more and more in its position as one of the first Spas in the world, it would be strange if our astonishment were not aroused. With the consent of the Hessian parliament the government has now even gone so far as to grant 6½ million Marks to be disbursed within the next few years for the erection of new bathing-houses and other improvements, as well as for the general embellishment of Bad-Nauheim. Great thanks therefore are due to them on the part of the physicians, as well as on that of patients coming for their health to Bad-Nauheim.

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## THE DISEASES FOR WHICH BAD-NAUHEIM IS ADAPTED AND THEIR TREATMENT.

In Nauheim we see, as the great variety and wealth of its curative powers may lead us to suppose, a whole series of the most different diseases, for the treatment of which special methods have gradually been developed. These methods are to be considered as the result of purely scientific deliberations, aided by experience acquired in the course of time and by continued and careful observation.

It is not my intention to discuss every kind of disease for which Nauheim is adapted or which comes under treatment here. I shall content myself with speaking about those which are especially represented and occur in greater numbers among the health-seekers that visit Nauheim.

I shall first consider a category of diseases which are most prevalent here and for the treatment of which Bad-Nauheim enjoys a long-tried and quite especial reputation, I mean gout and the various kinds of rheumatic affections. These

are so frequently confused and misunderstood by those who are not of the medical profession, that I think it advisable to mention them in succession and, at the same time, to give a more detailed account of their symptoms and distinctive features, as they each require in some respects a perfectly distinct kind of treatment.

### THE GOUT.

This is a well-characterized disease, which in the beginning chiefly occurs in isolated acute attacks, commencing as a rule in the feet, (Podagra), and with preference in the first joint of the big toe, then afterwards affecting other joints and finally leading to still further disorders. The attacks are exceedingly painful and usually take place in the middle of the night, having often been preceded for several days by indigestion, a tired feeling in the legs, and general indisposition. The region round the joint affected is greatly swollen, the skin shiny, of a deep red colour, and the least touch is often insupportable. Fever is almost invariably present. The isolated attack, — the fit, as it is called, — lasts, with diminution of pain by day and increase by night, for from 5—10 days.

After each attack, especially during the first years of the disease, a long period of good health succeeds, indeed, the sufferer often feels himself much better after the attack than before it. After some time, however, the fits return more frequently and last longer, but are not so

painful. When the attack has passed away, the joint or joints affected continue to be somewhat red, the skin swollen, and the flexibility lessened. Near the diseased part — sometimes even in other parts of the body — the so-called tophi (deposition of urates) appear, showing themselves mostly in the ankles and wrists, on the outer border of the ear and in the sinews of the toes, fingers, and elbows. The gout has now become chronic. The general state of health is often lastingly disordered, indigestion is constantly present and certain complications (of the heart, kidneys etc.) begin to make themselves felt.

Regarding the character and nature of gout, it has long been known to be a constitutional disease, generally assailing men, and either hereditary or acquired by a too luxurious course of living. While digesting the nourishment conveyed into the body, uric acid is formed in great quantities and in a state not easy to be dissolved. At the same time other acids are produced in abundance and the blood and other organic fluids are affected by them, thereby losing alkalescence. Thus a new factor in the difficulty of dissolving the uric acid is created, and the latter is consequently retained in certain parts of the body and not discharged in sufficient quantities with the urine. I cannot here give a more detailed account of the origin of isolated acute attacks of gout, of the tophi, or of chronic gout and its complications. I will only quote the theory that acute attacks of gout

are caused by the absorption and excretion of uratic depositions.

What has already been explained will suffice for the understanding of the principles of treatment. The first thing to be considered is how to remove, as far as possible, the causes which aid the production of insoluble uric acid and its retention in the body, and then to do away with those troubles and complaints that have already been produced by the disease.

To accomplish the first part of the treatment the patient's style of living must, above all, be regulated. The diet should be a so-called mixed one, containing no superfluity either of carbohydrates or of azotized food, but abundance of fresh vegetables and fruit. The taking of wine or beer is noxious. If alcohol must be taken, brandy and such like liquors in water are preferable to other kinds of alcoholic drinks. It is not possible to give fixed regulations for all cases, we must be guided by the bodily condition of the patient, his digestion, his occupation and his habits. But the principal rules to be observed are, firstly to avoid disordering the digestion which causes the formation of acids, and secondly to prevent the abnormal formation and accumulation of insoluble uric acid in the body.

For the same reason, and in order to promote the expulsion of the uric acid, much exercise in the open air is of the greatest service.

Taking baths and mineral waters likewise serve the same purpose.

By drinking the mineral waters many things can be effected: the promotion of the change of tissues, the improving of the digestion, and the supplying of alkalies (especially of bicarbonate of soda, but also of potassium, calcium and lithium salts) in order to increase the alkalinity of the organic fluids and thereby their ability to dissolve the uric acid and to excrete it with the urine in the form of urates. Our Kurbrunnen, more or less diluted, answers these purposes very well, owing to its great amount of chloride of lithium, chloride of potassium, and bicarbonate of lime. Besides this the patient should drink the alkaline water of the Ludwigsbrunnen during the day, which has a very beneficial effect, on account of its bicarbonate of soda. Instead of the Kurbrunnen (of course according to circumstances) I also sometimes prescribe the Salzschlirf Bonifaciusbrunnen which contains a great quantity of lithium, or our Karlsbrunnen with the addition of a little Karlsbad salt and, instead of our Ludwigsbrunnen, the Fachingen mineral water or the Offenbach Kaiser-Friedrich-Quelle. In these cases, however, we must be guided by the reacting of the stomach on the different waters. It is also advisable to prescribe an alkaline water to be taken at home for a long time without intermission. I know several gentlemen who have for many years been in the habit of drinking the water of our Ludwigsbrunnen at home, as it can, owing to its small amount of firm ingredients, be taken for a long

time without any kind of disturbance to the stomach or the digestion.

The object of the baths should be to produce by means of a powerful stimulation of the peripheric circulation and innervation a change in the composition of the physical fluids. It has been ascertained as a fact that with patients suffering from gout a decided effect on the solubility of the uric acid and its excretion with the urine has been produced by means of baths. It not unfrequently occurs, therefore, that during such a course an attack of gout comes on, though it quickly passes off again; an event I do not consider at all undesirable, especially for patients with whom the gout has already taken a chronic form. For these the baths have still a further purpose, namely to relieve, or if possible to remove entirely, the complaints which the gout has left behind, such as swellings of the joints, stiffness, etc. The course of baths usually begins with thermal brine baths having a temperature of 34—35° Cels. (93—95° Fahr.), gradually being superseded by the stronger and more stimulating kind of baths. The Sprudel-baths and the Thermalsprudel-baths from Spring 12 are especially effective with their natural warmth of about 33° Cels. (92° Fahr.). When we desire to promote the absorption of exudata and to remove the stiffness produced by it, the Thermalsprudelstrom-baths and Sprudelstrom-baths are often found efficacious. Beneficial effects are frequently produced by warm showers being applied



to the joints in question, by massage, and by both active and passive gymnastic movements. Especially useful for this purpose are the excellent machines of the Zander-Institute.

For a fresh form of gout, coming on in acute attacks, a course of 25—30 baths is mostly sufficient. By a gradual transition to cooler baths (down to about  $28^{\circ}$  Cels. =  $82\frac{1}{2}^{\circ}$  Fahr.), which at the end of the course are followed by frictions with cool water (down to about  $18^{\circ}$  Cels. =  $65^{\circ}$  Fahr.), we endeavour to strengthen the entire organism and make it more capable of resisting disease. In this manner, each separate case having a specially regulated course of treatment, I have obtained some really brilliant results. The attacks either never returned at all, or only after very long intervals, and the remains of the exudata disappeared entirely.

Less brilliant as regards entire recovery are the results in cases of chronic gout. Yet I have obtained very satisfactory issues in the improvement of swellings, stiffness, difficulty in moving certain joints, and the revival of sinking physical strength. A longer course of baths with a slower procedure is of course necessary in such cases, the more so, if at the same time the internal organs are deranged, especially the heart; of this I shall have more to say later on. The baths with a very high temperature,  $97$ — $100^{\circ}$  Fahr., which are recommended by some physicians and are customary in many watering-

places, have often according to my experience a weakening effect -- it is precisely against a treatment consuming physical power, that we have to guard our patients. For the same reason baths with too cool a temperature (under 91° Fahr.) are not recommendable, nor can they be supported; every attempt at hardening the body should therefore be avoided.

We will now proceed to another disease which is likewise frequently mistaken for gout by people out of the medical profession.

### ARTHRITIS DEFORMANS.

(DEFORMING INFLAMMATION OF THE JOINTS.)

This name indicates, it is true, a certain relation to gout, but it had its origin in the erroneous opinions of earlier times. At present physicians regard this disease as one that is to be strictly distinguished from gout, as it is caused by disordered nutrition in all the articular parts. This disordered nutrition is the result of chronic inflammation and creates an abnormal swelling of some parts and an atrophy of others, producing thereby complete deformity (hence Arthritis deformans.) There is none of the so-called uric acid diathesis, as is the case with genuine gout, and, in contrast to the latter, this disease occurs more frequently among women than among men. It usually attacks both halves of the body equally and often passes from the small peripheric joints — fingers, hands — to

the larger ones — elbows, shoulders, — more rarely beginning with the toes and passing on to the knee, etc., and appears to be caused by disordered innervation. Another form, occurring more among men in old age, called the “*senile form*”, attacks the larger joints, especially the hips and vertebra, then the shoulders and knees, but not both sides symmetrically.

The arthritis deformans begins with pains in the joints and the characteristic changes make their appearance very gradually; the heads of the bones become strikingly prominent, which is caused partly by swelling of the same and partly by atrophy of the surrounding fleshy parts. Little by little every movement of the limbs becomes more difficult, a crepitation is both heard and felt when moving them, distortions and contractions appear, the hand and fingers get into peculiar positions (the fingers lie one on top of the other, like the tiles of a roof, or they take the so-called “*claw*” form). At the climax of the disease the patients are scarcely able to make the least movement and have become quite helpless.

The cause of the breaking out of this disease is attributed to all kinds of pernicious influences, for instance, taking cold; a dull, damp dwelling: insufficient nourishment; overworking of body and mind, and also fright, worry, grief, etc. For my part I have not been able to convince myself of any particular cause, and in some rare cases, where the disease had

exceptionally attacked young women in good circumstances, I searched in vain even for the origin of the malady.

For this reason we have more difficulty in treating this disease than the gout. But nevertheless we occasionally succeed in stifling it in the germ, especially when in the "*peripheric*" form, or at least we stop its further progress. All the internal remedies that have hitherto been tried have been abandoned, as they never produce the effect desired. The drinking of mineral waters has had just as little success. Baths, on the contrary, are generally acknowledged as beneficial and patients are continually sent by their physicians to take a course year by year.

From my own experience, most good is done to such patients by the thermal brine baths with a temperature of about 35° Cels. = 95° Fahr. and of longer duration than usual, that is to say, half an hour.

I have repeatedly seen that after a great number of baths have been taken an easier movement is acquired, then the pain disappears and a suspension in the ever-advancing process of the disease takes place. Very strong stimulating baths, such as effervescent baths and those of cooler temperature, are, according to my experience, seldom advisable for the "*peripheric*" form, and current effervescent baths should never be used. The latter, however, I frequently apply in cases of the "*senile*" form

and especially those of spring 12, when the physical condition of the patient will allow it. The patients often actually long for each coming current effervescent bath, so quickly do they feel the beneficial and relieving effect, and so much does it improve their power of movement. Shower-baths, whether cold or warm, so far as it has been in my power to ascertain, have no effect at all on the diseased joints, or if any, rather an unfavourable one. Very weak brine-bandages sometimes operate favourably, but bandages with concentrated brine, like every other stronger irritant, are actually hurtful. I am much more in favour of a careful and gentle massage and it is in every case good to make the diseased limbs execute methodically the passive and active gymnastic movements, because by perfect rest the stiffness of the joints and the atrophy of the neighbouring parts are only increased, whereas by muscular exercises and the wearing away of the roughness on the heads of the bones, the power of using the limbs is augmented and they are prevented from becoming totally stiff. But it should be strictly forbidden to force the movements and thus irritate the diseased joints, which only results in increased pain. Galvanisation, which has sometimes been applied with success along the vertebral column and on the joints attacked, is only to be recommended after a course of baths has been taken.

## CHRONIC ARTICULAR RHEUMATISM.

This disease has sometimes its origin in rheumatic fever, but mostly makes its appearance independent of other maladies and is then, by patients, generally attributed to their having taken cold, whilst the physician in vain seeks the real cause, which we have seen is also the case with arthritis deformans. To the latter disease it sometimes has a certain resemblance, but yet substantially differs by not usually appearing symmetrically and not predominating with the female sex. Neither are the joints attacked in the same order of succession as with arthritis deformans; it mostly assails one or more of the larger joints of the upper or lower extremities (ankle, knee-joint, or shoulder, elbow, wrist etc.). The joints attacked are almost always very sensitive, and from time to time they become the seat of acute pain, which sometimes arises without any apparent cause, and at others is produced by pressure or movement of the parts affected; the pain then spreads beyond the joints into the fleshy parts. As in cases of muscular rheumatism, of which we have to speak in the next chapter, it becomes more violent while cold, whereas warmth has a soothing effect. The greatest pains occur when, after a long rest, any exertion is made, such as getting up in the morning, or rising after sitting for a long time. It is then the creaking in the joints that occurs so frequently is most strikingly audible. Sometimes the joint is scarcely swollen at all, at

other times very much so. In severe cases deformities appear, as with arthritis deformans. Atrophy of the muscles and ankylosis (stiffness of the joints) make these patients as helpless as the former. Then it is frequently impossible to distinguish one disease from the other. Nevertheless this is not a sufficient reason to pronounce the two diseases identical, as has lately been done. We can be satisfied with the assumption that one disease can sometimes turn to the other, or the one appear in conjunction with the other. There are, as we have seen, distinctive features; enough, especially in the early stages. I must here add, as a matter of especial importance, that each of these diseases reacts in a different way on the remedy employed, of which I have still to speak. It must also be remarked that there is a much more favourable prognosis of chronic articular rheumatism, than is the case with arthritis deformans.

In the treatment of this complaint baths have also from the earliest times played a principal part. It is here the chief aim of the baths to improve the circulation in the parts affected. Strong baths exciting and reddening the skin are best suited for this purpose. Great warmth attains this end, therefore the hot thermal baths of Teplitz, Bath, Wiesbaden, and other places are much visited by such patients. But in a great number of cases a hot bath cannot be supported, whilst in others good effects appear momentarily, it is true, but are of short duration.

With our baths, given at a temperature of about 92° Fahr., no such sudden improvement occurs, owing to their cool temperature; nay, in the beginning, the disease may even seem to become worse. But the exciting effect of our baths is much more lasting, on account of the great quantity of salts and carbonic acid contained in them. The reports that I usually receive on the result of a course of baths taken here, speak with the greatest satisfaction of the improvement that sets in shortly afterwards and also continues without interruption.

For many patients the thermal brine baths suffice; but for the most part it is necessary to proceed afterwards to stronger ones and even to use current effervescent baths, or else to add an abundance of mother-lye in order to obtain the desired effect. Also douches on the affected parts, massage of the same, and frictions before or after the baths, can do good service. I sometimes prescribe frictions to be made with irritating spirits on the diseased joints directly after the bath, for in this malady not only are the strongest skin-irritants easily borne, but are also found to be effectual, whilst as I have already shown in arthritis deformans strong skin-excitants are often hurtful and sometimes even the mildest baths cannot be supported. Of late hot-air has been applied locally to the swellings in the different joints.

In many cases the Zander instruments of the Medico-Mechanical Institute are of great



service in extending shranked ligaments, sinews, and muscles, removing stiffness in the joints and strengthening the muscles which have become atrophic owing to the stiffness. Sometimes it is advisable to give thermal baths alternating with mud-baths or electric light baths.

The slighter cases, that is to say, those in which no important anatomic changes have taken place, are as a rule completely cured after a single course of baths. Even considerable swelling of the joints, with the products of inflammation deposited in and around them, disappear in a comparatively short time. But it is always advisable, even where no traces of rheumatic pains, or only very slight ones, are left, to repeat the course of baths the following year, as the illness returns but too easily and can only be entirely removed by repeated courses of baths.

The situation is very different in severe cases, especially chronic ones, which usually come to us after they have tried other watering-places in vain. With such patients we are often only able to obtain a certain degree of betterment and to prevent further relapses of the disease. Yet I can look back with satisfaction on not a few, in which a truly brilliant result was obtained by a consistent repetition of a long course of baths year after year.

The following instance may serve to illustrate the details of the course of treatment to be applied.

Mr. N. N., 44 years old, first felt signs of rheumatic pains in his 32nd year; these appeared in his left shoulder and disappeared after applying frictions, but always returned again. It was not until 8 years later, in the spring of 1885, that pains sometimes made themselves felt in his right knee and in the autumn of the same year for several months in both his feet. A course of baths in Teplitz brought him relief for a year, then the old ills returned again and with them so much pain in his back, that he was obliged to take another course of baths: this time mud-baths were ordered in a watering-place near his home in Baltic-Russia. But during these baths the pains increased gradually extending to all the larger joints. He passed the following winter in a pitiable condition, incapable of the least exertion and often afflicted with the most violent pain.

On the 1st of May, 1889, he came here. He was suffering from pain in the neck, both shoulders, both knees and in the left heel, which he could very well bear while resting, but which on the least movement became unbearable. His neck was completely stiff, so that he could neither turn nor bend his head. It was not possible for him to raise his arms and he could only with difficulty walk a few steps, his knees having become considerably swollen. So he lay the greater part of the day in bed, as even moving in the bath chair caused him pain.

The course began with thermal brine baths from spring 7 and 12, mixed in equal quantities: warmth 35° Cels., duration 15 min. The patient who could only be lifted into the bath with great pain, felt very well while in the bath and bore it so well, that I only allowed him to omit it every sixth or seventh day. Already in the fifth bath I was able to add mother-lye (2 litres, soon increasing to 5) and with the seventh the bathing-time increased to 30 min. After 8 baths I passed over to the effervescent brine baths from spring 12, giving the first three with 34° of warmth and the later ones with their natural temperature of 32½—33° Cels., 20—30 min. duration: from the tenth efferves-

cent brine bath onwards, they were strengthened with 2, 3, 4 and at last 5 litres of mother-lye. After 30 baths had been taken I made a pause and had a massage applied very gently to the diseased parts. After a fortnight I began again with the baths, alternating one effervescent bath from spring 12 with 5 litres of mother-lye, and one current effervescent bath from spring 12 lasting 30 min. At the same time massage, combined with passive gymnastics, was continued. In this way 20 more baths were taken, making a total of 50 baths.

On his departure the patient was able to move his arms, although not very freely, and could bend his knee-joint, which had lost all swelling: he could also turn and bend his head a little. Pain had entirely disappeared from the joints, his heel being the only part that still caused suffering. (Rheumatic affections in the sinewy parts (tendons) of the sole of the foot I have always found to be exceedingly stubborn.) The patient could walk short distances without any great exertion and for the last three weeks of his stay was not obliged to make use of his bathchair. After a thirteen weeks' stay here, and quite delighted at the result attained, he returned to his home with instructions to make use of frictions with spirits and to be very careful not to catch cold in any way (dry, warm sitting and sleeping rooms, woollen underclothing, etc.), and to repeat the course of baths next year.

As early as the 20th of April of the following year, 1890, he returned again, this time alone, whereas the year before, being perfectly helpless, his wife had accompanied him. The improvement that had been begun by the course of baths had progressed while at home. He now only complained of a little stiffness in his shoulders, more especially in the cervical vertebra, and was therefore still unable to move his head at will.

This time his course of baths consisted of 35 effervescent brine baths from spring 12, with their natural warmth. The result was the entire removal of what remained of his illness.

Next summer he had the intention of coming again as a precautionary measure, but was prevented by other circumstances: but he continues well to the present day.\*)

For patients of this kind it is not advisable to reduce the temperature of the baths too much. Attempts to inure them against the influence of cold by a cold-water treatment are only admissible when no traces of rheumatism have appeared for a long time.

### CHRONIC MUSCULAR RHEUMATISM.

This disease is not as prevalent as is universally supposed. What the patient usually takes for muscular rheumatism is a pain felt in the muscles which often hinders him from making certain movements. For physicians, however, it is necessary to discover the origin of the pain and to exclude from this denomination all those cases where the pain lies outside the muscle-apparatus, or where it is caused by other illnesses, such as the affection of any single nerve (neuralgia, neuritis), certain diseases of the central nerve-system, chronic metal-intoxication, diabetes, and trichinosis.

We must suppose, as nothing else can be proved, that muscular rheumatism is a locally confined disorder of the circulation in the muscles affected, which causes exudations between the bunches of muscular fibres, thereby produc-

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\*) Another case is reported in the chapter: "Diseases of the Heart".

ing irritation to the sensory intermuscular terminal nerves.

Muscular rheumatism is either permanent during a long period — the chronic form in the strictest sense of the word — or it frequently recurs with longer or shorter intervals free from pain.

This malady is generally considered to be caused by catching cold, and it is certain that, when the parts of the body assailed by rheumatism are exposed to cold for a long time, the pain always increases. But other external causes can also occasion the appearance of the complaint, for instance, unusual over-exertion of single groups of muscles, or muscular distortion, which is often the case in that form of the disease known under the name of LUMBAGO. Besides the form just mentioned, rheumatism of the shoulder occurs most frequently: this we must be careful not to confuse with diseases of the shoulder-joint. I have here noticed a very characteristic feature, namely, that the painful parts always feel colder than the surrounding ones, and that warmth eases the pain.

A sovereign remedy for this complaint, and one that is preferable to all others, is a course of baths, as it has the effect of improving the circulation in the affected parts and of inuring the patient against cold.

I begin the course of baths for these patients, who are in other respects mostly strong healthy persons, with strong thermal brine baths

of a rather high temperature (about 94° Fahr.) and soon proceed, after some effervescent thermal baths, to the strongest effervescing baths, at the same time gradually reducing the temperature according to the diminution of pain, till I have reached a point in which I can recommend the patient to begin a cold-water treatment, into the particulars of which I cannot enter more fully here.

Sometimes, especially in very obstinate cases, it is necessary to prescribe, in addition to the general course of baths, a direct treatment of the painful parts, by means of massage, electricity, shower-baths, or the machines for vibration and percussion in the Zander Institute, etc. In other cases it is advisable to order, from time to time between the other baths, an electric-light-bath, which throws the patient into a profuse perspiration.

Very rarely can the disease withstand this form of treatment and by continued inuring processes a relapse of the same is entirely prevented.

## ŔHEUMATIC FEVER, ITS ŔEMAINS AND AFTER-EFFECTS.

Rheumatic fever arises in all probability from infection, which does not mean, as many non-medical people believe, that it is infectious, but only that it is caused by the invasion of microbes into the human body. This supposition is authorised by the whole appearance of the

disease, even though medical men have not yet succeeded in discovering the microbe in question. We must, moreover, suppose a certain predisposition to this complaint in the patient before it makes its appearance.

The malady usually sets in abruptly without any warning whatever, sometimes immediately after an inflammation of the throat.\*) Their is always more or less high fever and a very painful swelling of some one of the joints, which becomes red and hot.

In contrast to the other diseases already described, this form has the peculiarity that the articular affection passes quickly from one joint to another: all the joints can be attacked either one after the other or simultaneously.

The treatment and cure of acute articular rheumatism has now, by means of various medicaments, become much better and speedier than it was about thirty years ago. Nevertheless the disease is, in many cases, exceedingly obdurate and medicines alone are not sufficient to make it disappear entirely. Swellings and painfulness in some of the joints accompanied by moderate fever occur over and over again, sometimes lasting for months, till the physician at last resolves to send the patient to a watering-place.

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\*) My experiences in this respect I published in the *Deutsche medicinische Wochenschrift*, 1896. Nr. 17. in an article entitled: *Ueber acuten Gelenkrheumatismus im Anschluss an Angina* (Rheumatic Fever in connection with Inflammation of the Throat).

In other cases articular rheumatism, after a severe attack leaves behind it what we have already described as chronic articular rheumatism, or sometimes the swelling of a joint does not subside and develops into a chronic inflammation of the joint. Sometimes again it is only a certain weakness and stiffness in the joints attacked, or pains that recur after continued exertions, which induces the physician to send his patients here. Often it is only the desire to remove, by means of a course of baths, the disposition to further attacks of rheumatic fever. In all these cases we see the best results obtained here. Frequently, it is true, a fresh acute attack occurs during the taking of the baths, but this, as we have already said of the gout, does not signify and passes away rapidly. It is advisable, especially when the acute stage has not long been passed, to begin with warm baths ( $33\frac{1}{2}$  —  $34^{\circ}$  Cels. =  $92$  —  $93^{\circ}$  Fahr.) and gradually descend to the natural temperature of our springs or still lower. Brine-bandages, massage, douches, etc. can be used with advantage when combined with the bath-treatment; usually, however, they are not necessary.

It may perhaps be of special interest to quote a few instances of severe illness, which were cured exclusively by means of baths.

Mr. X., 31 years old, came under my treatment on the 14th of June, 1882, after having been laid up for nearly 3 months with rheumatic fever, combined with inflammation of the pericardium, which was by this time cured. He had already had rheumatic fever twice before.



in 1877 and 1881. On his arrival, having been three weeks out of bed, he shows the following remains of his disease: both wrists are still stiff and almost immovable; most of the knuckles still rather swollen and likewise stiff, so that the hands cannot be closed. The legs have been left exceedingly weak, more easily to be observed while standing than walking. He cannot walk more than a hundred steps consecutively, but is obliged to make use of the bath-chair, even for the short distance between his house and the bathing-establishment. The heart is easily excited, but otherwise normal.

Treatment: Thermal brine baths from spring 7 and 12 in equal parts, temperature 35° Cels., time 10 min., third day pause. The temperature is gradually reduced to 32°, the time prolonged to 20 min. and every fourth day omitted. After 16 baths I proceeded to effervescent baths from spring 7, natural temperature (30.2° Cels.), beginning with a duration of 10 min. on account of the still rather rapid action of the heart, but as the baths did the patient good they were soon increased to 20 min. After the 6th effervescent brine bath a further reduction of temperature took place gradually down to 29° Cels.

From the 14th day an improvement in the general condition began to appear and went on without interruption from day to day. After 30 baths the gentleman departed. He could now take a walk of an hour and was able to close his hands, which however had not yet recovered their power. The action of the heart was entirely normal. During the last week of his stay here, I had ordered him ablutions (25° Cels.) every morning after rising, and advised him to continue the same at home, gradually lowering the temperature to 20° Cels. Since that time the patient has kept well, notwithstanding that the course of baths has not been repeated.

Mr. N. N., 34 years old, had rheumatic fever 5 years before. In 1880 he was attacked again in a very violent manner by the disease which did not yield to any of the medicaments employed. Three days before he arrived here

he was lying in bed. I saw him for the first time on the 6th of July. He was feeling very little pain, but was weak and stiff in the knees and hands.

Treatment: Thermal brine baths from spring 7,  $33\frac{1}{2}^{\circ}$  warm, time 10 min., third day omitted, then 15 min. After four baths he was suddenly seized with pain of such great violence, and swelling of the hands, knees, and knuckles, that I was obliged to give him salicylate of soda. Although the temperature of his body was always more than normal in the morning (generally about  $101^{\circ}$  Fahr.), I still let him continue his baths. He only took thermal brine baths, in all 32, and mostly from spring 7 alone, as every increase in the strength of the baths, tried him too much. Neither could he bear a cooler temperature and I could lower them only to  $32^{\circ}$ . After about the twentieth bath he remained free from pain and the final result of the course of baths was a complete recovery.

Next year a repetition of the course took place, although the patient felt nothing more of the rheumatism. In 3 weeks he took 18 thermal brine baths strengthened with mother-lye, duration from 20–30 min., warmth  $32^{\circ}$ , without this time feeling any evil effect; since that time — 15 years have now passed — the patient has never had a recurrence of the complaint.

Mr. G., 38 years old, formerly quite a healthy man, had been suffering from "*subacute*" rheumatic fever for 9 weeks. On his arrival, August 9th, 1903, the joints of his hands and fingers were perfectly stiff and swollen, he could not move his elbows or shoulders and had much pain when trying to do so. He was feeling temporary pain also in the knees and feet. Heart's frequency increased, 96 in a minute, but nothing abnormal to be stated as to the heart. The temperature of his body which increased but little during the whole course of his disease, was permanently a little higher than normal.

Treatment: Thermal bath from spring 7 and 12 mixed,  $34\frac{1}{2}^{\circ}$  warm, time 12–15–15 min.; thermal-bath spring 12,

34½°, 20—20—20 min., with 2 litres of Mutterlauge, 20—20—20 min.; thermalsprudel-bath spring 12, 34°, 15—15—15 min.; 18—20—20 min.; sprudel-bath spring 12, 34°, 15—15—15 min.; 33½° 15—15—15 min.; 18—20—20 min.; every fourth day omitted, 27 baths in all.

After three days' stay in Nauheim I ordered him to take a course of mineral drinking waters. I prescribed for each day two glasses (8 ounces each) of Karlsbrunnen, then after a fortnight one glass of Kurbrunnen and one of Karlsbrunnen, the first glass always to be warmed.

Before his arrival he was obliged to take two grams (= 1½ Drachm) of Aspirine every day to make the pain bearable. After a few baths I ordered him to take only one gram, and after a fortnight ½ gram. At the end of the course he could do without it altogether. The swellings were nearly gone, and he was able to move hands and arms very satisfactorily. Fever disappeared.

He had a second course in 1904. When he arrived, July 9th, he only complained of a little rheumatism in the right shoulder and in the left Achilles tendon. Heart's action normal.

He took 6 thermal-baths, 6 thermalsprudel-baths and 9 sprudel-baths, drank the mineral water again as he had done the year before, carried out the exercises in the Zander Institute. When leaving Nauheim he was rid of all his complaints, felt perfectly well and strong.

I could quote dozens more of similarly successful cases\*) and also, it is true, many cases in which the result was neither so complete nor so speedy. In some instances it was only after repeating the course of baths for several years in succession that full strength and health was regained and the danger of relapses entirely removed.

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\*) Some will be found in the next chapter on "*Diseases of the Heart*".

I must here repeat what I have already said about chronic articular rheumatism, I mean the necessity of repeating the course of baths for several years. With this disease, in particular, the danger of considering one's self entirely recovered and free from disposition to renewed attacks is very great, when one or even several years have passed without a single relapse. But there is no disease that returns so easily as this. It is therefore absolutely necessary, no matter whether a fresh attack has occurred after one course of baths or not, to repeat the treatment, not once but several times, if the patient wishes to be certain of a complete recovery and a perfect removal of all disposition to this disease. Unfortunately cases have come to my notice only too often, in which my advice on this point has not been followed, because the patient had no more suffering to complain of; after one or two winters of health the old malady returned and usually in an aggravated form. Exceptions there are, of course, and I have intentionally described such a case, in which a patient recovered and remained healthy after one course of baths. But we must not be guided by these exceptions.

A question that it is of the utmost moment to answer correctly is the following, "May a patient suffering from articular rheumatism, who has a cardiac defect at the same time, make use of a course of baths?"

Acute articular rheumatism is very often combined with endocarditis (*i. e.* inflammation of the internal cardiac membranes). In the great majority of cases this results in a damaged heart caused by the curling or shrinking of some cardiac valve, or infiltrations and thickening of the same, also frequently by the narrowing of the heart's orifices. Formerly physicians never ventured to send such patients to bathing-places, as it was feared that the baths would excite the action of the heart and thereby unfavourably influence the existing disease. In the following chapter, however, we shall see how much opinions have changed in this respect owing to experiences made in Bad-Nauheim. At the present time, physicians do not hesitate to permit such patients the benefit of a course of baths. Nay, it has even been shown in the course of time *that the Nauheim baths also exercise a favourable influence on the cardiac diseases themselves, the treatment of which has now become what we may call a speciality of Nauheim, and of which I will therefore proceed to give further details.*

#### DISEASES OF THE HEART. — DISORDERED CIRCULATION.

Although in the earlier works on Nauheim we find the view expressed that its baths are not admissible for patients with any form of heart-disease, yet as early as the year 1859 a

contrary opinion is pronounced in Prof. Beneke's\*) first work upon Nauheim, and another still more decided statement in his second work published in 1861. Among those patients suffering from rheumatism, who came under his treatment in Nauheim there were eight cases of organic heart disease, and he found that they were able to bear the thermal brine baths very well and without any irritation or symptoms of congestion appearing, and that taking the baths was not only beneficial to their rheumatism, but in a certain degree, profitable to their cardiac malady.

In 1870 Beneke wrote a longer work in which he explained his views more fully and it was only after this that patients with heart-disease, more especially in conjunction with rheumatism, came to Nauheim in great numbers. In a monograph which appeared in 1872 Beneke recorded 101 cases and he gave a detailed account of 55 of them. In 1875 he published another article on the same subject in a Berlin medical journal. If we examine all these works we find that Beneke draws attention to four main points in the Nauheim treatment of heart-disease: firstly, the removal of rheumatic tendencies whereby relapses of acute rheumatism which would increase an existing cardiac lesion are prevented; secondly, the effect of these baths

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\*) From 1857 till his death in 1883 he was physician in Nauheim and from 1866 at the same time Professor at the neighbouring University of Marburg.

being to promote absorption, he believes that, as they cure other productions of rheumatic inflammation, so they will also be beneficial to the cardiac valvular apparatus; thirdly, he found that the baths had always a soothing effect upon the heart's action, even where there was no rheumatism; and consequently, fourthly, he very often found, in old valvular diseases, a striking improvement in compensation (complete recuperation of enfeebled heart-action), as well as a considerable amelioration in the general state of health, which can doubtless also be obtained without a treatment of thermal baths, but which they have attained in cases where no other treatment had been able to do so.

Beneke has thus the indisputable merit of having introduced a new kind of treatment into the therapeutics of chronic heart-disease by first showing that patients suffering from a cardiac malady can not only support a treatment of baths, but also improve their health by taking them.

Thus the task of all those works that have since been written on this subject has been to give a fuller explanation (based upon more profound scientific examinations and a continued observation of a yearly increasing number of patients) of the peculiarly favourable effect which our baths have upon cardiac diseases: also to improve the treatment and, through greater experience, to specify the indications.

In an article of mine that appeared in a Berlin medical journal in 1878, I have described

a very marked case and shown how, under certain circumstances, the thermal brine baths containing carbonic acid have the same effect as digitalis on the heart.

This was the first occasion in which it was reported that *the baths increase the energy of the heart's action* and therefore it was afterwards stated, that *this bathing was a first-class tonic for heart-diseases.*

Other papers followed written by the late Mr. Augustus Schott and myself, partly bringing to light new facts about the effect of our baths upon the circulation of the blood, and partly by many observations confirming what was already known. Thus the assertions made by Beneke that the baths always lessened the frequency of the pulse, and that the decrease lasted for some time after the baths had been taken, were proved to be correct. At the same time we observed that the blood-pressure as well as the power of respiration were increased by the baths. I have often, by means of percussion, detected a marked diminution of the dilatation during the treatment, and also an increase of the vital capacity of the lungs together with a disappearance of bronchitis, oedema, swelling of the liver, albuminuria dependent on congested kidneys, in short, of all those symptoms which arise from incompetence of the cardiac muscle.

Again we have to put ourselves the question, is a bath-treatment advisable in all cases? From the beginning it soon became evident that



a separation of the different kinds of disordered circulation was impossible. Although Beneke formerly believed, as I did myself, that arterio-sclerosis (hardening of arteries) must be excluded from the treatment, for theoretic reasons, yet I can now state that the baths are also beneficial in such cases. In the course of years I have treated a large number of patients suffering from advanced arterio-sclerosis, without ever having had an accident to lament; on the contrary, the usual effect was a considerable improvement of the circulation and general state of health (in some cases combined with aortic aneurism), as I fully explained in a lecture delivered at the Balneological Congress in Berlin, 1895, and in a paper, published in *The Lancet*, April 17th, 1897. (*Baths and Gymnastics in Arterio-sclerosis.*) In the latter paper I also explained — in contradiction to observations published in earlier works by myself and others — that it is possible to regulate the baths so as to avoid increasing the blood-pressure, which is very important when treating cases of arterio-sclerosis by baths.

Thus disappears every scruple in regard to the treatment with baths of patients suffering from arterio-sclerosis, quite apart from the fact that in many of these cases there is no increase of blood-pressure at all. Formerly it was believed that in all such cases this increase was general, until, in the year 1904, it was statistically proved, simultaneously by Dr. Sawada of Marburg and myself, that an increase in the

blood-pressure only occurs with a proportionately small number of patients with arterio-sclerosis. The result of my observations in this direction I laid before the German Medical Congress at Leipzig in April, 1904. Later on I shall have occasion to refer to this lecture again.

If we now consider all that has been definitely ascertained concerning the effect of our baths, we shall find that the carbonic acid thermal brine baths tend to soothe and regulate the heart's action, improving its innervation and increasing its muscular tone. A strictly physiological explanation of this effect is not possible, as it is indeed difficult to give a perfectly non-hypothetical explanation of the effect of any other bath-treatment. It is supposed that, by stimulating the peripheral circulation, a certain influence on the cardiac action is obtained and that, at the beginning of the bath, and as long as the impulse of the cold lasts, an increase of the intra-cardiac pressure is produced by the contraction of the cutaneous vessels with an incentive to increased activity of the cardiac muscle. This is soon followed by relief of the internal organs, and especially of the heart, through the dilatation and filling with blood of the cutaneous vessels caused by the carbonic acid, in spite of the cool temperature of the bath. If the contraction of the cutaneous vessels lasts too long, as is the case with the ordinary cold baths, over-exertion of the heart takes place. By this peculiar quality of the carbonic acid just

mentioned of increasing the circulation of the blood in the skin, so that it becomes red all over, the bather feels a greater degree of warmth than in an ordinary cool bath and that without any unpleasant sensation. The baths are also graduated to suit each individual case and are at first prescribed so as to relieve the heart's action, *i.e.*, with a temperature little lower than the normal heat of the body and with such a small quantity of carbonic acid that such a bath can only have a very slight stimulating effect on the heart and vessels. After the heart has become stronger, the baths are given with a cooler temperature, to give the heart an impulse to more energetic action. If the irritation of the cold, when cooler baths are given, has too great an effect, lasts too long, or is not counter-balanced by the carbonic acid (as shown by cyanosis, shortness of breath or continued shivering), then the temperature of the bath must be raised and after some baths more the amount of carbonic acid increased. When the patient can bear the carbonic acid well, the temperature is again cautiously lowered, if necessary only after he has been in the bath for some time. (In most cases we only reduce the temperature  $\frac{1}{2}^{\circ}$  Cels. from one bath to the other.)

It has not yet been ascertained, whether the chemical, thermic and mechanical irritation of the cutaneous nervous system by the bath has not a direct effect, by reflexion or continuation, on the greater vessels and the heart, in

the same way as we can perceive it on the peripheric vessels. Though it is impossible to prove this mathematically, we must be content to accept it as a fact for the following reasons: firstly, considering the well-known attempts made with other skin-irritants and their effect on the circulation; secondly, by reason of the above-mentioned influence of the baths upon blood-pressure, respiration, etc., which is not to be sufficiently explained by the proceedings in the peripheric vessels alone. The incontestable success of our baths on the heart's functions and the entire circulation is only to be explained by the assumption of a direct action through the end-organs of the cutaneous nerves on the central vascular and cardiac nervous system, both trophic and motoric.

To produce improved nutrition and invigoration of the cardiac muscle it is necessary to stimulate the heart to more powerful action, not continuously, but by rest and exercise alternated in a manner suitable to each individual case. As has been seen from the above explanations, our baths answer this purpose perfectly and therefore it is not necessary to give fuller particulars as to how the cardiac muscle is at length revived and invigorated by the effects of a continued course of baths. Moreover the influence of the baths in promoting transformation of tissues is, when properly used, not only beneficial to the entire organism, but also to any single suffering organ.

Such are the different factors, which combine to produce the favourable result so often seen in the Nauheim treatment. It is therefore evident that *the Nauheim baths are adapted to all kinds of disordered circulation of the blood requiring an incigoration of the cardiac action; it is quite immaterial whether the illness arises from valvular defects, or is the result of a diseased or weakened cardiac muscle, of atheromatous degeneration of the vessels, or even of a generally abnormal nourishment, such as obesity.*

Great success has also been obtained in illnesses resulting from *irregular innervation of the heart*, more especially in cases of *nervous palpitation* \*). This should be chiefly attributed to the well-known beneficial influence of the Nauheim baths upon all diseases of the nervous system, either organic or functional, and which induces us to suppose that the baths have also a tonic effect on the cardiac and vascular nervous systems.

The good result I see brought about by the bath-treatment every year in cases of *Graves' disease* is due more to the favourable action of the baths upon the metabolism and its pathological changes caused by a diseased organ (in this case the thyroid gland), than to the influence of the baths on the heart and its nerves.

In the following general sketch I shall only be able to give a short description of the method

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\*) In a lecture about nervous troubles of the heart given in Berlin, 1890, I have explained this matter in detail.

of treatment. This of course cannot always be the same owing to the multifarious forms in which the illness appears; the treatment must necessarily be modified for each special case. It is the task of the physician to adopt, on the basis of his own experience, the proper course for each separate case. The greatest care must be continually observed in regard to the capacity of the cardiac muscle, for it is in accordance with this, that the physician must prescribe the baths, either so as to relieve the heart, or to incite the heart's action to greater energy.

But always in prescribing the bath-treatment it must be kept well in mind that a proper proportion of rest and exercise must be given to the heart, and, although at the beginning the former predominates, yet later on it is the latter that plays the chief part in the treatment. The former purpose is served by the warmer and weaker baths, the latter by the cooler and stronger ones.

I usually begin with baths containing only a slight quantity of carbonic acid and salt and a temperature of 92—94° Fahr., lasting 5—10 min., according to the degree of reaction produced. As time goes on, the carbonic acid and salt are increased, the temperature reduced (sometimes as low as 83° and even lower), and the time increased to 15—20 min. At the beginning there is a pause every other or every third day, but later on at longer intervals.

I often make the patient begin with half-baths, especially in cases of angina pectoris and aortic aneurism, as well as in cases of arterio-sclerosis with a high blood-pressure.

As I have mentioned in another place the blood-pressure or arterial tension is not increased in all cases of Arterio-sclerosis as was formerly believed. For this reason it is very important to measure the arterial tension, not only in order to prescribe the baths, but also for the other measures taken by the doctor, to which I have referred in the lecture already mentioned.\*) The patients must be warned against taking a chill after the bath, as that would produce a contraction of the cutaneous vessels with shivering and oppression of the heart. Most of the patients are ordered 1—2 hours' repose in bed after the bath, and it is only in some exceptional cases that I make them take a walk for  $\frac{1}{4}$ — $\frac{1}{2}$  an hour before resting. As regards the number of baths to be taken, I am usually not in favour of extending the course too long in cases of cardiac complaint but instead of that I prefer two shorter courses, one in spring and one in autumn.

That such baths as have just been described are only to be found in Nauheim, nobody would

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\*) Groedel I: "Ueber den Wert der Blutdruckmessung für die Behandlung der Arterio-sclerose." (On the importance of measuring the blood-pressure for the treatment of patients with arterio-sclerosis.) An address delivered at the 21<sup>st</sup> German Medical Congress in Leipzig, 1904.

for a moment maintain, nor has it ever been so stated by physicians of Nauheim. On the contrary, it is from Nauheim that attention has been called to the fact, that artificial imitations of our baths can also benefit heart-diseases; they are, however, far from being as effective as the natural Nauheim baths, from which they differ considerably in many respects, even if we do not take into account the running effervescent baths, or *Sprudelstrombäder*, which cannot be artificially prepared and are not to be found in any other bathing-place in the world.

If, in spite of all that has been said, Nauheim is often spoken of as a watering-place especially for those suffering from heart-diseases, it does not mean that these baths alone are beneficial for such patients, but rather that Nauheim is more adapted than any other watering-place for the cure of such diseases, and that for the following reasons:

First, because in Nauheim we can graduate the baths most accurately in every respect with the natural means at our disposal, and if necessary we can raise the stimulating effect to a height that is not attainable elsewhere; secondly, because the bathing-treatment, which was formerly limited to weak-carbonated baths and then only applied to a certain number of those patients suffering from heart-disease, has now been brought to a higher state of perfection and exactness than is to be found in any other place, and the baths are now



applicable to all diseases of the circulatory system.

Some Nauheim physicians have moreover become extremely expert in the treatment of heart-diseases, not only by means of baths but also by all other suitable remedies.

This brings me to another part of this subject, viz., the different kinds of treatment generally in use for disordered circulation besides the bath-treatment.

It would be a false conception of what is required from a watering-place treatment, if we were to confine ourselves simply to the prescription of baths. There can be no doubt that the effect of baths in a watering-place is influenced in a great measure by the climatic conditions, as well as a continued stay in pure bracing air, freedom from all household-cares, and the avoidance of all excitement; it is also quite certain that a great number of the favourable results produced at Nauheim — (in contrast to those derived from artificial baths taken at home) — is partly to be attributed to these circumstances. But another and still greater advantage of a watering-place, and one that is of much service to the physicians, is the fact that in such places the patients are more willing to follow injunctions concerning their way of living, and more especially as to their diet.

Particular attention is paid to dietetics in Nauheim; here again we are assisted by an unusually wide experience. It is not possible

to give any general statement on this subject, even for distinct groups of patients, as I am always led when prescribing their diet by the special circumstances of each individual case, both as regards the choice of food and the use of alcoholic stimulants, etc. Into one subject, however, I should like to enter a little more fully. It is well-known that fifteen years ago the late Prof. Oertel enjoined moderation in the enjoyment of fluids in cases of disordered circulation, whether due to obesity or any other cause. Shortly after the publication of Oertel's book, and supported by observations made during many years, I gave it as my opinion in a lecture\*) that "*a liberal use of liquids easily does harm to patients with heart-diseases and a restricted use often does good, though this principle should not be carried too far*". I am of the same opinion to the present day and therefore many of my patients have to give me an exact daily report of the quantity of fluid taken and passed off; from this I regulate to a certain extent my injunctions as to the use of food and drink, as well as my other therapeutic instructions. I have long since restricted the use of a drinking-cure so often recommended by Beneke. The mineral water frequently fails to produce the desired draining of the intestines, and being rapidly absorbed causes a sudden

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\*) Groedel: "Results of observations made while treating disordered circulation according to Prof. Oertel's method." *Deutsche Medic. Zeitung*. 1886. No. 35.

overfilling and overcharging of the vascular system, thus imposing injurious extra work on the muscular and nervous circulatory organs.

It will not be out of place to give here a short account of the so-called "*Terrainkur*" (pedestrian exercises) recommended in the above-mentioned book by Prof. Oertel. I must first return to an earlier period and refer to the introduction of "*gymnastics*" as an auxiliary means in our bath-treatment. For many years gymnastics had been employed by physicians in Sweden for all complaints of the circulatory system and it was thought advisable to introduce this method into Nauheim for the same illnesses.

Gymnastics are, as is well-known, divided into "*active*", "*passive*", and "*resisting*" gymnastics. It is the last of these that plays the principal part in the treatment of heart-diseases. The gymnastic exercise is performed either by means of machines (viz., those invented by Prof. Zander of Stockholm) or manually with the aid of persons especially trained for the purpose. The principle and aim of this gymnastic exercise is to stimulate the circulation in those muscles brought into action, whereby the cardiac muscle is reflexly induced to more vigorous and more frequent contractions, with a simultaneous relieving of the venous, and acceleration of the arterial and lymphatic portions of the circulation. I cannot enter more fully into a description of the finer physiological effects resulting from this exercise, and their influence on the

working of the heart; suffice it to say, that passive gymnastics produce rather an alleviation of the heart, relief of the cardiac action, whereas active and more especially resisting gymnastics give an impulse to increased energy and to the development of the reserve forces of the heart, quite analogous to that produced by the bath-treatment, the first non-irritating warmer baths having chiefly the task of relieving the heart, and the subsequent stronger baths stimulating and increasing its working power. If these gymnastics are exercised with exact regard to existing circumstances, so that all over-exertion or fatiguing of the cardiac muscle is avoided, a very favourable result is often obtained, especially when the gymnastics are combined with the bathing-treatment and a suitable regime. At first the patients are only allowed to make movements with the upper extremities, afterwards with the lower extremities and the trunk. All such movements as prevent free working of the diaphragm or the wall of the thorax are to be avoided with sedulous care. Great pains should be taken to prevent the patient from making the exercises by jerks; they must be carried out slowly and continuously, at the same time the breath must be neither held nor forced. If the patient should find any difficulty in doing this, he may be instructed to count slowly in order to avoid automatic reflex fixation of the diaphragm and the thorax. The exercise should not be made on a full stomach, and there should

be frequent pauses to let the heart calm down when agitated. Formerly manual gymnastics alone were in use in Nauheim, but now we are also able to employ mechanical exercises, as a large institute with all the Zander machines was established here about twelve years ago, and from the experience I have had I often decidedly prefer mechanical gymnastics to manual. We can control the amount of exercise better, and are much more certain that it will be carried out with the proper kind of respiration, with regularity, and the avoidance of jerking movements, etc. Still there are always cases for which manual gymnastics alone are applicable, or at least to be preferred. This is especially the case with such persons as may only do a little exercise at a time, several times daily, and with a limited number of movements. In an appendix to Dr. Alexander Morison's book "*On Cardiac Failure and its Treatment*", (London, 1897), I pointed out the peculiarities of each method in a detailed manner, and showed in which case the one is to be preferred and in which the other. Every reader will doubtless agree with the opinion there expressed, which is based upon an extensive experience, *i.e.* that each of the kinds of gymnastics has its special advantages and is complementary to the other. It is wrong, therefore, to apply and recommend only one of these methods, as is done by some physicians owing to a certain prejudice. That both kinds of gym-

nastics must be performed under careful medical supervision is a matter of course.

The success of the *Terrainkur* is based on the same main principles as that of the gymnastics, but there are also other factors that go to explain its beneficial effect, among which I attribute by far the greatest importance to its influence on the respiration, and so I frequently prescribe "*pulmonary gymnastics*" alone, as having a very advantageous effect on heart-disease, or rather the circulation of the blood. Pulmonary gymnastics are deep respirations made methodically by the patient alone or with help of a gymnast. In the Zander Institute there are special machines for this purpose. Certain cases of disordered circulation, especially those combined with emphysema of the lungs, are often treated with good results by the pneumatic apparatus in the Inhalation Hall.

Hill-climbing, which was made known to us as a remedy by Stokes, and which under certain circumstances may strengthen a weak heart, was frequently prescribed by me before the publication of Oertel's work; though more frequently, it is true, after Oertel had explained the matter more systematically. I have, however, pointed out in the above-mentioned lecture the perils of a universal application of this remedy, and what I said at that time (1886) is now generally acknowledged, namely, that Oertel's "*out-door exercise*" or "*climbing-treatment*" should only be recommended in cases of diminished car-

diac power resulting from general obesity, of insufficiency of the cardiac muscle in patients with slight anaemia and a general flaccidity of the muscles, or in cases of curvature of the spine causing circulatory disturbances in the lungs; but it can be used in but few cases of chronic valvular disease, more especially if it be mitral insufficiency, when the disordered compensation is still in its first stages, or when, by previous courses of bathing, an almost sufficient compensation has been attained. Therefore pedestrian exercise is only suitable for a small number of patients who come to Nauheim with disordered circulation. Gymnastics are mostly to be preferred to Oertel's *Terrainkur* because they do not exert the heart so much, can be better regulated, and are often admissible in cases in which *Terrainkur* would be absolutely impracticable. I here refer more particularly to walking up-hill, for walking on level roads can always be supported by patients with heart-disease, if the walking is done at a slow pace, with frequent rests and regular breathing, with the avoidance of all talking during the walk, and if a deep breath be taken every now and then; of course the length of the walk must be properly proportioned to the patient's power of endurance. Yet there are always, among the patients sent to Nauheim, a number for whom, at first, the only thing that can eventually lead to a good result, is the avoidance of every kind of bodily exertion, that the heart may have as complete a rest as

possible, wherefore I often recommend the use of the bath-chair.

It still remains for me to mention the "massage", which (usually applied in the form of a general massage) has likewise the effect of removing venous stagnation and stimulating the action of the heart, by increasing the circulation in the skin and peripheral muscles. It is often used as an aid to the bath-treatment in conjunction with gymnastics, and often also as a substitute for the latter, in those not too rare cases in which gymnastics cannot be supported, *i.e.*, arterio-sclerosis, most cases of aortic incompetence, or advanced fatty degeneration of the cardiac muscle, etc.

I should not omit to state that in many cases medicinal treatment is not to be dispensed with, but I must also add that I could quote many instances in which drug-treatment had been exhaustively tried at home, with a conspicuous absence of any beneficial result, whereas the same drugs in connection with a course of baths acted in a most striking manner. Yet this does not alter what I said in another place concerning the contra-indications for Nauheim, namely, that it is not advisable to send those patients for treatment here, on whom medicaments (more especially digitalis) produce no reaction whatever.

As regards the success which one may hope to secure by a course of bathing, we are in some cases very glad to have obtained a tem-



porary improvement, even if it only lasts for a few months. Yet by far the greater number of our patients, and especially those who repeat the course of baths regularly, succeed in acquiring a relatively good state of health lasting for a number of years.

For the better illustration of what has just been said, but more especially that I may explain in a clearer manner the course of treatment, I will now give a short account of some characteristic cases.

The first is the case of a young man with combined valvular lesion (aortic and mitral incompetence and mitral constriction), resulting from rheumatic fever. The patient succeeded in obtaining a complete compensation of the greatly disordered circulation by means of a repeated bathing-treatment.

N. N., 16 years, had gone through a violent attack of acute rheumatism combined with severe endocarditis, in the year 1883 and twice since then; the last of these was in 1885, when he was obliged to keep his bed for four months. He arrived here on the June 10th, 1886, was very anaemic and also exceedingly backward for his age: he suffered so much from shortness of breath that he could only walk a few steps without being obliged to stand still; he had frequent palpitations of the heart, very disturbed sleep, in which he often moaned and he felt altogether very wretched.

Heart: Unusual enlargement to the right and left: (the cardiac dulness extends from the right nipple to near the left axillary line); the whole wall of the chest is kept continually heaving by the action of the heart; the left breast is distinctly thrust forward: at the apex two loud

murmurs, at the aorta a diastolic bruit of almost musical character, the pulmonary arterial second sound greatly accentuated; heart-action very quick, 140 a minute, yet regular with the exception of few intermissions.

He had not been able to do without digitalis for a long time and was obliged to continue it to begin with. I ordered him to pass the greater part of the day in the open air in his bath-chair, to walk about his room as little as possible, and to avoid dressing without assistance.

The baths were at first taken only as half-baths, every other day; after the second week a pause was made every third day; the baths commenced with a duration of 5 min., which was gradually increased to 10 min. The temperature of the baths remained during the whole course  $32\frac{1}{2}$ — $33^{\circ}$  Cels.; the amount of salt  $1\frac{1}{2}$ —2 per cent with a small quantity of carbonic acid (spring 7 mixed with  $\frac{1}{3}$  of fresh water, and then spring 7 alone).

At the end of a fortnight he ceased to take digitalis and more walking was allowed; he continued to improve from day to day with a corresponding decrease of dyspnoea. After a six weeks' stay with 24 baths he returned home considerably better. The pulse had fallen to about 100 a min., the state of the heart otherwise about the same as on arrival. — On the May 28th, 1887, I saw him again. He was looking much better and had had no more articular rheumatism; his heart only oppressed him when taking bodily exercise. The cardiac dulness had decidedly decreased, the bruits were unchanged. The action of the heart was quieter, though still lifting the whole wall of the chest. Pulse 90—100. He could take walks of about a quarter of an hour without being obliged to stop.

This time the baths were taken stronger, at first lasting 8 min. gradually being increased to 15 min.: a pause at first every third day and then every fourth day. The thermal baths from spring 7 were soon exchanged for stronger baths (spring 7 and 12 mixed and then spring 12 alone), and finally for the effervescent baths from spring

7 and a corresponding gradual decrease of warmth from  $32\frac{1}{2}^{\circ}$  to  $30\frac{1}{2}^{\circ}$ . During the whole time he took 28 baths and had "pulmonary gymnastics" twice daily for 5—10—15 min. with suitable pauses.

In six weeks' time he gained 9 pounds in weight and could walk on level ground for half an hour without fatigue or want of breath. The dilatation of the heart had decreased still more; the murmur at the aorta lost its musical sound.

He then entered his father's business and was able to work uninterruptedly until his return on May 27th, 1888. He had then no complaint at all and even when he walked rather quickly had no more palpitations. The murmur above the aorta had become very faint: those at the apex were unchanged. The arching of the thorax had diminished: the cardiac dulness reached from only 1 ctm. outside the right margin of the sternum to the left nipple-line. The apex-beat heaved strongly in the mammillary line, in the fifth and sixth interspaces. Pulse 90.

This time the course of 25 baths consisted chiefly of effervescent baths made still stronger by means of mother-lye. The temperature was quickly reduced from  $32\frac{1}{2}^{\circ}$ — $30^{\circ}$  and the time increased from 10—15 min., with a pause every four days. I made him practice "resistance gymnastics" at the same time so as to give his heart greater power of endurance. This course of baths again did him a great deal of good, as did also the fourth and last course in the year 1889, combined with the *terrainkur*. The pulse was then only 72 a min.: the aortic murmur scarcely audible. Limits of the cardiac dulness as the year before: heart-impulse not heaving much; general state of health very satisfactory: had absolutely no suffering whatever, so that it could be considered a complete compensation. Since that time I have never seen him again, but I have repeatedly heard of the excellent state of his health. He has now been employed in business in England for several years. He has remained perfectly free from articular rheumatism since his first stay at Nauheim.

The following case treats of simple valvular lesion (mitral insufficiency) following acute rheumatism, a complete compensation of which was obtained by one course of baths, so that even a second attack of rheumatic fever, which occurred some years later, passed off without having any effect on the heart. It was only 12 years afterwards that, from outside causes, the compensation was again disturbed, but it was again fully restored by one course of baths.

Mr. N. N., 45 years old, comes for the first time under my treatment in 1877. Has repeatedly had acute articular rheumatism and an attack of the preceding year has left him an insufficiency of the mitral valve, with slight hypertrophy. He has often violent palpitation of the heart without any particular cause, and shortness of breath after the least exertion. Course of 25 thermal brine baths with a moderate quantity of carbonic acid,  $1\frac{1}{2}$ —3 per cent salt,  $33$ — $31^{\circ}$ , 10—15 min. duration, after which all complaints, even the rheumatism, disappeared and perfect health was restored, until a fresh attack of acute articular rheumatism in the spring of 1883, which passed away without affecting the heart. A course of 10 thermal baths and effervescent baths,  $32\frac{1}{2}^{\circ}$  warmth, 10—15—20 min. duration, removes the rest of his artic. rheum. The systolic murmur at the apex is very faintly audible, perfectly compensated, without any considerable hypertrophy. He now remains well until 1889. Through business-anxieties and a not very prudent way of living, the compensation was again disturbed. He again complained of violent palpitations, together with difficulty in breathing, heaviness of the head, disturbed sleep, etc. The old murmur was louder, greater dilatation to the right and left. Heart-action irregular, 90—100 a min. A four weeks' treatment (half thermal and half effervescent baths,  $32\frac{1}{2}^{\circ}$ — $30\frac{1}{2}^{\circ}$  warmth, 10—15 min. duration, about 2—3 per cent of salt) relieved him of all

his complaints. The cardiac action was again normal. Dilatation again decreased. The next year the treatment was repeated as a precaution. State of heart the same as at the end of preceding year. This time the course of 19 effervescent baths and 4 current effervescent baths, 30' 2" warmth, is combined with the *terrainkur*. He leaves Nauheim extremely well and has remained in good health ever since.

In the year 1900 I saw the same gentleman, (who was now 68 years of age) again and he said that for about 4 years he had been suffering from occasional fits of giddiness and that during the last year there had been palpitation of the heart and shortness of breath, likewise difficulty of breathing during the night, so that he was obliged to sit up in bed. Sometimes he had also pains in the chest radiating to the left arm.

On examination it was found that besides the systolic murmur at the apex of the heart, there was another over the beginning of the aorta which was to be heard very distinctly in the carotis. The cardiac dulness extended a finger's breadth over the left nipple-line and just as far over the right margin of the sternum. The pulse was slightly accelerated, hard, frequently intermittent. Arterial wall very rigid.

Thus to the old valvular complaint were now added changes in the walls of the vessels (arterio-sclerosis), which were the main causes of the troubles.

The treatment consisted chiefly of thermal baths; it was only towards the end that I prescribed a few effervescent baths in the form of half-baths.

The result was satisfactory. The gentleman felt decidedly better at his departure; all his complaints were relieved; it was very seldom that the pulse was intermittent. Since this cure I have heard nothing more of him, but I know that he is still alive.

The next case is an example of pure dilatation and weakness of the heart caused by over-exertion.

N. N., officer in the army, 30 years old, after an unusually fast and exhausting ride suddenly felt a heavy pressure on the chest and at the same time a general weakness. The pressure on the chest, with shortness of breath, remained permanent. An acute dilatation of the heart was discovered, absolute rest and digitalis being prescribed, after which an improvement took place. On re-entering service, however, he observed that the pressure always returned with the least exertion. He was also troubled with irregular action of the heart.

Examined on July 5th, 1884: Heart enlarged on the left nearly to the nipple-line, only little on the right; sounds faintly audible, the second sound everywhere reduplicated. Pulse very changeable from 70 to about 100 a min., sometimes intermittent.

Treatment: Thermal brine baths from spring 7,  $32\frac{1}{2}^{\circ}$  warmth: time 15 min., pause every four days, gradually being changed for effervescent baths, increasing the time from 10–15 min.; the baths were cooled down by means of ice little by little to  $28^{\circ}$ . From  $29^{\circ}$  and lower the time was again reduced to 10 min. On the whole 24 baths, whilst all bodily exertion such as going up-stairs, etc., was forbidden. On leaving Nauheim he felt perfectly well, the pulse was again normal; sounds distinctly audible; no reduplication in the second sound; enlargement still perceptible.

This gentleman came again the next year, he still felt the pressure a little after riding and dancing, but was not prevented from fulfilling his military duties.

Treatment: 21 effervescent baths from  $30\frac{1}{2} - 28^{\circ}$ , pause every fourth and then every fifth day, time 15 min. After the treatment he found himself in perfect health, and has always kept well till last year, when he, now a colonel in the staff of the army, fractured his left ankle-bone.

In August, 1904, he came to take a cure once more in Nauheim, as the fracture had left behind a certain weakness of the leg, which easily swelled at the place of the fracture and became red when he walked. This accident

had compelled him to lie still for a long time which had somewhat weakened the heart. The only thing he felt, however, was an accelerated action of the heart. On examination I found a moderate enlargement of the cardiac dulness and faintly audible sounds. The pulse was 86 a minute, but regular; blood-pressure normal. Treatment: Thermal baths from spring 7 and 12, 32°, 10—12—12 min.; thermal effervescent baths from spring 12, 31<sup>1</sup>/<sub>2</sub>°, 12—12—12 min.; effervescent baths spring 7, 30<sup>1</sup>/<sub>2</sub>°, 10—12—12 min.; 30°, 12—12—12 min.; 29<sup>1</sup>/<sub>2</sub>°, 12—12—12 min.; 29°, 12—12—12 min.; 19 baths in all with a day's pause after every third bath. As he had become somewhat corpulent in consequence of the compulsory rest resulting from his fracture, I prescribed a suitable diet and ordered him to drink 1 glass of Karlsbrunnen and 1 glass of Kurbrunnen every morning.

The cure worked excellently: the leg became quite normal as well as the heart. He felt quite well again and was able at the end of the cure to walk to the Winterstein and back in two hours.

The next is an account of a patient, who was suffering from incompetence of the cardiac muscle with cardiac dilatation to a high degree, the origin of which could only be attributed to obesity and chronic bronchitis.

N. N. came under my treatment for the first time in June, 1886, he was then 48 years old. The patient had had an attack of apoplexy 6 years before, in consequence of which the leg and arm of his left side were still partially lame. He had for years been very corpulent and had repeatedly suffered from an obstinate bronchial catarrh, the last attack being in the April before he came to me. Ever since this attack he had suffered from shortness of breath on the least movement even when in repose. When lying down he could not breathe at all and therefore had for several weeks passed the night in a chair. His legs were swollen up to and above the knees; there was also dropsy

in the abdomen. Heart: greatly enlarged to the right and left; the sounds though obscure are still discernible; pulse small 85—90, regular; urine very concentrated, free from albumen. At home he had been taking digitalis without any visible effect: he is to continue taking it for the present with occasional pauses.

Treatment: begins with baths free from carbonic acid. 33° warmth: time 10 min.: every other day and later on a pause every third day: an ice-bag on his head during the bath, which, however, is soon left off as no excitement occurs. After 5 brine baths, thermal baths from spring 7. 32<sup>1</sup>/<sub>2</sub>° warmth; time 10 min.: pause every third and then every fourth day. The amount of salt is increased to 3 per cent (spring 7 and 12) and then still more by the addition of mother-lye. Time extended to 20 min. Temperature only lowered to 31<sup>1</sup>/<sub>2</sub>°. He takes altogether 25 baths: after 10 baths he passes his first night in bed. Dropsy soon disappears, he breathes easier, feels very well, has lost considerably in weight, mostly due to the copious diuresis. Cardiac dulness has become considerably diminished, heart-sounds more audible: pulse fuller, 70. On leaving for home the patient can walk short distances without difficulty. He is ordered to take regular walks at home on level roads and, that he may avoid the acquisition of more fat, he is to continue the prescribed diet, which has been conscientiously observed during the treatment here.

The rapid improvement and more especially the disappearance of dropsy was undoubtedly greatly aided by the continuation of digitalis at the beginning of the treatment, but I repeat what I have already remarked, that the same medicament, although taken in several forms at home — he came to me from Prof. Rühle in Bonn — had had no effect whatever, whereas in connection with the bath-treatment it proved perfectly effective.



In 1887 the course of baths was again repeated. When the gentleman arrived he was, properly speaking, without any complaint, except a slight shortness of breath on going up-stairs. As he had become more corpulent (260 pounds), in spite of the prescribed diet, a severer method for reducing the fat was adopted, and walking up-hill was added to the bath-treatment, which consisted of 24 thermal brine baths strengthened by an addition of mother-lye, 2—4—6—8—10 litres: 32—30° warmth: time from 15 - 20 min.

The treatment did the patient so much good that, in spite of the weakness of his left leg, he could climb the Johannisberg (about 900 feet above sea-level) without stopping and taking a middling steep road. Diminution of weight in 4 weeks 13 pounds.

The next year he appears again. His corpulency has increased again, and in consequence he is sometimes rather hard of breathing. The walking is recommenced at once; this time the bathing-treatment consists of effervescent baths from spring 12 with considerable addition of mother-lye and cooled down from 33—29°. Also this course of baths does him a great deal of good; since then he has been here every year to take from 20 to 25 baths of the same kind combined with the *terrainkur*. His weight has remained about the same. The heart was normal, with the exception of a slight extension of the dulness to the left, and rather faintly audible heart-sounds.

The gentleman, who was convinced that it was only the course of treatment in Nauheim that had saved his life, came regularly every year until 1898, that is to say, twelve times after his severe illness, and remained all the time in good health until a few years ago. During his stay in the year 1897 I already observed signs of beginning nerve troubles which in the following year caused him great suffering and resulted in his demise at the close of the year 1899. The cause of this was a disease of the central nervous system probably proceeding from the old apoplectic scar in the brain. No serious disturbances in the compensation of the heart had again occurred.

An example of a diseased cardiac muscle (Myocarditis) resulting from Influenza is given in the following case:

Mrs. N. N., 35 years old, comes in July 1902 for a course of treatment to Nauheim. In the year 1898 she has had an attack of Influenza, was very weak for a long time after and then recovered again, but from time to time felt an irregular beating of the heart.

The preceding year she had gone through much excitement. In autumn she felt so bad that she was obliged to go to bed. She had a continual cough, difficulty in breathing, palpitation of the heart, and a permanently irregular pulse. She has been obliged to lie in bed nearly all the winter and can now only walk a few steps. She cannot sit long, must often lie down and cannot even remain in the bath-chair for a long time; has still a bad cough, etc.

The examination showed that the heart sounds were clear, but faintly audible; a slight dilatation of the heart more to the right than the left; irregular action. Crepitation to be heard in the front and back of the lower part of the lungs, but no dulness there. Pulse small, very irregular, 100, very changeable.

The treatment begins with thermal half-baths from spring 7,  $33\frac{1}{2}^{\circ}$ , 8 min., every other day; after the fifth day 1 litre of mutterlauge is added, ten minutes duration, then 2 litres of mutterlauge: after 15 thermal baths follow 3 thermal effervescent baths from spring 12 mixed with thermal brine from spring 7 half and half,  $33^{\circ}$  warmth, then 5 thermal effervescent baths from spring 12 alone,  $32\frac{1}{2}^{\circ}$ , and then 7 effervescent baths from spring 12,  $32^{\circ}$ : all of 10 min. with a pause every third day.

After 14 days' treatment inhalations of brine spray were prescribed, first in the Wasmuth then in the Heyer room, from  $\frac{1}{2}$ —1 hour's duration.

The cure was very successful, the strength gradually increased; she could remain longer out of bed and in the open air, and finally walk a little more without any

suffering. The cough returned but rarely. The heart was normal, the pulse mostly regular and the lungs free from phlegm. Some weeks after her departure I had news from her that the improvement was progressing favourably.

It may be of interest to the readers if I here also give the history of two cases of *disordered circulation with arterio-sclerosis*.

CASE I. — General arterio-sclerosis (but on the aortic orifice in particular). Hypertrophy of the heart. Chronic articular rheumatism.

Mrs. N. N., 65 years old, came under my care on June 2nd, 1892. She had been suffering from rheumatic pains and swelling in various joints for about five years and had visited other watering-places without success. The year before she had been complaining of palpitations and shortness of breath. Therefore she was sent to Nauheim. I found swellings in both knees, hands, fingers, and elbows. As regards the heart, the first sound was every where muffled, less distinct than when normal, especially at the base, where it almost resembled a murmur: the aortic diastolic sound was markedly accentuated and sonorous. Apex-beat visible in the fifth interspace near the nipple-line. Cardiac action frequently intermittent. Pulse 90—100, high arterial tension. The radial and temporal arteries were thickened and tortuous. Sphygmographic traces fixed the diagnosis.

Treatment: Thermal half-bath from spring 7, 34°, time 10 min., 3rd day omitted; 12 min., 3rd day omitted; bath up to three quarters filled, 33½°, 12—15 min. duration, 3rd day omitted; full-bath, 33½°, 12—15 min., 4th day omitted; spring 7 and 12 mixed, 33½°, 15 min., 4th day omitted; time 18—20 min., 4th day omitted; effervescent bath from spring 12, 33°, time 10—12—15 min., 4th day omitted; 15 min., 4th day omitted; 18 min., 4th day omitted; 20 min., 4th day omitted, and three more of the same kind, (a course of 30 baths).

On her departure the cardiac action was quite regular, 80 a minute, palpitations and difficulty of breathing remarkably diminished. Swellings of the joints and pain much reduced.

I saw her again on June 2nd, 1893. The whole year before she had been complaining less of rheumatism and cardiac troubles. On examining the heart I found the same state as the year before, but the pulse quieter, 80—90, and seldom intermittent. The elbows were quite normal, knees, wrists, and fingers less swollen and more easily moved, but still very painful.

This year she began with full-baths. She took 15 thermal and 14 effervescent baths, partly made stronger with mother-lye, in the beginning 33°, later on 32°, and from 12 to 15 minutes' duration.

The effect of the course was a further decrease of the rheumatism and an improved heart-action.

On July 17th, 1894, she arrived for a third course. She had been in a relatively good state of health till the month of April, when she was seized with gastro-intestinal catarrh and jaundice and fainted away several times in consequence. One of these syncopal attacks having been followed by a temporary hesitation in thinking and speaking had raised the suspicion that she had had a slight apoplectic fit (cerebral embolia).

The condition of the heart was about the same as the year before. The rheumatism had nearly disappeared, but she was still feeling some pain in her hands. She was afflicted with giddiness from time to time.

For precaution I ordered demi-baths again in the beginning of the course as in the first year. She took 25 baths, whereof only 9 were effervescent, all without mother-lye and of 33<sup>1</sup>/<sub>2</sub>°—32° temperature. After the course she felt much stronger and had no vertigo at all.

Next year, on arriving, she had nothing to complain of. There was only a painless swelling on the right wrist.

On the heart I heard a somewhat "impure" first aortic sound; the second sound was still accentuated, but

not so sonorous as before. Area of dulness unaltered, heart-action regular, 72 per minute. She took 10 thermal and 18 effervescent baths, 33°, and 12 --20 minutes' duration.

In the years 1896, 1897 and 1898 she took a similar course of baths in Nauheim and was permanently in good health in spite of her being about 70 years old.

## CASE II. — Arterio-sclerosis with symptoms of angina pectoris.

Mr. N. N., 56 years old, came to Nauheim for a course in the month of May, 1894. He was complaining of painful oppression brought on by the least exertion even when walking a few steps on level roads. The pains radiated from the sternal region of the chest to the left arm and were accompanied with severe heart-pang. The attacks left off immediately when the exertion ceased.

The size of the heart was normal, as far as I could make out by percussion. The sounds were weak, the first on the aorta scarcely audible, the second accentuated and sonorous. Pulse 60, regular, hard, during a paroxysm small and frequent. There was no well marked rigidity of the arteries, but sphygmograms corresponded to arterio-sclerosis.

Treatment: Demi-bath from spring 7, 33<sup>1</sup>/<sub>2</sub>°, 8 min. duration, 3rd day omitted: 10 min., 3rd day omitted: with one litre mother-lye, 10 min., 4th day omitted: with 2 litres mother-lye, 33°, 12 min., 4th day omitted: 3 litres mother-lye, 4th day omitted: effervescent bath from spring 12 (also demi-bath), 32<sup>1</sup>/<sub>2</sub>°, 10 min., 4th day omitted: 12 min., 4th day omitted: bath <sup>3</sup>/<sub>4</sub> full, 4th day omitted, and two more of the same kind, on the whole 25 baths.

During the course, and still more after it, the attacks diminished and Mr. N. N. was able to attend to a little business, which was quite impossible before coming to Nauheim.

He took the same number of baths next year. I ordered him to take more effervescent baths and then, after having had a few half-baths, nothing but full-baths.

which he bore very well, whereas the year before he felt an unpleasant pressure on the abdomen and chest combined with want of breath whenever the bath rose a little higher than prescribed. The attacks came on in a much milder form and not so often. There was now only a slight sensation of contraction of the thorax, the left arm at the same time being somewhat heavy and languid.

A third course in the year 1896 consisted of 5 thermal and 15 effervescent full-baths. The gentleman had now only a few vague signs left of the terrible disease he had had, and they only appeared when walking immediately after a meal or going up-hill too quickly.

The success obtained in this case was so complete, that every physician must have had his doubts whether it was a case of "*real*" angina pectoris or not. I have, however, in the course of time seen many other patients of the same kind, still more critical cases, treated with a satisfactory result, in which the subjective and objective symptoms induced me to accept as extremely probable the diagnosis of "*real*" angina pectoris, *i.e.*, *sclerosis of the coronary arteries* — of course without their being narrowed to any extent.

The *mechano-gymnastic treatment in cases of arterio-sclerosis* can only be applied to a limited extent. Resistance-movements cannot be permitted in cases of general arterio-sclerosis in a high degree. A gentle, not too prolonged, general massage as well as passive movements are almost always permissible. In cases not too advanced I have sometimes successfully made use of a very mild form of resistance gymnastics, most carefully controlled.

With *Neurosis of the heart and vessels*, purely *nervous disordered circulation*, in which there is no pathological change either in the heart itself or in vessels, very good results have been achieved.

I shall only give a short report of two cases of this kind, without going more deeply into the question. \*)

1. General Nervousness. Functional or Nervous Weakness of the Organs of Circulation. (Neurasthenia cordis et vasomotoria.)

Mr. N. N., 22 years old, has been nervous for some time, easily excited, aversion to work, often in low spirits, sleeps badly, frequently feels tired. For two years has been tormented by a violent palpitation of the heart, which he feels after the least excitement or even without it and without any bodily exertion: likewise a very disagreeable pulsation of the arteries in different parts of the body. He has often a hot head and cold hands and feet, and has for some time felt occasional oppression.

An examination of the heart of this patient, who looks badly fed and tired, shows the heart to be of normal size and the sounds clear. The apex-beat is vigorous, heaving very much when working quickly. The pulse is regular, somewhat small, very changeable as regards frequency, from 70 to more than 100.

A course of baths extending over more than six weeks (at first of short duration,  $32\frac{1}{2}^{\circ}$ , thermal baths, lowered to  $31^{\circ}$ , pause every 3 days, in the last two weeks effervescent baths  $30\frac{1}{2}$ — $29^{\circ}$ ) changes the state of affairs completely. The patient recovers sleep, appetite, feels

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\*) For more particulars see: Groedel: „Ueber nervöses Herzklopfen und sonstige auf Innervationsstörungen beruhende Herzaffektionen.“ (On nervous palpitation and other functional troubles of the heart.) Berliner klin. Wochenschrift, 1890, No. 21. Deutsche Med. Zeitung, 1890, No. 49.

stronger. looks better, and has only seldom and in a slight degree the disagreeable sensation of palpitation, etc. Pulse 65—80.

After a further rest of six weeks he resumes his work.

In the following year he returns once more, feels nervous again, has occasionally the old heart and other troubles. but is all round much stronger and in better spirits.

This time I gave him some cool thermal baths and then effervescent baths. After the first week I made him begin with gymnastics in the Zander Institute; this did him much good. After a stay of five weeks I was able to send him away cured, with the advice to take cold frictions of the body at home and practice chamber gymnastics. He has remained well since that time.

## 2. Nervousness. Neurosis of the Heart (Pseudo-angina pectoris).

Mr. N. N., 35 years old, comes for the first time to Nauheim for a course of baths in May, 1896. The year before he had apendicitis which, however, passed away without leaving anything behind, but since that time he is nervous, his pulse is frequently intermittent without any cause, shortness of breath, a feeling of dread, painful oppression in the region of the sternum radiating sometimes to the left shoulder, and fits of giddiness. He has never had any infectious disease, never smoked much, but had formerly taken abundance of alcoholic drinks.

The examination shows nothing abnormal on the heart. The pulse is somewhat small, not strained, regular, 72 a min. During the attack it becomes fuller, often intermitting, 60—64. Blood-pleasure with Basch's sphygmomanometer 130—140. The sphygmogram speaks decidedly against arterio-sclerosis.

The course consisted of 14 thermal und 12 effervescent baths, from 33° down to 31° and from 10—15 minutes duration. After 10 days light manual gymnastics.

At his departure he did not complain of attacks, but I found the pulse to be occasionally intermittent.



In 1897 there was a repetition of the course. He is better now, still somewhat nervous, has palpitations occasionally, but no more severe attacks. Pulse permanently regular.

In 1898 feels perfectly well; no course.

In 1899 he returns, has become corpulent, has a disagreeable sensation at the heart sometimes, a painful contraction from the cardiac region to the abdominal region, frequent constipation, heart-action rather accelerated (84). Sounds somewhat faintly audible: pulse intermittent every now and then.

The bath-treatment is combined with a drinking cure (Karlsbrunnen) and gymnastics in the Zander Institute: during the latter part of the time mountain climbing is prescribed. With a diet regulated to the circumstances he loses 11 pounds in five weeks. His complaints have disappeared and the pulse is again permanently regular.

It very frequently happens that an organic disease of the heart is associated with general nervousness and nervous disturbances of the heart-action. The following is a short account of such a case:

Mr. N. N., 50 years old, a very busy solicitor from New York, has had a slight mitral insufficiency since he was 17 years old, owing to an attack of articular rheumatism. The valvular defect caused him no suffering. In consequence of overwork irregular heart-action began a few months ago and a general nervous excitability.

At his arrival on the 17th of July 1904 I discovered only a very weak systolic murmur at the heart-apex and a very slight dilatation of the heart. Pulse mostly regular: occasional fits of acceleration and irregularity.

Treatment: thermal baths, spring 7, 33°, 10—10 minutes, with one liter of mother-lye, 10 min.: with two liters of mother-lye 10—10 minutes: thermal effervescent baths from spring 12, 32½°, 10—10, 32°, 10 min.:

12—12—12 min.: effervescent baths from spring 12. 32°. 10—10—10 min.; 31½°, 10—12—12 minutes; 31° to the end: in all 21 baths. At the beginning a pause every third, then every fourth day.

At the end of the year I had a letter from him in which among other things he wrote: "*For my part, I can say that the visit I paid to Nauheim last summer, under your ministrations, has restored me to a state of health and vigor mental and physical, that I have not enjoyed in ten years.*"

I shall now quote a case of perfectly cured valvular disease.

N. N., 11 years old, came under my treatment on the 26th May, 1886. The winter before he had had rheumatic fever with endocarditis. Heart: slight enlargement to the right and left: apex heaves considerably near the nipple-line. At the apex instead of the first sound a loud sawing bruit: the pulmonic second sound accentuated — thus undoubtedly a mitral regurgitation. On going away after a five weeks' treatment with 25 thermal brine baths from spring 7, with 33—32° warmth, I found the heart in the following condition: the murmur still faintly audible, impulse not heaving so much. Next year a repetition of the treatment. The patient's family physician informed me that the systolic apex murmur had entirely disappeared some weeks after the first course. I found only the apex heaving rather strongly and a reduplication of the first sound at the same place. The murmur was no longer to be heard. Four weeks' treatment: 10 thermal baths and 10 effervescent baths.

Repetition of treatment in 1888. Apex-beat normal. Reduplication of the first tone sometimes to be heard.

Again another treatment in 1889. Heart quite normal; he has had no more rheumatism since the first treatment and I am told that he has remained in good health to the present day.

I have still a few more remarks to make about this case and more particularly as regards

the curability of valvular diseases. It is only in a very limited number of cases that I have seen a complete disappearance of well developed valvular lesion, and those have been principally in young persons, where it was evidently either a question of fresh endocarditic layers on the valve or of infiltrations. But yet some, in this way inexplicable cases, have occurred to me and I will here add what Prof. Eichhorst of Zürich says in the first volume of his *Handbook on Special Pathology and Therapeutics* about the curing of a defective valve in a patient, who was under my treatment: "Those patients with valvular defects, whom I have sent to be treated at Nauheim, and who had suffered in different ways from greatly disordered compensation, were considerably and lastingly benefited. One case, moreover, of mitral incompetence, with a gentleman 36 years of age, was completely cured. After an attack of rheumatic fever the patient had been left with a developed mitral regurgitation and at my advice he visited Nauheim. After the very first visit he returned home considerably improved and after a second stay at Nauheim the symptoms of heart-disease had so completely disappeared that he was able to get himself insured in a very scrupulous life-insurance company, no sign of the disease being discovered".

The gentleman in question was under my treatment for the first time in 1884 and has since then returned every year, with one single exception, for a 3 or 4 weeks' course of baths.

Although he has really no complaint now, he still makes use of his business-holiday to come here and take a course of baths as a precaution. Even after 10 years, there is still no sign of defective cardiac valve to be observed.

During the last few years an increased number of cases have come to me for treatment in which there have been disturbances in the circulation either with or in consequence of *diabetes mellitus* mostly connected with arterio-sclerosis. In such cases great care is required with the baths so as not to weaken the patient. Very good results are then achieved in removing the disturbances of the circulation. But the diabetes is also often beneficially influenced, if the patient is made to follow a suitable diet. Sometimes the course of baths is combined with a drinking cure from the Ludwigsbrunnen, more seldom from the Karlsbrunnen or Kurbrunnen.

*Disturbance in the Circulation of the Blood* in consequence of *Chronic Nephritis (Bright's disease)* can be treated advantageously with a course of baths, but of the various forms of this disease I have only found favourable results on patients in the early stages of primary contracted kidney. But as far as I have been able to ascertain this is only the case when no uraemic appearances have shown themselves. In advanced stages of this disease our baths are decidedly contra-indicated, as is also the case with parenchymatous Nephritis. We can only hope to benefit the secondary changes in the heart and circu-

latory organs; I have never been able to discover any essential benefit to the kidneys from the baths\*). On the other hand *Albuminuria* with *congested kidneys* in consequence of heart-disease disappears entirely after a bath-treatment, just in the same way as engorgements of other organs, such as the liver, lungs, etc. are removed by increased heart-action.

In a few sentences I will now sum up all the advantages of the system adopted at Nauheim for the treatment of disordered circulation of the blood:

It is the peculiarity of the Nauheim baths that in all cases it is possible both to relieve and to exercise the organs of circulation, and also to combine the two treatments so that they may be in perfect accord.

In the same way all the other aids at our disposal (gymnastics, *terrainkur*, diet, etc.) must be employed. For this purpose at first warmer, non-irritating, heart-relieving baths are prescribed; in like manner gymnastics, if advisable at all, are at first mostly "*passive*" or at most slightly "*resisting*".

As the strength of the heart increases cooler and more stimulating baths are taken with analogously stronger "*resistance-gymnastics*" and walking up-hill. Of course all other conditions,

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\*) For further particulars see "The Treatment of Chronic Nephritis by Mineral-Drinking-Waters and Mineral Baths", by Professor Dr. Groedel in the "Practitioner", December, 1901.

especially the diet, must be strictly controlled and adapted to each individual case.

In this manner it is possible to produce a lasting and sufficient compensation in all kinds of circulatory disturbances that may occur. Frequently we succeed in strengthening the cardiac muscle so much, that it is able to support greater and unusual claims made on it; we obtain this partly by invigorating the nervous system of the heart and vessels, and partly by producing a better nourishment of the cardiac muscle. Lastly we can sometimes remove non-irreparable changes, which have taken place in the organ in question, eradicate the disposition to certain diseases, and set up a general state of health which excludes, as much as possible, a renewal of the circulatory troubles.

That the success neither is nor can be always so great as in the above reported cases, I have already stated; but that the results achieved are, on the whole, satisfactory is proved by the fact, that what is stated here in Nauheim is verified and acknowledged by most of the modern English and German manuals on medicine, and by many contributors of articles to German and foreign medical journals.

We now proceed to another great group of diseases (affections of the nervous system) for which the mineral carbonated baths have during the last thirty years gained a world-wide reputation. I begin with

## DISEASES OF THE SPINAL-CORD.

As one of our best authorities on this subject, Professor Erb in Heidelberg, has in his works repeatedly mentioned the favourable experience he has had of the effects of the Nauheim baths upon these diseases, a continually increasing circle of physicians of all countries have been sending patients belonging to this category to Bad-Nauheim.

It is impossible, in a work not intended exclusively for physicians, to discuss all the different forms of diseases of the spinal cord which are characterised by special symptoms. Speaking strictly in general, however, we may say that it is possible, with the unusually cautious mode of treatment customary in Nauheim, to produce an improvement within certain limits in all these diseases. This is particularly the case in the widely spread form known under the name of LOCOMOTOR ATAXIA (*tabes dorsalis*). We know several patients who, on their arrival, were exclusively confined to the bath-chair and yet on their departure were able to do entirely, or at least partly, without it. In most cases we succeed in improving the ataxic gait, sometimes even in a striking degree, and the number of patients is already very considerable who return here every year to improve their power of walking, to freshen up their general state of health, and to obtain relief from their pain.

For the reasons stated I cannot treat more fully here the question how we are to explain the effect of the baths on these diseases, and I must refer those of my colleagues who are interested in this matter to a lecture I delivered at the Congress of Balneologists in Berlin in the year 1885\*). In this lecture I have also given more details about the usual kind of treatment practised here.

As it is not my intention to quote all the different affections of the spinal cord, I must content myself with giving only a few directions for the bathing-treatment of the whole of these diseases collectively.

In the first place, all strong stimulating baths are to be avoided, and especial caution is necessary when beginning; this is done mostly with thermal brine baths of short duration,  $32\frac{1}{2}^{\circ}$  Cels. ( $91^{\circ}$  Fahr.) warmth, and about  $1\frac{1}{2}$  per cent salt, these baths being taken at frequent intervals. Great care must be taken when proceeding to stronger and more exciting baths, namely to those with cooler temperature, longer duration or with a greater quantity of salt. This is likewise the case when combining the baths with cool ablutions, but more especially when prescribing effervescent baths, which when properly applied often do the most good

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\*) Groedel: "Is it possible to set down fixed balneo-therapeutic indications and methods for the different diseases of the spinal cord?" *Deutsche Medic. Zeitung*, 1885. No. 29.



to such patients. Yet it not unfrequently happens in doing this that a relapse in the improvement already made takes place, and we must then, at once, return to a milder kind of bath, if we do not wish to jeopardise the whole course of treatment. Sometimes it is practical to combine the course of baths with a special kind of gymnastic exercises (*compensatorische Uebungstherapie*) lately recommended by Leyden and Frenkel, for which purpose some newly invented apparatus have at my advice been put up in the Medico-Mechanic Institute. In other cases a massage or electric treatment combined with the baths is of use. Yet I think it often advisable to avoid this during the bathing-treatment, as it is easy to give too much of a good thing, and besides the majority of the patients will have undergone a similar treatment before for some length of time.

Also when making use of the mercury treatment, much recommended in certain cases of locomotor ataxy, and which I have sometimes found very useful combined with the bath-treatment, we must always consider whether the two treatments at once will not be too much. In fact our whole procedure must be so regulated as to have the utmost regard for the strength of these patients, and we must avoid everything that can in the least reduce their power of resistance. Yet we often see — in apparent contradiction to this — especially with locomotor ataxia, that the most advanced cases

are best able to withstand the strongest baths. Thus I know several patients who, from the beginning of their course of baths to the end, have used scarcely anything but current effervescent baths of rather long duration and this without feeling any bad effects. According to my experience the patients most susceptible to the irritants of the baths are those suffering from nervous excitement and contractions of the muscles, as, for instance, persons with SHAKING PALSY, INSULAR SCLEROSIS, etc.

For them baths of very short duration and frequent pauses are advisable, as they react on the least over-excitement, sometimes with a very considerable increase of the symptoms. In regard to the degree of warmth to be prescribed experience has also given us some hints, but I will only mention here that for spastic affections, especially SPASTIC PARALYSIS, cool temperatures are less beneficial than for other affections of the central nervous system. Baths with a higher temperature have also a better, or more soothing, effect on those pains which sometimes accompany diseases of the spinal cord and we frequently see, in cases where cooler baths must be ordered for other more important reasons, that these pains increase. Yet I can here repeat what I laid stress on in the above mentioned lecture, namely, that as a rule soon after the course of baths is finished the pains become more supportable and continue so for a long space of time.

As instances I will here only relate the history of two cases of locomotor ataxia. The first treats of the disease in a mild form, *i.e.*, a new case which, by the immediate taking of a course of baths, was brought to a standstill and the patient, by an almost annually repeated bathing-treatment, succeeded in obtaining such an excellent permanent state of health, that he was never conscious of his illness and could always fulfil the duties of a very trying and responsible position. The other case shows us an advanced state of the disease, ameliorated in many respects by the bathing-treatment and lastingly improved by a continued repetition of the same.

1st CASE: A gentleman, 34 years old, whose disease probably arose from an infection taken 8 years before, comes here for the first time in July 1887 with the following statement: for about two years repeated sharp stabbing pains (lightning pains as they are called) in the legs: for about half a year a moderate weakness in the legs, unsteady, tottering walk in the dark, otherwise no complaints.

On examination only the loss of the patellar tendon-reflex (knee-jerk) is found and a slight staggering, swaying motion when the eyes are closed. As he has already been under mercury treatment repeatedly (the last time in the spring of the same year) this is avoided and a bathing-treatment alone is prescribed in the following manner: thermal brine baths, spring 7, 32<sup>1</sup>/<sub>2</sub>° Cels., 10 min., 3rd day omitted: 32°, 10 min., 3rd day omitted: 10, 12, 15 min., 4th day omitted: effervescent baths from spring 7, 31°, 10—12 min., 4th day omitted: natural warmth, 12 min., 4th day omitted: 15 min., 4th day omitted: 15, 18, 20 min., 4th day omitted, and so on until 25 baths have been taken.

The success of the treatment showed itself in the disappearance of the pain, greater steadiness of gait, and strength in the legs.

I have seen the gentleman nine times since, when returning to take a course of baths, the last time two years ago: each time the course has had the same effect of producing a general improvement in strength: and the power of walking steadily, which had been partially lost between each course of baths, was restored again. He had no pain at all after the first course. At home he occasionally underwent an electric treatment.

2nd CASE: A gentleman, aged 36 years, came under my care on the 5. May, 1885. As early as 1874 he had perceived some unsteadiness in his walking, especially when in narrow paths, and could no longer either skate or dance. 1875, numbness in the calves. 1876, course of baths in Gastein. At home electric treatment and afterwards several cold-water cures. The disease progressed gradually from the ataxic to the paralytic stage, with occasional remissions. Since January of this year he has not been able to walk at all, and to stand only with support: well marked girdle-sensation: inability to hold urine; lightning pains in the legs: tingling felt in the finger-tips and a sensation in the soles of the feet, as if cotton-wool were interposed between the floor and the skin.

On examination: decided spinal myosis (small pupils) and loss of the iris-reflex to light: absence of knee-jerk, lessening of sensibility in the legs and perfect anaesthesia in some parts of them; muscles very atrophic.

Treatment: Thermal baths, spring 7 with  $1/3$  fresh water,  $32\frac{1}{2}^{\circ}$  Cels., five minutes, 2nd day omitted: 8 min., 3rd day omitted; 10 min., 3rd day omitted: 10 min., 3rd day omitted; spring 7,  $32^{\circ}$ , 10 min., 3rd day omitted: spring 7,  $32^{\circ}$ , 10 min.; effervescent bath, spring 7,  $31\frac{1}{2}^{\circ}$ , 10 min., 3rd day omitted; three times in this manner alternating thermal and effervescent baths, then effervescent bath, spring 7,  $31\frac{1}{2}^{\circ}$ , 10 min., 3rd day omitted:  $31^{\circ}$ , 10 min., 3rd day omitted;  $30\frac{1}{2}^{\circ}$ , 10 min., 3rd day

omitted; 30°, 10 min., 3rd day omitted; 30°, 10 min., in all 24 baths.

The patient spent the greater part of the day in the open air in his bath-chair, had a very good appetite and visibly increased in strength. He could soon stand again alone and dress himself without help: his power of walking gradually returned, so that in three weeks he could walk about 200 steps when led, and in the fourth week he could walk from his rooms in the lower Parkstrasse to the bathing-house. On leaving he required only the help of two sticks.

On the 3rd of August of the same year he returned for a second course of baths.\*) He had in the meantime been staying in the Black Forest, had been taking cool ablutions and looked much better and fresher: bladder better, manner of walking the same as at the end of the first course of baths, but not so dragging. This time he takes nothing but effervescent baths, spring 7. natural temperature, 10 min., 3rd and then 4th day omitted, cooled down to  $28\frac{1}{2}^{\circ}$  Cels., altogether 22 baths.

Towards the end of this second course he was able, with the use of one stick, to walk about a quarter of an hour without stopping. To attain more was not possible, but the patient was well contented even with this result, as he was now able to pursue his occupation, and the course of baths, which he repeated regularly from that time combined with a light cold-water treatment during the rest of the year, enabled him to maintain this amount of moving power. At last he had the misfortune to break a leg, which again made the assistance of another person necessary while walking. I saw him for the last time in 1891, as he was then obliged to renounce the bathing-treatment on account of another disease, to which he succumbed in 1894.

What I have said about the treatment of chronic affections of the spinal cord and

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\*) For this malady, as well as for heart-disease, two shorter courses of baths in the same year are preferable to one long one.

its good results, applies also for LAMENESS RESULTING FROM OTHER CAUSES, such as apoplectic strokes, typhoid fever, diphtheria, etc.

I should not omit to mention that I have seen very excellent results attained in cases of LOCALIZED NEURITIS and also with a comparatively large number of patients suffering from MULTIPLE NEURITIS.

Recovery from this affection, which is often very slow, is greatly aided and accelerated by a course of baths. Thus I remember one gentleman in particular, who came here with almost complete paralysis of the arms and legs and who, after a course of baths lasting eight weeks — towards the end combined with massage — recovered completely excepting a certain degree of weakness. As, after some years, symptoms of the same disease began to show themselves again, the gentleman took another course of baths at once and succeeded in nipping the disease in the bud. On both occasions the knee-jerk, which had disappeared, returned during the bathing-treatment.

In close connection with the diseases of which we have just been treating, there remains one to be discussed which, as I have already mentioned, is often confounded with rheumatism, namely.

#### NEURALGIA.

These are pains which are confined to a certain region of the nerves, that is to say, occurring in single branches of nerves only, and

not caused by an affection of the central nervous system.

The form of neuralgia which comes most frequently under treatment here is SCIATICA, a very painful affection in the back of the thigh: often the pain extends down to the knee, reaching the foot and radiating over the entire distribution of the sciatic nerve. For this disease, which is very obstinate and sometimes withstands every kind of treatment, the Nauheim baths usually do very good service. As a rule I prescribe thermal baths with 34—35° Cels. (93—95° Fahr.) to begin with, and about 2 per cent of salt: these have usually the desired effect. If not, I proceed to effervescent baths from spring 12 of natural temperature or sometimes a little warmer. When the pain has decreased I slightly reduce the temperature. Shower-baths can seldom be applied and then only with the greatest caution. Electricity and massage, both of which are used as remedies for neuralgia, have only been exceptionally employed by me during a course of baths.

I have also obtained very good results with our baths in cases of BRACHIAL NEURALGIA (pains in the region of the shoulder and arm nerves), and of INTERCOSTAL NEURALGIA (pains in the nerves running from the vertebral column along the ribs to the front). Less favourable, if not quite hopeless, are the cases of TRIFACIAL NEURALGIA (*tic douloureux*).

One more disease may here be added, as it increases in a striking manner from year to year and may surely be traced to the social relations of modern life; I mean

## NEURASTHENIA.

### WEAKNESS OR EXHAUSTION OF THE NERVOUS-SYSTEM.

This disease, which makes its appearance under the most multifarious forms, is treated with most success in hydropathic establishments. There are, however, many persons who are not able to endure such a treatment. A number of such patients come to Nauheim, and we succeed almost invariably in obtaining the desired result by means of treatment which is cautiously adapted to the peculiar conditions of each patient. In the beginning, thermal brine baths with 32° Cels. (90° Fahr.) and of short duration, then cooler baths down to 24° Cels. (75° Fahr.), now and then current thermal baths, sometimes also effervescent baths, then a mild hydropathic treatment, with instructions to remain some time in the "*brine-graduating-house*" and to make use of gymnastics, rowing, etc. — those are the chief means (with variations and combinations) which lead to the desired strengthening of the exhausted nervous system and so to a full recovery from this functional disease.

Especially numerous are those neurasthenic patients with whom NERVOUS PALPITATION OF THE HEART plays the principal part. Our



baths seem especially adapted for such patients, as can be seen from the reports I gave in the chapter about heart-disease.

As other functional nervous diseases for which the Nauheim treatment is suited, I may here quote HYSTERIA and the so-called TRAUMATIC NEUROSIS and RAILWAY-SPINE, which has frequently come under my treatment of late years; furthermore ST. VITUS' DANCE (chorea St. Vitii). For this disease, chiefly affecting children, our baths do decidedly good service, especially when resulting from rheumatic fever, as is often the case, or when, as likewise frequently occurs, it is combined with an affection of the heart. Yet I should like here to draw particular attention to what I stated more fully in a lecture\*) on this subject, namely, that I consider it absolutely inadvisable to take these patients away from their homes during the acute stages of their disease and send them to bathing-places; one should rather wait until the illness has taken a more chronic, lighter form, or is beginning to disappear. Then a course of baths usually removes the appearances of the malady entirely and the patients are secure from a relapse.

We now come to another class of diseases, which are responsible for a very great contingent

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\*) Groedel: "Experiences on Etiology and Therapeutics of the Chorea." Wiener Medic. Wochenschrift. 1891. Nr. 16 and 17.

of the entire bathing public in all brine and chalybeate watering-places, I mean

### THE DISEASES OF WOMEN.

For these maladies the physician is sometimes at a loss to know to which bathing-place he shall send his patient. When it is a question how to produce the absorption of the products of old inflammations, exudations, etc., brine baths are the most suitable. But when the patient has become weak during her illness and is very anaemic a chalybeate bath is advisable. Both these requirements are fulfilled by our carbonated thermal brine baths, for as I have explained in the general description of the baths, they contain the combined qualities of brine and chalybeate water. We continually see such patients using the Nauheim baths with the greatest success. This likewise applies to those cases in which, through a certain debility of the organs in question, or for other reasons needless to specify here, copious loss of blood occurs and causes a high degree of anaemia in the patient; also in cases of morbid secretions which produce anaemia or have been produced by it. In all these cases we obtain the best results here.

It is impracticable to enter more fully here into this subject; I will only remark that patients under the conditions just enumerated, as well as others of the same category who come here for treatment, must be prescribed for according

to each individual case, especially as these diseases are usually attended with complaints of a nervous character.

The course mostly begins with simple brine baths free from carbonic acid; this alone suffices for many patients. We are, however, more frequently obliged to proceed to carbonated thermal baths under the above-mentioned conditions. We have now likewise occasion to give mud-baths alternating with brine-baths in case of need.

The use of the bathing-speculum, formerly so much in favour, has now been almost entirely abandoned, as it is found to be hurtful; I cannot, however, omit in this place to caution most earnestly against its use, on account of the strong quality of the brine; the same objection is to be made against strong injections. We must also be very careful when adding mother-lye now so frequently used; it is but rarely that such quantities can be permitted as are usually put in weaker brine baths — as at Kreuznach for instance, where a considerable quantity is necessary — for the Nauheim brine baths contain more than double as much salt as those of Kreuznach. This applies especially to cases of FLUOR ALBUS (ENDOMETRITIS CHRONICA, etc.)

Brine-bandages on the abdomen in the manner of the so-called Priesnitz-bandages, are frequently prescribed. Yet even with these one must guard against too strong a concentration of the brine, as otherwise unpleasant irritations

of the skin (boils, etc.) easily show themselves. This seems to be little known outside Nauheim for patients repeatedly arrive here with instructions to use bandages of mother-lye (!).

Most satisfactory and often brilliant results are attained in cases where we have to do with more or less copious, often very inspissated, **EXUDATA IN DIFFERENT PARTS OF THE PELVIS**, following on inflammation of the pelvic organs and for which other remedies inwardly and outwardly applied have not been able to produce any change. I will now briefly relate such a case.

Mrs. N. N., 31 years old, after a delivery in the summer of 1879, suffered from a severe inflammation of the hypogastric organs and has been ailing ever since. She arrives here on May 12th. 1880, for a course of baths and complains of exceeding weakness, frequent pressure of urine, stool only obtainable by means of injections, continual oppression of the abdomen and divers other complaints. She was not able to walk and had to use a bath-chair. Catamenia had only once shown itself very weakly since the beginning of the disease.

On examination the back part of the pelvic cavity was found almost entirely filled with an unusually tough and hard mass of exudata, which also extended to the left side.

The patient had already taken a number of artificial brine baths at home, so I began immediately with thermal brine baths, 34° Cels. warm, lasting 10 minutes and omitting every third day, gradually progressing until they lasted half an hour and were not omitted so often. The amount of salt was increased continually till at last 10 litres of mother-lye were added to the water of spring 12.

The course of baths lasted more than 9 weeks and when the lady departed on July 12th. after taking 40 baths, she was entirely free from all troubles. A small quantity of exudata alone remained, which disappeared of itself during the following weeks. Menstruation had occurred twice during the course in the normal manner and, what with an excellent appetite and as nutritious a diet as possible, her general state of health had become quite excellent. She was able to do without the bath-chair about the middle of the course and on leaving the patient could walk again as in former days. Besides the baths nothing had been ordered but brine-bandages and vaginal injections with ordinary water, which had also been employed before the course of baths was begun.

In cases of FIBROIDS I have also noted excellent results.

One patient in particular, I remember, who was suffering from such a tumour so badly — she was confined to her bath-chair -- that an operation seemed inevitable: several courses of strong concentrated baths had, however, the effect of stopping the growth of the tumour. On the setting in of catamenia the great loss of blood ceased. The lady gathered strength again, and the tumour growing thinner the suffering diminished, so that now she is again able to walk about the house and even to take short walks.

Many diseases of women are accompanied by habitual constipation, a very troublesome complaint, which should be treated by a corresponding course of our saline cathartic waters. When the patient is inclined to profuse bleeding I consider the use of purging waters to be hazardous, whereas, when it is only a question of removing exudata, that kind of treatment (Karlsbrunnen, Kurbrunnen), promoting absorption as it does, is very serviceable.

There now remains only one more group of diseases to discuss, one which occurs particularly in young persons; for these complaints brine baths have been much esteemed for a long time, they are:

### SCROFULA AND RICKETS.

There are a number of morbid conditions that are the result of scrofula: swellings of the lymph-glands, complaints of the eyes and ears, catarrhal inflammation of the mucous membranes of the nose, the throat and the bronchi, eczema, affections of the bones, general bodily weakness, backwardness in the development of children, curvatures of the spine, etc. The last-named affection occurs still more frequently in cases of the so-called rickets, the principal cause of which has always been attributed to impaired nutrition and alteration in the growing bones, whereas scrofula is ascribed to an abnormal procedure in the lymphatic glands, resulting from an increased vulnerability of the tissue. But although the two diseases, rickets and scrofula, indicate quite different conditions, yet they have so much in common and occur so often in union, that we can discuss the two together. Both complaints, but especially the rickets as already mentioned, mostly attack infants and can be, as far as necessary for treatment here, united into two principal groups, namely children with a pasty, often strong but unnaturally stout, bloated appearance — the so-called “*torpid*”

form; and the delicate, weakly (often badly nourished), anaemic looking patients — the so-called “*erethic*” form.

Those children belonging to the first group usually require stronger baths; for them thermal brine baths from spring 12, often with a considerable addition of mother-lye, are indicated. A course of drinking-waters from the Kurbrunnen or Karlsbrunnen, yet so diluted as to prevent irritation of the mucous membranes of the stomach and the bowels, is often accompanied by the best results.

Children belonging to the other group, on the contrary, cannot support these concentrated baths; baths free from carbonic acid diluted with fresh water and containing about 1 to 1½ per cent salt are better suited for them. In some individual cases, however, I have seen baths with a strong quantity of carbonic acid (effervescent baths) exercise a very favourable influence on the anaemia of such patients. A course of waters for this category of patients is mostly out of place and therefore I frequently prescribe milk in large quantities.

What has just been said only applies to these cases in general. It must be left to the judgment of the physician superintending the case to decide which baths and other remedies are suitable, and how the gradual increase in the strength of the means applied may and must take place or not, and whether a diminution is necessary or not.

For swellings of the glands, bandages with more or less strong brine are also ordered. For bronchial and naso-pharyngeal catarrhs the inhalation-hall assists the treatment. In favourable weather, however, a stay in the "*brine-graduating-house*" is, according to my experience, of greater use than the inhalation-hall.

For rickets phosphorus, applied inwardly, has been much used of late and has a good effect if continued during the course of baths.

The success achieved in Nauheim in diseases of this kind is often quite surprising. There have been a number of cases in which the simple brine baths, like those of Kreuznach etc. were applied without success, but on taking the Nauheim thermal brine baths the desired result was attained. Children generally thrive here and begin to look quite different, fresher, healthier; swollen glands subside, thick lips and swollen nose recover their normal shape, rashes such as eczema disappear, and so forth. In obstinate cases, however, the success is only partial, and a repetition of the course is necessary; this is also advisable, however, even for cases in which we seem to be fully convinced of the utter extermination of the disposition to scrofula. This is the more important as, according to the latest researches, there is now no doubt that between scrofula and tuberculosis there is a certain connection.

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I cannot forbear here to mention A NUMBER OF OTHER DISEASES WHICH ARE ALSO IMPROVED BY THE NAUHEIM REMEDIES, but I must abstain from entering into the particulars, partly because they form the minority of cases and partly because they have already been touched upon while treating of other complaints. So, for instance, I mentioned KIDNEY DISEASES when treating of affections of the heart, and CHLOROSIS (green-sickness) when discussing the diseases of women. I usually make chlorotic or anaemic patients drink milk regularly while taking the course of baths and prescribe some light preparations of iron, which, if taken at meals, almost invariably agree with the patient and are in my opinion to be preferred to the drinking of mineral waters, the latter sometimes being taken while fasting. I have been well satisfied with the results obtained here in all kinds of anaemia, whether alone or combined with any other disease.

NASAL, TRACHEAL AND BRONCHIAL CATARRHS have already been mentioned while discussing scrofula. In addition to the remedies I have enumerated (baths, inhalation, "*graduating-house*") there remains only one more for me to mention as it is very helpful, I mean a course of drinking-waters from our Ludwigsquelle, either alone or mixed with water from the Kurbrunnen: it should be taken in the morning while fasting and, if necessary, once more towards evening. Instead of this whey is sometimes prescribed.

EMPHYSEMA OF THE LUNGS is also treated successfully in Nauheim; in most cases, however, it is combined with some disorder of the circulation. Besides the baths which are so beneficial for the latter, the therapeutics of inhalation are required for the treatment of emphysema; the usual remedies employed are a stay of some time in the room where the air is impregnated with brine, the inhalation of condensed air and the exhalation into rarefied air by means of the pneumatic apparatus.

As already mentioned repeatedly when discussing the various illnesses, both the saline springs of the Kurbrunnen and the Karlsbrunnen are very valuable in the treatment of **HABITUAL CONSTIPATION**, of **CORPULENCE**, and of **OBSTRUCTION IN THE LIVER**.

It is only of recent years that the value of our drinking waters has been duly appreciated. The reason for this may lie in the fact that the chief attention of the physicians was hitherto taken up, and justly so, by watching the effects of the baths. But since it has been found that the Nauheim waters are equal in value to those of Homburg and Kissingen, they are more and more frequently recommended for the treatment of patients suffering from disturbances in the digestive organs.

We have now seen how many and various the diseases are, which are treated with success at Nauheim. This, as I have explained in the beginning of this book, is owing to the great

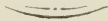
abundance of effective agents in our natural remedies and the number of therapeutic auxiliaries at our disposal. This induced the late Professor Traube, during his life-time the most illustrious clinical physician at the university of Berlin, to say: "*Nauheim is the most favoured of all the bathing-places I know, as it has the fewest contra-indications*", or in other words there are few chronic forms of disease that cannot derive benefit from the remedies at our disposal in Nauheim.

A FEW REMARKS ABOUT  
THE TREATMENT AFTER A COURSE  
OF BATHS.

It is generally acknowledged not to be advisable to return to the troubles and cares of one's calling or of household management directly after taking a course of baths but rather that a period of rest and repose should precede the work. For this it is generally sufficient to remain at a quiet place with favourable hygienic conditions. For certain cases, however, we require peculiar qualities in the place to be chosen. It is, for instance, of the greatest importance that the place in question should have a sufficient choice of level walks; this is the case with most of those suffering from heart disease, and for all those who are not able to walk with perfect ease (through lameness, affections of the joints, etc.). For other patients the chief care is that there should be sufficient

opportunity for mountain climbing, as in cases of disordered circulation resulting from corpulence. Of the greatest importance for every one is the state of the air, its purity and freshness, the vicinity of woods, day and night temperature, violence of the wind, etc. etc. For many patients, too, the height of the place chosen is of great importance. Thus it is not advisable to allow a person suffering from heart-disease to reside more than about 3000 feet above sea-level, whereas for nervous, as well as for anaemic patients, a climatic health-resort in the mountains at a height of more than 3500 ft. above the level of the sea has often an excellent effect. In the last mentioned case, and for many cases of rheumatism, a cold-water treatment is often good after a course of baths, as is also a stay at the sea-side, but very seldom sea-bathing.

In the first edition of this book I placed a number of climatic health-resorts in groups, as best suited for the chief classes of diseases treated in Nauheim. In this edition, however, I have omitted to do so, because I found it impossible to enumerate all the places exhaustively, and think it advisable to leave the selection of the place of residence for repose after the stay at Nauheim to the physician under whose care the patient has been placed.



**APPENDIX**  
**TO THE FIRST PART.**





## ANALYSIS OF THE SPRINGS USED FOR THE BATHS.

(Made at the Grand-ducal Hessian institute for chemical examination at Darmstadt during the years 1903 and 1904.)

The amounts of solids are given in grammes as contained in 1000 grms of water.

Constituent parts.	No. 7	No. 12	No. 14	
	Grosser Sprudel	Friedrich Wilhelm-Sprudel	Ernst Ludwig-Sprudel	
Chloride of Sodium . . .	19,5402	27,1525	22,7090	
Bromide of Sodium . . .	0,0090	0,0122	0,0170	
Chloride of Potassium . .	0,5953	0,8381	0,6436	
Chloride of Lithium . . .	0,0560	0,0626	0,0405	
Chloride of Ammonium . .	0,0508	0,0575	0,0753	
Chloride of Calcium . . .	1,3643	2,7619	2,4493	
Chloride of Magnesium . .	0,3948	0,5281	0,4663	
Sulphate of Potassium . .	0,0652	0,0818	0,0787	
Bicarbonate of Calcium . .	2,4894	1,7953	1,6019	
Bicarbonate of Strontium .	0,0302	0,0500	0,0456	
Bicarbonate of Iron . . .	0,0218	0,0289	0,0309	
Bicarbonate of Manganese .	0,0063	0,0052	0,0041	
Phosphate of Sodium . . .	0,0004	0,0004	0,0005	
Arsenate of Sodium . . .	0,0009	0,0007	0,0008	
Silicic Acid . . . . .	0,0164	0,0194	0,0173	
Amount of solid constituents . . . . .	24,6410	33,3946	28,1808	
Absolutely free carbonic-acid gas . . . . .	3,9634 = 2277 cem.	3,3118 - 1931 cem.	2,9630 = 1715 cem.	
Amount of all constituent parts . . . . .	28,6044	36,7064	31,1438	
Temperature {	Celsius . . . . .	29,9°	34,4°	32,2°
	Fahrenheit . . . . .	85,8°	93,9°	90,0°

## ANALYSIS OF THE MINERAL DRINKING-SPRINGS.

(Made at the Grand-Ducal Hessian institute for chemical examination at Darmstadt during the years 1903 and 1904.)  
The amounts of solids are given in grammes as contained in 1000 grms of water.

Constituent parts.	Kur- brunnen.	Karls- brunnen.	Ludwigs- brunnen.
Chloride of Sodium . . .	14,1794	6,2322	0,3629
Chloride of Lithium . . .	0,0271	0,0158	0,0065
Chloride of Potassium . . .	0,4042	0,1901	—
Chloride of Ammonium . . .	0,0350	0,0214	0,0070
Chloride of Calcium . . .	1,1807	0,4613	—
Chloride of Magnesium . . .	0,3130	0,1394	0,1395
Bromide of Sodium . . .	0,0100	0,0044	0,0017
Sulphate of Sodium . . .	—	—	0,0053
Sulphate of Potassium . . .	0,0566	0,0883	0,0335
Bicarbonate of Calcium . . .	1,5313	0,5618	0,4782
Bicarbonate of Magnesium . . .	—	—	0,0405
Bicarbonate of Sodium . . .	—	—	0,1170
Bicarbonate of Iron . . .	0,0301	0,0055	0,0148
Bicarbonate of Manganese . . .	0,0048	0,0023	0,0020
Bicarbonate of Strontium . . .	0,0247	0,0057	0,0037
Arseniate of Sodium . . .	0,0006	0,0003	0,0002
Phosphate of Sodium . . .	0,0009	0,0003	0,0003
Silicic acid . . . . .	0,0181	0,0101	0,0096
Amount of solid constituents . . . . .	17,8165	7,7389	1,2227
Absolutely free carbonic-acid gas . . . . .	2,7880 = 1550 ccm.	1,8487 = 1024 ccm.	2,1126 = 1168 ccm.
Temperature { Celsius . . . . .	20,1°	17,2°	18,6°
{ Fahrenheit . . . . .	68,2°	62,9°	65,5°



PRICES OF THE BATHS.\*)

Einfaches Soolbad (brine bath)	
at fixed time, 6 — 8 <sup>1</sup> / <sub>4</sub> a. m. . . . .	M. 2.00
" " " 8 <sup>1</sup> / <sub>4</sub> a. m. — 12 <sup>1</sup> / <sub>4</sub> p. m. . . . .	" 2.30
no fixed time: in the morning . . . . .	" 1.60
" " " in the afternoon . . . . .	" 1.10
Thermalbad (Thermal bath)	
at fixed time, 6 — 8 <sup>1</sup> / <sub>4</sub> a. m. . . . .	" 2.40
" " " 8 <sup>1</sup> / <sub>4</sub> a. m. — 12 <sup>1</sup> / <sub>4</sub> p. m. . . . .	" 3.10
no fixed time, bath-house VI . . . . .	" 2.10
" " " " " I, II and III . . . . .	" 1.60
the same in the afternoon, bath-house VI . . . . .	" 1.30
" " " " " " " I, II and III . . . . .	" 1.10
Thermalsprudelbad (slightly effervescent bath)	
at fixed time, 6 — 8 <sup>1</sup> / <sub>4</sub> a. m. . . . .	" 2.60
" " " 8 <sup>1</sup> / <sub>4</sub> a. m. — 12 <sup>1</sup> / <sub>4</sub> p. m. . . . .	" 3.60
no fixed time, bath-house VI . . . . .	" 2.30
" " " " " III and V . . . . .	" 1.90
the same in the afternoon, bath-house VI . . . . .	" 1.60
" " " " " " " III and V . . . . .	" 1.40
Sprudelbad (strong effervescent bath)	
at fixed time, 6 — 8 <sup>1</sup> / <sub>4</sub> a. m. . . . .	" 3.10
" " " 8 <sup>1</sup> / <sub>4</sub> a. m. — 12 p. m. . . . .	" 4.00
no fixed time, in the morning . . . . .	" 2.70
" " " in the afternoon . . . . .	" 1.80
Thermalstrombad (current Thermalbad) . . . . .	
	" 3.00
Thermal-Sprudelstrombad (current Thermal-sprudelbad) . . . . .	
	" 3.50
Sprudelstrombad (current Sprudelbad)	
before 6 o'cl. a. m. or after 5 o'cl. p. m. . . . .	" 5.00
from 12 — 2 p. m. (vide: Bathing-Regulations § 8) . . . . .	" 6.00

\*). Persons in reduced circumstances who can testify their want of means can receive the "Kur" ticket, as well as the tickets for the baths and inhalation rooms, at reduced prices. Application should be made to the "Bade-direktion".

Fresh-water bath	
in the morning . . . . .	M. 1.20
in the afternoon . . . . .	" 1.00
Shower-bath . . . . .	" 1.00
"    "    combined with brine bath . . . . .	" 2.00
Hip-bath . . . . .	" 1.00
Mud-bath, in the Konitzkystift . . . . .	" 5.00
Mud-half-bath in the Konitzkystift . . . . .	" 3.00
Ice-ticket: 20 pounds are given gratis, for each	
10 pounds more . . . . .	" 0.25
Mother-lye, 1 Liter . . . . .	" 0.20
Strong brine, 1 Liter . . . . .	" 0.10
Weak brine, "    " . . . . .	" 0.01
Towel extra . . . . .	" 0.05
Drying-sheet extra . . . . .	" 0.10
Sheet to be put in the bath-tub . . . . .	" 0.50
For resting in a special room after the bath . . . . .	" 0.60
For use of the weighing-machines which are put	
up in several of the bathing-houses each time . . . . .	" 0.10

The same price has to be paid for the use of the weighing-machine in the Zander Institute and the various shops.



## PRICES FOR THE MINERAL DRINKING-WATERS.



The water at the different drinking springs is handed gratis to all those in possession of a "Kur" ticket.

The dispatch to places outside Nauheim is managed by the "*Staatliche Mineralwasserversendung Bad - Nauheim*", office in the drinking-hall, where every other information is given.

The price, including packing, for all the Nauheim waters is 10 1/2 liter bottles M. 3.40, 10 liter bottles M. 4.50. The price is somewhat reduced for large quantities.

Note: Baths for children under 12 years of age half-price in the afternoon, but full price in the morning.



## PRICES FOR MOTHER-LYE AND BATH-SALT.

Mother-lye (Mutterlauge) 1 Liter . . . . .	M.	0.25
Bath-salt (Badesalz) 25 Kilo . . . . .	"	3.50

Orders for "Mutterlauge" and "Badesalz", should be addressed to the "*Grossherzoglich hessische Salinenrentamt Bad-Naueheim*", where information is also given concerning prices and packing.

## CHARGES FOR INHALATION.

### I. For the use of different apparatuses and rooms.

#### 1. Inhalation in a common spray-hall (duration of one sitting up to one hour)

Wasmuth-room:

one sitting . . . . .	M.	1.20
ten sittings (with subscription tickets) . . . . .	"	10.00

Heyer-room:

one sitting . . . . .	"	1.50
ten sittings (with subscription tickets) . . . . .	"	12.00

#### 2. Pneumatic Inhalation (duration of one sitting up to 1/2 hr.)

one sitting . . . . .	"	1.30
ten sittings (with subscription tickets) . . . . .	"	10.00

#### 3. Inhalation with Goebel's and Heyer's single-apparatuses: Unicum, Duplex, Schmitzler-Heyer and Heyer's heated-apparatuses (duration of one sitting up to 1/2 hr.)

one sitting . . . . .	"	1.00
ten sittings (with subscription tickets) . . . . .	"	8.00

#### 4. Inhalation of Oxygen

each 20 litres of oxygen (no less is supplied) . . . . .	"	1.00
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Notes: Medicated additions for simple apparatus-inhalation are charged at 15 Pfg. pro inhalation. 10 tickets at a time by subscription: subscription-tickets cannot be returned: the tickets entitle to the use of only one apparatus during a sitting.

## II. Prices for Masks and Mouthpieces etc.

A mask for pneumatic inhalation, made of brass	M.	2.50
A bifurcated mouthpiece with it . . . . .	"	1.50
A mouthpiece of hard caoutchouc for unicum . . .	"	0.80
A nose-piece . . . . .	"	0.90
A screening sheath (for nose or mouth) for duplex	"	0.50
A bent glass tube for unicum . . . . .	"	1.50
A glass tube for Heyer's-heated-apparatus . . . .	"	0.70
A piece of hard caoutchouc for Heyer's-heated- apparatus . . . . .	"	0.50
A nose-piece of caoutchouc for Heyer's-heated- apparatus. . . . .	"	0.60
A sheath of hard caoutchouc for Schnitzler . . .	"	0.50
A mouthpiece for oxygen-apparatus . . . . .	"	0.50
A caoutchouc apron . . . . .	"	4.00
A woollen cloak with hood for inhalations in the common spray-rooms . . . . .	"	6.00
A woollen cape. . . . .	"	4.00

## BATHING - REGULATIONS.

§ 1. The bathing-houses are open from 6 a. m. till 6 p. m. After 5.15 p.m. no baths are prepared. The inhalation-hall is open from 8 -12 a. m. and from 3—6 p. m.

On Sundays and holidays the bathing-houses and the inhalation-hall are closed in the afternoon.

§ 2. Visitors who wish to take a bath at a fixed time should give notice of it to the superintendent of the bathing-house in which they desire to have the bath and inform her of the hour they would like; the superintendent enters the requests in a list and if the time desired is already bespoken she assigns another time for the bath to be used until the hour required is free.

Those visitors who have thus ordered their baths at a fixed hour must be in the waiting-room in due time — in cases of doubt the clocks in the waiting-room alone decide. Any person absent more than 10 minutes after the beginning of the time fixed may lose the bath-room for that day and have to wait until another room is free.

If a person desires to omit a bath which has been previously ordered, the superintendent must be informed at least 2 hours before the time, otherwise the bath will have to be paid for.

Any -one omitting his bath twice in succession without giving notice loses his right to the time agreed upon and takes the place of a newly arrived visitor.

§ 3. Baths are only given on presentation of a bathing-ticket bearing the stamp of the day: the attendants may not, on pain of immediate dismissal, either prepare baths without first receiving such a ticket or buy and get it stamped at the request of any visitor: the public should therefore provide themselves with bathing-tickets and get them stamped by the superintendent of the house in which they desire to take a bath. Baths which have not previously been ordered will be given in the order in which the tickets have been stamped, therefore the public are requested not to leave the waiting-room until their number has been called out by the superintendent: if they are not present on the calling out of their number they are treated as newcomers.

After 5.15 p. m. no more tickets are stamped.

§ 4. Visitors are not allowed to remain in the corridors of the bathing-house.

§ 5. The bathing-ticket entitles the owner to the use of the bath-room for the space of 45 min.: should this time be surpassed by more than 10 min., he is liable to be called on to pay double, *i.e.* to present another ticket.

§ 6. Unused bathing-tickets are not available for the following year.. Such tickets can only be taken back during the course of the season: the money will be refunded

at the ticket-office on receipt of instructions from the Badedirection, to whom it is necessary to apply, either personally or in writing, stating the reason for the non-using of the tickets.

§ 7. The ticket-office is open from 6 a. m. to 5 p. m.; on Sundays and holidays it is closed in the afternoon.

Persons who wish to have the bathing-tickets at reduced prices must obtain a certificate to that effect from the Badedirection.

§ 8. The Badedirection can decide, if necessary, that baths at reduced prices as well as current-baths of all kinds shall be given only in the afternoon. Any such decision will be made known to the public by the attendants.

Thermal brine baths above 37.5° Cels. = 99.5° Fahr. can only be given on presentation of a card from a physician, likewise current effervescent baths are only obtainable on showing a written order from a physician practising in Bad-Nauheim. In every case the Grand-ducal bathing-master has to decide as to the time for taking the current baths, therefore the public are requested to apply to him in all questions of this kind.

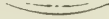
Children's baths at reduced prices are only given in the small baths appointed for that purpose. A large bath for a child can only be obtained on presenting a full ticket.

§ 9. Each person receives for one bath a towel, a large drying sheet, a cloth to lean the head against, a mat covered with linen, and for effervescent baths a cloth to be put over the bath, if desired. Other linen can only be delivered by the attendants on presentation of a corresponding ticket; the bathing-attendants are strictly forbidden to procure such tickets for the public.

§ 10. The bathing-attendants, who are strictly forbidden to ask for gratuities, have to prepare the bath in the prescribed manner and every time the bell is rung must repair immediately to the bath-room and lend any assistance that may be desired in handing the towels or drying the bather.

The attendants must always treat the visitors with attention and politeness. Any complaints in this respect or concerning the baths should be made to the Bade-direction. The writing must bear the name and address of the writer, otherwise no notice will be taken of it.

§ 11. Smoking is not allowed in the bathing-houses; dogs are not admitted, and visitors who show this want of regard for their fellow-bathers will be refused admission to the bathing-houses.








## **SECOND PART.**




**HINTS CONCERNING LOCAL  
MATTERS, SOCIAL AMUSEMENTS,  
WALKS, DRIVES, AND  
EXCURSIONS.**





## LOCAL INFORMATION ABOUT BAD-NAUHEIM.



THE OFFICIAL SEASON lasts from the first of May to the last day of September, but baths are also given in the months of April and October.

The question is often asked, which is the best time of the year for the treatment? It is possible to take a course of baths at any time during the season with hopes of receiving benefit. But the time when a patient can go away from home frequently depends upon business and other circumstances; if, however, he can choose the time with regard only to his health the following advice may be found useful: patients who suffer much from heat during summer (this is especially the case with nervous people and those affected with cardiac troubles) may choose spring or autumn for their course of treatment, whereas patients suffering from rheumatism, gout, or diseases of the respiratory organs should prefer the warmer part of the year.

During the season visitors staying in Nauheim are required to pay the so-called

**KUR-TAX**, about which the following main points may be noted :

Every stranger — physicians, children under twelve years of age, and servants excepted — who remains longer than five days in Bad-Nauheim has to pay a Kur-tax which for a single person amounts to 20 Marks, for a family of two persons M. 26, and for every additional member of the family M. 6. For strangers that do not remain longer than five days in Nauheim daily tickets are issued at the price of 50 Pfennigs. On paying the Kur-tax a season-ticket is given which entitles the holder to the use of the drinking fountains and halls, to visit the Kur-park, the Kur-house, the reading, playing, and assembly rooms, the dancing-parties, the concerts of the Kur-band, as well as the other concerts which take place on the terrace in front of the Kur-house. The tickets are only available for the holder, and are to be shown to the officials when required. The Kur-tickets are, if desired, delivered at the dwellings of the visitors, with an extra-fee of 25 Pfennigs, yet it is advisable for the stranger to take the ticket himself, soon after his arrival, at the ticket-office in the left wing of bathing-house No VI. Office-hours: 7—12 a.m., 2—5 p.m., on Sundays and holidays only 7—12 a.m.

**APARTMENTS AND BOARD.** Nauheim affords the visitor a great variety in the choice of apartments, especially in the newer part of the town. The numerous new buildings which have been erected of late years effectually prevent any scarcity of lodgings, even in the height of the season, and we are now enabled to meet all claims, even the most pretentious. The price of apartments varies, according to their size, position, and furnishing, from M. 20 to M. 140 per week; it is correspondingly cheaper early in

spring and late in autumn. The rooms are, as a rule, if not otherwise expressly agreed upon, let by the week. When leaving one's lodgings an extra week must be paid for if notice has not been given eight days before. The lessor can likewise only give eight days' notice.

Breakfast and supper can be obtained in most of the private lodgings. Many houses give full board, for which M. 5½ a day (rooms not included) are mostly charged, but in some houses the prices are much higher; on the other hand, it is also possible to obtain full board at very low rates. There are several very good boarding houses for ladies unaccompanied.

Nauheim also contains several sanatoriums intended especially for patients requiring permanent medical supervision or any particular form of diet and treatment.

Those strangers who have not already had apartments secured in advance, but prefer to look for a dwelling themselves (which is the most practical way, thus avoiding every unpleasantness) should leave their luggage at the railway station and go directly to an hotel and from there seek a private dwelling, in case they do not wish to remain in the hotel during their stay. If a whole villa is desired, it is always advisable to take the necessary steps a few weeks before.

The charges for rooms in the hotels vary so much that it is impossible to give any fixed prices, I refer therefore to what I have already

stated about apartments in general. For all round good attendance in an hotel, the prices of course correspond with what is offered. Full board in the smaller hotels costs from M. 5—6, and in the larger ones from M. 6—9 daily. In all the hotels and in many private boarding-houses there are persons well acquainted with the English language.

**DIVINE SERVICE.** Church of England Service in the new English Church, Victoriastrasse (next to the Kur-house). Church notices will be found every week in the *Bad-Nauheimer Kurliste*.

Protestant Service in the Wilhelmskirche, Wilhelmsstrasse.

Roman Catholic Service in the Reinhardskirche, Reinhardsstrasse.

Jewish Synagogue in the Alicenstrasse.

The time of every Service in the German Protestant, the Catholic, and the Jewish places of worship is also given in the *Kurliste*, which appears weekly.

Committees have been formed to collect subscriptions for a new Catholic, a new Protestant, and an Orthodox Russian church. Both the Catholic and Protestant churches are now in building and will probably be finished in the year 1906. The site of the former is in the Usastrasse between the Zander Institute and the Gradierbau, whilst the latter is being erected at the lower end of the Parkstrasse opposite the Park-hotel and the Europaeischer Hof. It is

intended to erect the Russian church in the upper part of the park between the Kur-house and the Teich-house.

*BADE-DIRECTION.* Office hours of the President from 11—12 a.m. in bathing-house No. VI; office hours of the Commissioner of baths (Kurdirektor) from 10—12 a.m. in the Kur-house. (Sundays and holidays excepted.)

*SALINEN AND BERG-AMT.* (Administration of the Salt-works) Office at the Works in the south end of the town. Sale of mother-lye and bathing-salt.

*CUSTOM-HOUSE* for postal parcels and luggage at the Post-office. Office hours 8—12 a.m. and 2—5 p.m. (closed on Sundays).

*COURT OF JUSTICE* in the Burgallee, at the foot of the Johannisberg. Office hours from 9—11 a.m.

*MAYORALTY* in the town-hall, Friedrichstrasse 3. Office hours from 8—12 a.m. and 2—6 p.m.; for the Mayor 11—12 a.m.

*POLICE-STATION*, Burgstrasse No. 24. Office hours from 8—12 a.m. and 2—6 p.m., for urgent cases at all hours. Here is also the Lost-property Office.

*POST AND TELEGRAPH OFFICE* behind the Karlsbrunnen, at the corner of the Victoria-Melitarung and Kurstrasse is open for letters and parcels on week-days from 7 a.m. till 8 p.m., on Sundays and holidays from 7—9 a.m. and from 12—1 p.m. Uninterrupted night and day service for telegrams. Postal delivery on week-

days five times daily, on Sundays and holidays once only. Other official places for the sale of postage stamps and postcards are found in different parts of the town.

**TELEPHONE:** Connection with all the hotels and many private houses. There is also connection with all the principal towns in Germany. Public call-offices in the Kur-house and Post-office, where a list of the towns in telephonic communication with Bad-Nauheim is on view.

The public service of **CABS AND CARRIAGES** is under police-supervision. There is a sufficient quantity of cabs and elegant landaus for all purposes. The cab-man must always be provided with a copy of the police-regulations for the inspection of the traveller, and must hang up the tariff of fares in the cab so that it can be easily read. At the arrival of each train, cabs and carriages are waiting at the railway station. Complaints should be addressed to the local police. Breaks for excursion-parties are also on hire. Prices according to agreement.

The service of **OUT-PORTERS** is likewise under police-control.

**BATH-CHAIRS** are on hire in several shops.

**CIRCULATING LIBRARIES** are kept in several booksellers'-shops.

**TOURIST OFFICE**, bath-house No. II, open from 8—1 a.m. and 3—5.<sup>30</sup> p.m. Every information about travelling and tickets given by Messrs. Schottenfels and Co., correspondents of



Thomas Cook and Son. Storing and forwarding of luggage.

**SOCIAL AMUSEMENTS.** Social intercourse, for each visitor if possible to his own taste and requirements, plays a considerable part in the success of a course of baths; the same thing may be said of a certain amount of diversion and amusement.

As a rule the forenoon is employed taking the prescribed course of baths, waters, etc. etc., while the afternoon is devoted to entertainment and diversion.

**THE KUR-HOUSE** Music Band, consisting of about 50 members, plays in front of the drinking-hall early every morning during the water-drinking; in the afternoon and evening, if the weather is fine, on the terrace in front of the Kur-house, but when the weather is unfavorable it plays inside. Covered promenades being attached to the Kur-house the public are enabled to remain in the open air even in rainy weather.

After the close of the afternoon concerts the greater part of the audience retire to seek amusement elsewhere, either in the open air or in the **KUR-HOUSE**, which is open from 10 a.m. to 10 p.m. during the season. The principal entrance leads into a magnificent hall. Opposite the entrance is the great concert and dancing saloon with its imposing pillars and paintings in the style of the *renaissance*. The stage erected in the saloon serves for special artistic perfor-

mances and also as a Stage; from the middle of May to the middle of September there are usually four performances a week.

To the left of the entrance-hall is the room for the attendants and the cloak-room; adjoining this there is the ticket-office for the sale of theatre and concert tickets; then a large assembly-room, a billiard-room and a magnificent reading-room, in which are to be found all the leading German and foreign newspapers and illustrated magazines.

Besides the smoking-room and a restaurant, the north wing of the house contains a spacious dining-room of the same size as the reading-room. In the upper story of the central building is the consulting-room of the grand-ducal bathing-commissioner, and two public rooms with a balcony affording a charming view over the park. In the larger room there is a grand piano at the disposal of the visitors.

All the visitors have free use of the dominoes, chess, and draughts on application to the attendants. Whist-cards are to be had in the same way.

It is purposed in a short time to enlarge the terrace considerably both in front and at the side of the Kur-house, and to erect a large concert-hall able to contain 1600 persons near the Kur-house and connected with it.

THE LAWN-TENNIS GROUNDS are situated behind the colonnade. Tickets may be had at the office for the Kur-tickets, bathing-house

No. VI, left wing, open from 7—12 a.m. and 2—5 p.m. Rackets and balls to be had from the attendant on the ground.

**GOLF-LINKS:** Beautiful Golf-links are newly laid out at the lower edge of the Frauenwald, behind the lake, with a pretty club-house and restaurant adjoining. For particulars apply to Mr. F. Sprengel, the president of the local committee, at the Parkhotel.

**CROQUET-GROUNDS:** An extensive croquet ground is attached to the tennis-courts, and two others are annexed to the restaurant of the golf-links, where there is also a **PLAY-GROUND** for children.

**BICYCLES** are on hire in several shops.

*TOUPIE HOLLANDAISE* can be played on the premises of the Sisters Grunewald adjoining the Kur-house.

**SHOOTING-GALLERY** in the Terrassenstrasse. Different sorts of rifles and pistols. It is now intended to set apart a large ground for rifle-practice at the farther end of the golf-links.

Tickets for **FISHING** in the lake and in the Usa can be obtained at the Kur-tax office in bath-house No. VI. For **FISHING** in the Wetter application should be made to the Hotel Augusta Victoria.

Opportunity is also afforded to join **HUNTING-parties**; enquiries to be made at the principal hotels.

On the lake there are a number of good BOATS which, for a small charge, are at the disposal of visitors.

Further variation in the amusements is provided by the exhibition of FIRE-WORKS, by the ILLUMINATION of the park, the terrace, the drinking-fountains, and the lake; there are also MILITARY AND OTHER CONCERTS, as well as CHILDRENS' FESTIVALS, and so forth.

Dances take place as a rule every Thursday evening.

The time between the afternoon and the evening concerts is usually spent in taking walks or making short excursions in the neighbourhood.



## WALKS IN THE VICINITY OF THE TOWN.



One of the most remarkable productions of landscape-gardening in Germany is THE GREAT PARK (ca. 200 acres) at Nauheim. Its magnificent groups of trees and charming vistas delight the eye, and it is, with its abundance of splendid plants (some of them very rare ones) of great botanical interest. It contains many delightfully shady walks, especially in the upper and more wooded parts. Several of these paths bring us to

### THE TEICH AND THE TEICHHAUS (LAKE AND LAKE-HOUSE)

which is immediately adjoining the park. Here at the landing-place for boats is a restaurant with garden and terrace (the so called Teich-house). The lake covers more than 20 acres and is about 12 ft. deep. A large number of ducks and swans and gaily coloured boats animate the surface of the lake, which is one of the chief points of attraction in Nauheim, especially in hot weather when a cool refreshing breeze is wafted from this large expanse of water. A path bordered by old willows and

young alder-trees winds round the lake and is the favourite walk of visitors.

Shortly after passing the Teich-house a path over a small bridge on the left leads to the

### DONNERSGRABEN,

a picturesque wooded ravine, provided with seats and laid out as a promenade. The Donnersgraben rises gently until it joins the upper road from the Frauenwald to the Johannisberg.

At the north end of the lake there is a pleasant foot-path along the side of the Usa and leading to the village of Nieder-Moerlen which we shall mention later on. About 300 paces after leaving the pond another path branches off to the left and leads to the

### FRAUENWALD,

a wood of oaks extending for some distance over an elevated table-land, where much timber was felled in former times, but which has been for about ten years reserved for the use of the Nauheim visitors. This conveniently situated wood has now been provided with good paths, in consequence of which it has become a popular resort, the more so since a number of paths have been finished connecting it with the adjacent

### JOHANNISBERG.

The most convenient way to arrive at this favourite resort of tourists is a road branching off from the Kur-house. A finger-post there

shows the way along the Victoriastrasse, which leads past the Hotel du Nord and arrives in about 5 minutes at the wood. From there one can either follow the main-road, or turn off to the left into a foot-path through the wood and arrive at the top in about 10—15 minutes.

Another way, very steep and almost entirely without shade, forms a direct continuation of the Parkstrasse passing the Court of Justice. Should this be too steep, one can turn off to the right through the Burgallee and reach the path in the wood we have already mentioned, that leads from the Kur-house, or, by turning to the left along the Waldstrasse, come into a well-kept foot-path that runs along the south slope of the mountain through orchards and meadows affording many beautiful glimpses of the surrounding landscape. The tower which stands on the top of this hill (890 ft.) was formerly a church and is said to have been founded by Boniface, the apostle of the Germans; it was made higher in the spring of 1866 and provided with a platform and steps up to it. (Key to the tower and a telescope may be had at the restaurant Koenig, near the top of the hill). From this point there is a most beautiful view of the surrounding country and the distant mountains; with the naked eye one can see upwards of 80 villages, the cathedral of Frankfort, the Melibocus mountain in the Bergstrasse, the Donnersberg in the Palatinate, the Vogelsberg and other distant summits: below is the town

of Nauheim with its flourishing gardens and orchards and beautifully wooded park. A good view is also obtained of a great part of the Wetterau, a fertile undulating plain watered by the rivers Wetter (hence the name), Usa, Horloff, Nidda, and Main, and stretching out between the Vogelsberg and the Taunus mountains, the Main and the Lahn. In the older times of the German empire the Wetterau was a region divided among different rulers; Friedberg, Gelnhausen, Frankfurt and Wetzlar were imperial free-cities of the Wetterau, although the two latter were not, properly speaking, within that district.

A few yards below the tower is the above-mentioned restaurant built in Swiss style; it is a much frequented establishment with a spacious terrace and is well worthy of recommendation. About half way up the mountain there is a very nice Café-restaurant called the *Schweizerhaus*. It is reached by a small side path branching off from the above-mentioned foot-path shortly after it leaves the mainroad. Another direct way leads from the Burgallee to the *Schweizerhaus*.

The parish of the Johannis-church is said to have once included Friedberg, Nauheim, Nieder-Moerlen and Ober-Moerlen; the church patronage was held in fief from the Abbey of Fulda by the lords of Muenzenberg, but later on it fell into the hands of the chapter of Mainz.

On a certain Easter Sunday long ago the inhabitants of Nauheim, who had become Protestants, were assembled for prayers in their



meeting-room, when they learned that the Catholic inhabitants of Ober- and Nieder-Moerlen were on their way to take possession of the treasures and relics of the church. With their minister at their head, the men of Nauheim sallied forth to the mountain, drove off the enemy who were besieging the church, and took the treasures away with them. In memory of what their ancestors did so many years ago the inhabitants of Nauheim still celebrate a church festival on the Johannisberg every Easter Sunday.

On this same mountain the Hessians and the French have twice met face to face; the first time in the year 1762. A bullet buried in the wall of a house in the Apfelstrasse is a memorial of this encounter. On the 27th of August in the same year the French under Prince Condé encamped on the hill; on the 29th they withdrew again, but as they once more took possession of the hill on the following day, the hereditary Prince of Brunswick attacked them and, in spite of their having been reinforced, recaptured the town of Nauheim and the Johannisberg. The French, however, returned in overwhelming numbers under Prince Soubise and Marshal d'Estrées and defeated the hereditary Prince who lost nearly 2400 men and 12 cannon.

The second encounter took place in the year 1792. From Mainz Custine sent 1800 men under Colonel Houchard to Nauheim to fetch the supply of salt which was kept there in reserve.

125 Hessians under Captain Martorf were at the time posted in Nauheim for the protection of the salt-works; these, on the approach of the French, retired to the Johannisberg; it was only after they had expended all their ammunition and repelled two attacks that they were at last compelled to yield to superior numbers.

Instead of returning from the summit of the Johannisberg by the ways which have been mentioned, the tourist can continue along the road past the tower. This road first leads straight on and then turns off the left, through the wood, down over the so-called Lichtenberg onto the main-road (Usinger Chaussée), which in about 10 minutes brings him to the western end of the town; or he can turn from the Usinger Chaussée to the left and keep along a narrow path that leads through the meadows to the Waldstrasse and Parkstrasse.

At that point on the top of the hill where the road turns to the left over the Lichtenberg, there is also a path branching off towards the right. This path leads in a rather round-about way, through shady lanes, down to the road just at its junction with the main-road. In the morning, or towards evening, when it is not too hot, one can, by taking the second turning to the right, get out of the wood and keep along the outskirts, thus obtaining a beautiful view of the mountain-range. This way also leads to the main-road (Usinger Chaussée), somewhat higher up.

If a longer walk is desired it is only necessary to enter the wood on the other side of the Usinger Chaussée in order to arrive in a short time at the

### NAUHEIMER HOCHWALD.

It will be found very agreeable to linger awhile there in the fresh, invigorating air, and to enjoy a short repose under the majestic oaks, or in the garden-restaurant, far from the noise and bustle of the fashionable watering-place. Numerous shady paths and some well kept roads cross the wood. By following one of them in a southerly direction the visitor comes to a large pine-forest, whilst another brings him to a charming silvan pond on the south western border of the wood, where everything is delightfully quiet and restful. From this point there is a beautiful view of Friedberg. The road which branches off from the Usinger Chaussée at the lower extremity of the wood, brings the wanderer directly to the *Forsthaus*, a restaurant where there is good attendance.

For the return way there are several paths leading across meadows and through copses, all leading to the town in about 15 -20 minutes. It is not easy to find one's way direct from the town to the Hochwald and therefore it is advisable to make exact inquiries before setting out. From the map attached to this book it will be easy to make out the direction that has to be taken. The Nauheimer Hochwald and the ad-

joining woods with their many shady walks are not nearly so well known and appreciated as they deserve to be, or else we should not so often hear complaints about the want of woodland in the environs of Nauheim.

Of other walks in the neighbourhood we may mention the

#### GOLDSTEIN,

a little park newly laid-out lying on the other side of the station; this well-wooded park is reached by following the Lindenstrasse, which crosses the main-road and the railway-line; from Goldstein we enjoy a beautiful view of Nauheim and the mountain in the back-ground as well as the neighbouring town of Friedberg.

Another inviting and shady walk leads along the left bank of the Usa towards the brine-graduating-house and the children's hospital near which a bridge crosses the river. Here we find the buildings of

#### THE SALT-WORKS.

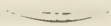
It may perhaps be of sufficient interest for many of the visitors to Bad Nauheim to go and see the preparing of the salt in these works, and therefore a few explanatory remarks may be acceptable.

That part of Spring No. 12 which is not made use of for the baths is conducted through a long conduit and then along an open ditch (which begins near bathing-house IV) to a large

reservoir. In this way a great part of the firm, earthy ingredients which the water contains is got rid of and the water or brine is then raised by means of several pumps into the graduating-works, which are filled with black-thorn (*prunus spinosa*); the brine drops down through these thorn-bushes, whereby the calcareous and ferruginous salts remain attached to the thorn-bushes which they gradually petrify. At the same time a portion of the water evaporates; it is raised again and the same process is repeated continually until about  $\frac{7}{8}$  of the water has disappeared; in this way from the original brine with 3 per cent of salt, one with 26 per cent of salt is obtained. This concentrated brine is then run into large boilers and boiled until the salt contained in it comes in crystallized form to the surface, whence it is strained off. The liquid remaining after this process is called MOTHER-LYE, or *Mutterlauge*, and contains the sharpest and most easily soluble salts, a great deal of chloride of calcium in particular, wherefore it excels most other mother-lyes and particularly that of Kreuznach. This mother-lye is used for strengthening the baths, and for the preparation of artificial brine-baths. When intended for export it is usually kept boiling until it becomes a firm mass, which, however, dissolves immediately on contact with damp; this is the so-called BATH-SALT. Both mother-lye and bath-salt can be procured direct from the salt-works. Orders should be addressed to the Grand-ducal salt-

work's revenue office (Grossherzogliches Salinen-Rentamt) in Bad-Nauheim.

Some of the old buildings belonging to the salt-works were pulled down last year to make room for the new post-office; it is proposed to remove the rest of the buildings next year and to apply the ground for laying out new public gardens and building a new quarter for villas. New Salt-works fitted out with all modern technical improvements is to be erected on the other side of the railway in the direction of Goldstein, in connection with them there will be a large electric works to replace the present one near the Konitzkystift which is now too small. In the same place there will be a large steam-laundry built for washing the linen of the bathing-houses and a large heating-works or calorifère from which all the bathing establishments will be heated. By thus removing all these buildings to a height eastward of, and at some distance from, the town a great deal will have been done to reduce the amount of smoke and blacks in the town itself.



## SHORT EXCURSIONS IN THE VICINITY OF BAD-NAUHEIM.\*

From the Nauheim Hochwald there is a path (in the beginning marked with red and white and afterwards with white and orange signs on the trees) leading to the mountain called

### WINTERSTEIN,

which lies about 1700 ft. above the level of the sea and is about two hours' walk from Nauheim. Following the road (the above-mentioned Usinger-Chaussée) which leads past the so-called Haselheck, carriages can only proceed as far as the Forsthaus, where there is a good restaurant with moderate prices. From here a steep path climbs to the top in about 15 minutes: the traveller will then find steps in the rock, which crowns the summit. Here there is an embattled outlook tower from whence he will have a splendid view of the Taunus range, Friedberg, Nauheim, the Wetterau, the Vogelsberg, and the valley of

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\* In the Parkstrassen-Allee, near where the Terrassenstrasse begins, there is a board showing the signs of the different pedestrian tours, as arranged by the Taunus-Club.

the Maine. In close proximity there is a small hut to serve as a place of refuge.

The path leading from there (marked with a red triangle) conducts us over the Steinkopf (1800 ft.) to the Capersburg (45 minutes), an old Roman fort of which some interesting remains are to be seen, and then, along the Pfahlgraben (old Roman fenced ditch), which is still in a good state of preservation, in about an hour to the Lochmühle, a simple inn in the Köppern Valley, near which there are remains of an old Roman fort; after 30 minutes' walk we arrive at the Saalburg (particulars later) whence by following the so-called Hammelhausweg or the König-Wilhelmsweg for about an hour and a quarter we come to Homburg, where the train can be taken back to Nauheim.

Good walkers can return from Winterstein by way of

#### OCKSTADT

(inn kept by Henrici and Klingl), where the Freiherrn von Franckenstein have extensive landed property. Of the old castle of Ockstadt there are only a few remains. Not far from the village lies the St. George's chapel and the Hollar-chapel, which tradition reports to have been inhabited by a hermit; here in the vicinity a Roman fort was found covering about 1900 square yards and surrounded by a wall of earth, flanked by a quadrangular and a hexagonal tower.

A favourite walk from Nauheim to Ockstadt (1<sup>1</sup>/<sub>2</sub> hours) leads through an oak-wood (the Hoch-



wald), then through a beautiful wood of pines past the so-called MARIENLAUBE, an arbour in a somewhat elevated position at the edge of the wood with a lovely view towards the Wetterau.

When returning one can keep along the outskirts of the wood ( $1\frac{1}{4}$  hour), or along the high-road ( $\frac{3}{4}$  hour), or pass through

### FRIEDBERG

which affords a picturesque out-look to the west, north, and east. This town is about 5 minutes' distance from Nauheim by train, 15 minutes in a carriage, and 45 minutes on foot by a footpath along the banks of the Usa which is planted with fruit-trees on either side. At the end of this path just where it joins the high-road there is a garden-restaurant called *Zum kühlen Grunde* where there is a nice skittle-alley. To follow the high-road on foot from Nauheim to Friedberg takes about an hour.

The favourable situation of Friedberg in the centre of the flourishing Wetterau is the reason of its having such a brisk traffic and commerce. (Hotel Trapp; garden-restaurant Steinhäusser; Windecker; and Paetow.)

Friedberg consists of the town proper and the old citadel; the former was a Roman town, the latter a Roman fort; remains of Roman buildings, vases and coins that have been found indicate that a large colony must have been settled here. Altogether there have been some

very interesting articles belonging to ancient times found in this vicinity. Most of them have been presented to the Museum of Darmstadt.

A few years ago a temple of Mithras erected by the Romans about the end of the second century was excavated in the eastern part of the town just in front of the railway-station. The very interesting finds unearthed on this occasion are to be seen in the new Gymnasium.

Friedberg, in the 11th century called Friedeberg, or Fredeberg, was declared a free city of the empire in the year 1211 by the Emperor Friedrich II.

The citadel was an imperial *Burg*, governed by an imperial Burgrave, who was elected by, and from among, the nobility of the Wetterau. There were often quarrels and conflicts between town and *Burg*.

During the Thirty Years' War Friedberg was taken by the imperial troops in 1634 and 1640; in 1645 it was in vain stormed by the Hessians. In the year 1802 the town of Friedberg was incorporated with Hesse-Darmstadt and in 1817 the same thing occurred to the citadel.

In the beginning of the 13th century Friedberg was a wealthy and flourishing town; the remains of the town-walls still show how extensive the town was at that time. In the year 1383 part of it was burnt down and when, in the year 1447, the town was placed under the ban of the empire, it was set fire to by the enemy and about 700 houses were burnt to ashes.

In Friedberg there formerly existed a monastery of Carthusian and Augustine monks and a nunnery. Of the buildings and institutions at present to be seen there, we may mention the asylum for the deaf-and-dumb and another for the blind, the seminary for teachers and clergy, and the school of agriculture with a pomological garden. The newly built Catholic church with its quaint wooden arches in the early Gothic style is well worth seeing; but especially interesting is the town-church (Stadtkirche or Liebfrauenkirche), 230 ft. long and 92 ft. wide, which was built in the years 1290—1320. The three aisles of equal height rest on high pillars. The transept (from the years 1290—1310) with its beautifully painted glass-windows — at the top bishops, saints, apostles and prophets; at the bottom geometrical signs — projects a little on the long side; the end is formed by the octagonal choir. Here there is an old Gothic sacristy from the year 1520—70, with a pretty grating, and stone steps leading up to the altar. In the pavement of the choir there are numerous grave-stone tablets, the oldest from the year 1376. The walls of the church having shown some dangerous signs, the whole building underwent a thorough renovation in the years 1898—1900. On this occasion there were several new painted-windows inserted; one very beautiful one being presented by His Majesty the German Emperor, another one by this Royal Highness the Grand-duke of Hesse, the rest by several wealthy Friedberg citizens.

The Realschule and Gymnasium, (Augustiner-schule) one of the oldest upper-class schools in Germany, is also very interesting; it had its origin in the Latin school which was founded in the rooms of the Augustine monastery in the year 1543. The rooms not being sufficient for the ever increasing number of scholars, a new school-house was built in the years 1899—1900 and is very interesting from an architectonic point of view. In the old cloister there is now a technical school which was founded several years ago and enjoys very great popularity, there being especially many pupils from abroad.

In the ancient Judengasse there is the so-called *Judenbad*, a bathing-establishment where the Jews formerly took ritualistic baths and which is said to have been founded in the year 1260, the quadrangular basin of the bath is about 90 ft. deep, and round it runs a balustrade supported by arches and Roman columns; 66 stone steps lead down to the bottom. Entrance is obtained through a low early Gothic door in an old house. Patients should, however, refrain from descending into the bath on account of the awkward steps. This very interesting structure bears the same builder's signs and the same style of architecture as the church, a sure sign that it was built by the same architect.

A memorial tablet placed in a house in the Kaiserstrasse shows where Dr. Martin Luther passed the night of April 28th, 1521, on his return from the *Reichstag* at Worms.

The perpendicular basaltic pillars at the west end of the fortress serve to give this part of the outer stronghold a somewhat singular appearance. In the inner fortress a remarkable feature is the ancient castle of the Burgraves, now belonging to the Grand-duke of Hesse, attached to which there is a beautiful garden open to the public. Near this there is a building formerly belonging to the so-called *Deutsche Orden*, a German order of knighthood, and in front of this is a square in which there is a spring, called the St. Georgsbrunnen, bearing the coats-of-arms of many knights. There is also a round tower which was built by Count Adolf von Nassau on being released from the imprisonment which he had brought on himself by attacking the fortress in the year 1347 and being beaten by the knights of the fort and the citizens on the Altzenküppel. The walls are 13 ft. thick and the diameter of the tower is 40 ft.

Near the outside gate of the fortress is the extensive building of the schoolmasters' seminary, the front part of which formerly contained the public offices of the *Burg*. Opposite this building there is a monument of Peter Müller, instructor in the seminary and composer of songs, who died in the year 1877.

After leaving Friedberg and passing through Fauerbach and Ossenheim, two small villages, we come to the

## OSSENHEIMER WÄLDCHEN

a pretty little wood 1½ hour's walk from Nauheim (with a carriage ½ hour). Here we have a clear view of the Taunus. In the quiet little forest-restaurant on the edge of the wood there is good service with moderate prices. Proceeding from the restaurant in a southerly direction through the wood we arrive in 15 minutes at the village of

## ASSENHEIM

of which we first find mention in the year 1193. Here there is a station of the Friedberg-Hanau railway and a castle owned by the Graf von Solms-Rödelheim with a beautiful garden. There is also here a remarkable railway-bridge leading to an astonishing height. To the south of Assenheim and distant about 2½ hours from Nauheim lies

## ILBENSTADT

(restaurant: Drei Hasen) where there is a beautiful church built in the year 1123 in the Byzantine style, which belonged to a cloister for premonstrators that was raised in 1647 to be an Abbey; in 1803 it became secularized and now belongs to the Graf von Leiningen.

It takes us 10 minutes to go by railway from Assenheim to the village of

## KAICHEN

which is of historical interest having formerly been the seat of a free tribunal, where, from

the year 1293, a court of justice was held in the open air. Under an old lime-tree the stone table of justice and stone benches on three sides are still to be seen.

From Kaichen a very pleasant walk takes us to the romantic and beautifully situated

### SCHLOSS NAUMBURG

originally built by Gisela, wife of the Emperor Konrad II. (1024—1039); at present, however, after passing through many vicissitudes, it contains nothing but buildings for agricultural purposes.

Another favourite point of attraction is the

### SCHWALHEIMER BRUNNEN.

The mineral spring of Schwalheim can be reached on foot in about 50 minutes (finger-posts at the salt-works, the graduating-house, and in the village of Schwalheim).

On leaving the salt-works we see the village of Schwalheim lying before us in the midst of verdant meadows watered by the river Wetter with alder-trees along its banks. In the foreground there is a large water-wheel, which works the pumps for the graduating-houses. The church standing on an eminence and the large wheel of the salt-works help to enliven the scene. The church was built in the year 1850, and in 1890 the roof and walls of the interior were painted in Roman style; this style is also adhered to in the windows and doors, the aisle and the tower.

After passing through the village we find ourselves in the country, and the eye ranges freely over the luxurious plains of the eastern Wetterau as far as the Vogelsberg, while down below in the valley the laid out grounds round the mineral spring and the restaurant invite us to stop and rest.

This mineral spring which was mentioned in the year 1589 by Tabernaemontanus in the "*Neuw Wasserschatz der Schwalheymer Sauerbrunnen*" as a remedy for obstructions in the throat caused by phlegm, was formerly the property of the corporation of Schwalheim, but is now in possession of the state.

Every time the well (about 12 ft. deep) has been cleaned Roman coins, with imprints of the emperors Vespasian, Titus, Domitian, Nero, Trajan, Hadrian and Antoninus, of which several are preserved in the museum at Cassel, were brought to light. It is said that 60 coins were found in the year 1811, in 1827 from 30 to 40 and in 1831 only five.

In the year 1856 during the fresh setting of a well of mineral water, at that time situated in an alder-copse, 23 copper and 3 silver Roman coins, also the remains of a Roman bathing-establishment were discovered near the well under a heap of rubbish.

The building, which was erected in the year 1834 for administrative and agricultural purposes, was fitted out in the year 1860 by the then tenant as a bathing-establishment for



mineral-water shower-baths, but was soon after allowed to fall into disuse.

Great improvements in the grounds laid out round the spring have been made during the last few years. The water is one of the best mineral-waters in Germany, that is to say, it has a very large quantity of natural carbonic acid. In this neighbourhood it is drunk as an agreeable table-water and is exported in great quantities. Other not unimportant mineral springs, the water of which is also largely exported, are the Selzerbrunnen near Gross-Karben and the Taunusbrunnen near Okarben. (Railway stations on the line from Nauheim to Frankfurt).

Very near the Schwalheimer Brunnen lies the *Germania-Brunnen* and another newly bored spring, the *Löwen-Brunnen*.

From the Schwalheimer Brunnen a path across the meadows leads to the village of

### DORHEIM

within the boundaries of which traces of a Roman settlement have been discovered. There is also a castle with grounds attached, now owned by the Graf von Solms-Roedelheim. A country-inn called *Zur Sonne* offers refreshments. The return journey to Nauheim along the high-lying main-road takes about an hour.

One of the most beautiful places in this part of Germany for excursions is ZIEGENBERG; it is usually made in a carriage (about one hour's drive).

We next arrive at the village of

NIEDER-MOERLEN,

at the entrance of which there are the garden-restaurants *Zum Löwen* and *Zum Frauenwald*. To reach there on foot from Nauheim we must leave the end of the lake and keep along the banks of the Usa or along the border of the Frauenwald (25 minutes). From whence the high-road leads through

OBER-MOERLEN,

where there is a castle surrounded by high walls and owned by Freiherr von Rabenau. (Country-inn kept by Jeckel, the late mayor of the village.) From Nauheim a foot-path over the Johannisberg leads to Ober-Moerlen in 50 minutes, where there is a church with a remarkable altar-piece painted by the celebrated Professor Hofmann of Dresden. On leaving this village the way is more interesting, as the valley of the Usa becomes narrower and the meadows are bordered by fresh green woods. Small lateral valleys and projecting rocks give a picturesque beauty to the valley. On the west of the little village of

ZIEGENBERG,

(Restaurant *Zur Linde*) and situated on a high rock, rises a castle which originally belonged to the Graf von Kleeberg. It came successively into the possession of the lords of Falkenstein

and Eppenstein, in 1478 it fell to the Graf von Katzenelnbogen and then to the Landgraf of Hesse. Philip the Magnanimous gave it in fief to Freiherr Diede von Fürstenstein; on the extinction of that family, at the beginning of the 19th century, it came into the hands of Freiherr von Loew and Graf Rantzau. The present owner is Mr. Passavant of Frankfort. Of the original castle there is now only one tower left, the rest was built in the middle of last century. Goethe often visited this village; a bench made of rough wood in the garden of the abovementioned restaurant is said to have often served the poet as a resting-place. The scenery in his *Wahlverwandtschaften* has much resemblance to this place. The part of the park near the pond and in front of the castle is especially worth visiting. The magnificent woods that surround Ziegenberg on all sides, the many well-kept paths leading in all directions to charming summits, but more especially the restful quiet prevailing here, renders the spot a favourite haunt for pedestrians. For good walkers there are several pleasant routes to Ziegenberg from Nauheim. First over the Johannisberg to Ober-Moerlen and from there along the high-road to Ziegenberg (2 hours). A pleasanter way is to go to the Forsthaus, Winterstein, whence several paths lead direct to Ziegenberg (2½ hours). Still more interesting is the way from the Forsthaus, past the Kaisergrube (a lead mine) and through Cransberg to Ziegenberg returning by the high-

road and across the Johannisberg (in all 5 hours). During excavations made in the year 1890 for the Kaisergrube, the remains of an old Roman fort were found, 337 ft. in circumference, surrounded by a ditch, 36 ft. wide, and about 16 ft. away from the *Pfahlgraben*, which once formed the boundary line of the Roman Empire and was erected by the Romans under Domitian at the end of the first century as a defence against the Germans. This boundary-line could only be crossed in certain places, the larger gates being guarded by forts and the smaller ones by watch towers. Stretching across the Rhine over the Taunus this boundary-line enclosed the Wetterau and branched off to the south towards the Main near Hanau. At Langenhain near Ziegenberg the remains of a castle were discovered 257 yards long and 216 wide with four gates, inside were paved walks parallel to the sides of the castle and crossing each other at right angles. In front of this castle a road lined with ditches was found leading to Friedberg. Near this so-called *Burg* at Langenhain were likewise found the remains of another castle. Of all this, however, there is nothing to be seen now as everything has been covered up again. Visitors who go to Ziegenberg should not fail to take a drive from there (20 minutes) through the beautiful valley to

#### CRANSBERG,

or to return by way of Cransberg, Pfaffenwiesbach, Forsthaus-Winterstein, which requires only

half an hour more than the direct route. Cransberg itself has something unusually attractive and romantic about it, so that every one who sees it for the first time is delighted at the lovely picture afforded by its high-lying church and the little castle crowning the rocky hill.

According to tradition there lived in olden times on the summit of this hill (Cranichesburg or Cransburg) a certain German warrior. The king of the pagans who lived near saw the warrior's daughter, fell in love with her, and demanded her in marriage from her father; the latter seeing no chance of obtaining help or assistance cast the maiden down the steep rocky side of the hill, saying: "*Dead you may have her, but living — never.*" The present owner Freiherr von Biegeleben has had a new castle built in the mediaeval style. Of especial interest is the very old *Holzbau* in the interior of the castle, which can be entered through an iron gate, bearing a coat of arms also in iron, representing two cranes, the crest of the former owners of the castle. Leading from this castle there are several beautiful paths through delightfully shady woods and green meadows, and likewise an avenue of beeches leading to a solitary chapel in the wood. It is well worth while to rest a little in Cransberg, and after having viewed the castle to seek out this avenue, (Country-inn: "*Deutscher Kaiser*").

Lovers of roses should not miss a walk (50 minutes) or drive to a village of which we find mention as early as A. D. 914, viz., the village of

### STEINFURTH,

which has, since the beginning of the 14th century, been the seat of the Freiherren Loew von Steinfurth. When walking it is best to cross the Usa at the end of the lake and take the direct road to Steinfurth, which branches off just at that place. Near Steinfurth, and partly adjacent to the high-road, there are large rose-fields, where roses are cultivated by the firm of Schultheis Brothers and others. The principal flowering-time is from the end of June to the middle of October. (Restaurant kept by Jean Rosenbecker). From here we can also return through

### WISSELSHEIM

where we arrive in about 50 minutes. Till about 50 years ago there were salt-works in this village, and one of the brine springs is still in existence. Close to the road there is a weak but palatable mineral-water bubbling up out of the earth. From Wisselsheim we pass the above-mentioned little wood, called Goldstein, and return to Nauheim.

From Steinfurth a walk of  $1\frac{3}{4}$  hour through the forest brings us to the

### BURG MÜENZENBERG

built in the second half of the 12th century in the Romanic style, presumably by the architect of the Emperor Barbarossa. It is one of the most beautiful and interesting monuments of the middle ages.

The first documental reference to this fortress is from the year 1166. It frequently changed hands in the course of centuries and has now several joint-owners, the Grand-duke of Hesse, the Prince von Solms-Braunfels, etc. Out of a fund which has been gathered for years much has already been done for the restoration and maintenance of the castle which began to fall into decay in the 17th century, especially during the Thirty Years' War when it was bombarded by Tilly's troops in 1628.

These ruins are popularly called the "*Inkstand of the Wetterau*" on account of the two projecting towers, one 79 ft. the other 95 ft. high. In 1847 the latter was provided with steps: from the platform on top of the tower there is an extensive view.

At the foot of the basalt-rock on which the castle is built lies the little town of Muenzenberg. The church and the quaint-looking houses are worth seeing. Good restaurant at Jaegers', complete dinners if ordered in advance. Good wines.

Besides the usual footpath to Muenzenberg through Steinfurth another good way is to take the train to Butzbach (10 minutes), from there half an hour's drive (or 1¼ hour's walk) through Griedel to Muenzenberg. The most practical way is to take a carriage at Nauheim and drive through Steinfurth, Oppershofen and Roekenberg (where there is an old castle) to Muenzenberg and then back through Griedel, Butzbach, and

Nieder-Weisel, one hour and a half each way. If desired, it is also possible to go all the way to Muenzenberg by rail by changing at Butzbach.

A short distance from Muenzenberg lies the former Cistercian Abbey of

### ARNSBURG.

In 1152 Conrad von Arnsburg founded a Benedictine cloister in Altenburg near Arnsburg. Some years later Cuno von Arnsburg, finding that a great lack of morality prevailed in the cloister, removed it to Arnsburg at the same time transforming the order and making it Cistercian. Owing to its great wealth the abbey was, in 1215, put under the protection of the Burgrave of Friedberg by the Emperor Friedrich. It was exposed to the ravages of the Thirty and the Seven Years' Wars. Of the old abbey only the chapter, the wine-cellar, the building containing the sleeping-apartments and the ruins of the once magnificent church now remain. Everybody is recommended to visit these relics of a brilliant past. (Arnsburg is also a station on the Butzbach-Lich line.) All the buildings, more especially the church, are of highly interesting architecture, and a more impressive sight is seldom seen than that presented by the high roofless walls with their groups of pillars and bare windows, when on a bright day the sun is shining into the once sacred rooms. The other buildings now serve as a refuge for destitute girls under the direction of the deaconesses



of Darmstadt. In the neighbourhood there are many grave-mounds both of Germanic and of Celtic origin.

The little town of

### BUTZBACH

which we have already mentioned and which already existed under the reign of Charlemagne, possesses the remarkable and very old church of St. Wendel, and a castle built by the Landgrave Philip von Butzbach, but now used as a barracks. Restaurants: "*Zum Hessischen Hof*", "*Zum Löwen*" and "*Kalbfleisch*".

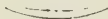
In a field called the "*Hunnenburg*" near Butzbach there was discovered, as at Langenhain, a fortress of the *Pfahlgraben* lying 300 paces from the old Roman road, which after leaving Friedberg follows a line to the north of Nauheim and the southwest of Butzbach. The fortress 232 yards long and 148 yards wide, had one single and three double gates and 24 towers. Within the walls there was a large *Prætorium* and a number of streets. Another fortress in front of the one already discovered, is still to be excavated.

Taking a westerly direction from the railway station, through a very beautiful beech-wood, past the little village of Hausen lying in a glade, we come in  $1\frac{3}{4}$  hour to the

### HAUSBERG

where there is a plateau surrounded by two walls, formerly used as a place of refuge by

the Germans; here there is also a look-out tower. The key to this tower is to be had from Mr. Häuser, the mayor of Hausen, who is proprietor of a country-inn, or at the "*Hessischen Hof*" in Butzbach. From the tower there is a beautiful view of the wooded heights of the Taunus, the Westerwald, and the country near Giessen. This excursion is well worth taking. One can also take a carriage from Butzbach nearly to the top of the mountain.



## EXCURSIONS TO MORE DISTANT PLACES.



From Bad-Nauheim many excursions can be made by railway in different directions.\*) These offer abundance of change and tend to make even a lengthened stay in Nauheim agreeable. The visitors usually choose for such excursions days when there are no baths to be taken, this, however, should never be done without the consent of the physician under whose care they have placed themselves.

One of the favourite excursions is that to

### FRANKFORT-ON-THE-MAIN,

which can be made at any time of the day (fast trains 40 minutes, slow trains about an hour). By taking the fast train at about 8.<sup>30</sup> a.m. (the first one starts at 5.<sup>30</sup> a.m.)\*\*) the principal sights of Frankfort can easily be seen in one day. The best plan is the following: on arriving

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\*) Special guides for these excursions, which we can only give a short description of here, are always to be had of Mr. Bindernagel, bookseller, in Nauheim.

\*\*) On account of the frequent alterations the time for the trains can only be given approximately: the railway time-table should always be consulted.

at Frankfort take a carriage (cab) and drive through the principal streets of the town. See the new General Post Office in the Zeil, the magnificent Opera-house in the Opernplatz, the Exchange in the Schillerstrasse, the Main with its bridges, the different monuments (Hessian Warriors' monument, the monuments of the Emperor Wilhelm I., Gutenberg, Goethe, Schiller, Boerne etc.), the house in which Goethe was born, the Goethe-house as it is called, in the Grosser Hirschgraben 23 (open daily 8—1 a.m. and 3—6 p.m., Sundays 10.<sup>30</sup> a.m.—1 p.m.), the Cathedral, St. Paul's church, St. Peter's church and the town-hall, the so-called Roemer with the Emperors' Hall (Mondays and Wednesdays 11 a.m.—1 p.m. free, other days open from 9 a.m.—6 p.m., 50 Pf. entrance). After having seen these one can drive to the Zoological Gardens (entrance M. 1.), where one can take lunch, and perhaps have time to see the Ariadne, Dannecker's celebrated master-piece, in the Bethmann Museum, Friedberger Landstrasse 10 (daily from 10—1 and 3—5, Sundays from 11—1 o'clock). After lunch the town should be visited and then the pride of Frankfort, the Palmengarten, Bockenheimer Landstrasse, (entrance M. 1.), where there is excellent band-music from 4 o'clock p.m. From there one can go straight to the railway-station and catch the fast train at 8.<sup>40</sup> p.m. In case of a visit being paid to the opera or the theatre there is another fast train leaving Frankfort at 11 o'clock.

On paying a second visit to this town the other sights that were omitted on the first occasion will also be found attractive. We will only mention the following: the Panorama, Corneliusstrasse 17 (entrance M. 1.); Luther-house, Buchgasse 13; Schoppenhauer-house, Schöne Aussicht 17; Palace of the Prince of Thurn & Taxis, Grosse Eschenheimerstrasse 26; Eschenheimer Tower. — Städels Picture-Gallery, Schaumainquai 63 (entrance free, Sundays 11—1, Wednesdays 11—4, other days 10—1 o'clock except Monday; at other times the entrance costs M. 1.). — Archive and Historical Museum near the Cathedral (Sunday and Wednesday 10—1 free, other days 9—1 a.m. and 3—6 p.m. 50 Pf.). — Art-union, Junghofstrasse 8 (daily 9—6 o'clock, M. 1.). — Senckenberg Natural History Museum near the Eschenheimer Thor (Wednesdays 2—4, Fridays and Sundays 11—1 free; other days 8—1 a.m. and 3—6 p.m. for a gratuity). — Permanent Exhibition of Pictures by prominent modern masters: Bangel, Neue Mainzerstrasse 66; Hermes, Zeil 53—59; Schneider, Rossmarkt 23. — Exhibition and Museum of Art and Industry, Neue Mainzerstrasse 49 (Daily 10—5, Sundays 10<sup>1</sup>/<sub>2</sub>—1<sup>1</sup>/<sub>2</sub>, Sundays and Wednesdays free, other days 50 Pf. entrance).

### BAD-HOMBURG.

Instead of taking the railway via Friedberg most excursionists to Homburg prefer to drive direct in a carriage through Friedberg or Ock-

stadt, Ober-Rosbach and Friedrichsdorf, which takes  $1\frac{3}{4}$  hour. All the sights of Homburg can be seen in one afternoon, they are: the Kurhaus, the castle of the former Landgrave and the Park, but the chief attraction is the busy life of the watering-place, which is most interesting in the afternoon. Anyone who does not fear a long drive can take the very enjoyable way through Ziegenberg, Cransberg (or Winterstein), Pfaffenwiesbach, Wehrheim and the Saalburg either going or returning.

### THE SAALBURG

(with good restaurant) is a highly interesting Roman fort in a good state of preservation; it lies to the north of Homburg, from whence it can be reached in an electric tram in about 15 minutes. The castle was built at the end of the first century and can be considered as a model of its kind, there being no other so complete in Germany, France or Britain. The antiquities which have been found there are now to be seen in the Saalburg Museum. The present German Emperor has lately had several parts of the castle reconstructed and a monument of the Roman Emperor Hadrian erected at the entrance to the castle. In another place a memorial tablet has also been put up to Prof. Mommsen, one of the most eminent Roman historians of present times.

In a northerly direction from Nauheim the railway brings us in about 30 minutes to the university town of

## GIESSEN.

(Restaurant Stein's Garten, near the university; Hotel Kuhne; Hotel-restaurant "*Lenz*", near the railway station.)

Passing through the narrow streets of the old town we come to the market-place with the town hall and an old apothecary's shop with carved wooden panelling. A street leads from here to an open square called "*Der Brand*" from a great fire that took place there. Here we find the old barracks, formerly an arsenal, built in 1585 by the Landgrave Ludwig the Edler, son of Philip the Magnanimous; near it is the so-called "*old castle*", built in 1570 and formerly much used as a residence by the Hessian Landgraves. Not far distant, at the entrance to the botanical gardens, which are well worth visiting, there is the so-called "*Alte Kanzlei*", built in the middle of the 14th century, formerly a so-called *Wasserburg* (castle surrounded by moats). Far above the castle and the buildings attached to it, which are grouped round a dark narrow court, rises the *Bergfried* popularly called the Pagan Tower. This was the dwelling-place of the rulers of Hesse till the time of the Landgrave Ludwig IV. From here, in the direction of Stein's garden-restaurant, we come to the statue, beautifully executed by Schaper, of the celebrated chemist Justus von Liebig, who was for nearly 30 years professor at the university of Giessen, which was founded in the year 1607. All parts of the university, such as the rooms for

lecturing, the hospitals, the library, etc., are in every respect up-to-date and well worth seeing for people who are interested in it. The town, which is the seat of a considerable tobacco industry, offers nothing else of special interest. In the vicinity, however, there are some very beautiful excursions to be made which would please everybody. Thus an hour's walk from the bridge over the Lahn brings us to the

## GLEIBERG

(1036 ft.);

in hot weather it is more advisable to take a carriage as the way is entirely devoid of shade. From the summit of the Gleiberg there is a splendid view of the Lahn Valley, some of the mountains of the Taunus, the Westerwald and the Vogelsberg. This castle which is still well preserved was built in the 10th century and has since been partially restored; it has a very interesting history. The oldest parts were built by the Saliers; after the extinction of the royal branch of the Konradins, the castle fell into the hands of lateral relations, the Counts of Moselgau and of Luxemburg, who as owners of the castle styled themselves Grafen of Gleiberg and resided there until the end of the 12th century. Afterwards it came into the possession of the Graf of Meerenberg and then into that of the House of Nassau. All the proprietors enlarged the castle (Albert wing, Meerenberg wing, Nassau wing). After having been partially destroyed in



the Thirty Years' War it remained uninhabited.  
(Good restaurant with moderate prices.)

On the opposite side of Giessen lies the

## SCHIFFENBERG

(918 ft.)

about 1½ hour's walk from Stein's garden-restaurant. Some trains on the Giessen—Gelnhausen line stop at the foot of the mountain, from whence a delightful path through the wood leads in a short time to the summit, where there are buildings, which used to form a cloister for Augustine monks founded by Gräfin Clementine of Gleiberg in 1129. This afterwards became a seat of the *Deutsch Orden*. Since 1809 it has belonged to the Grand Duchy of Hesse. (Good restaurant. Beautiful views from the windows of the principal building and from the terrace.)

## THE RUINS OF STAUFFENBERG

(817 ft.).

To make this excursion it is best to go to Lollar, a station 10 minutes beyond Giessen; from there walk (¾ hour) to the castle, which consists of two parts, the upper and the lower castle, formerly belonging to the Counts of Ziegenhain and Nidda, then to the Landgraves of Hesse and now one of the possessions of the Grand-Duke of Hesse. In the year 1647 it was destroyed by the Swedish general Koenigsmark. In the lower castle there is now a large

hall with a restaurant. It is a place of meeting for the Giessen and Marburg students.

It is also well worth while to extend the railway journey about 30 minutes beyond Giessen and go to the beautiful university town of

## MARBURG

which lies round the foot of a mountain in the form of a semi-circle. The terraces are built in such a manner that one can step out of upper stories of the houses at the back into another street or garden. In the evening when all the lights are lit the town affords, especially when seen from the railway, a peculiarly fairylike appearance (Hotels Pfeiffer and Ritter).

On the summit of the mountain rises the castle which was founded in 1065 and has, since the year 1247, served, alternately with Kassel, as a residence for the princes of Hesse-Cassel. Restored in the year 1866 it now contains the Hessian archives together with those of Hanau and Fulda. Here is the interesting Hall of the Knights and another hall in which, on the 2nd and 3rd of August, 1529, the religious debates on questions of sacramental doctrine took place between Zwingli and Oecolampadius and again between Luther and Melanchthon.

The Marburg University, which was founded in 1527, by Landgrave Philip the Magnanimous, and was from 1625—1650 united with Giessen, was the first Protestant university in Germany.

The greatest attraction of Marburg, to see which alone is motive enough for visiting the town, is St. Elisabeth's Church. Elisabeth, daughter of King Andreas VI. of Hungary, born in 1207 and educated at Wartburg, married the Landgrave of Thuringen and Hesse in the year 1221. She was distinguished for her great piety and benevolence. After the death of her husband, in 1227, during one of the crusades, Elisabeth with her three children was driven from Wartburg by her brother-in-law Heinrich Raspe. She then lived in misery in Eisenach till she was allowed to settle again in Marburg. Here she founded a chapel and a hospital which she preferred as a residence to the castle; she attended to the sick and lived like a beggar. Under the influence of her confessor she suffered such hard penance and castigated her tender body with fasting and scourging so much that she died on November 19th, 1231, at the age of 23. She was interred in the chapel founded by herself. After this chapel had passed into the hands of the *Deutsch Orden*, and the Pope had, on May 27th, 1235, canonized Elisabeth, the *Deutsch Orden* laid the foundation of a new church over the grave of Elisabeth in the August of the same year. The dedication took place in 1283, although the church was not quite completed until the 14th century. This church is, next to the Liebfrauenkirche in Trier, the oldest purely Gothic building in Germany, being in the form of a cross, with

two towers 311 ft. high, at either side of the west entrance. At the base the towers are quadrangular but higher up they assume the shape of an octagonal pyramid. They contain a peal of seven bells, the largest of which weighs 87 cwt. Through the richly adorned entrance between the towers the visitor enters the high arched nave which is supported by ten mighty pillars; adjoining is the principal choir and the two lateral aisles; the walls are adorned with coats-of-arms, the tombstones are numerous and among them those of the Landgraves are especially remarkable. In the sacristy built on the north side there is the coffin of the patron-saint, worked with filigree, pearls and precious stones. Near the altars of the two side aisles there are some excellent paintings.

Behind the church are the old buildings of the Order, which served as a dwelling for the *Landkomthur*, or chief of twelve commanderies. When the Order was abolished in 1809, its possessions went over to the state.

Opposite the church to the north-west stood the Luetzelburg. On the summit there is now a statue of the Electress Augusta of Hesse surrounded by flower-beds, for which reason the hill is called the Augustenberg.

The Town-hall with its artistic clock-work is remarkable as is also the newly erected university built in Gothic style.

A very good excursion for a whole day is to go to

WETZLAR, BRAUNFELS,  
AND WEILBURG-ON-THE-LAHN.

To do this one must take the 7.30 train from Nauheim arriving in Giessen at 8 o'clock, change trains and proceed 15 minutes later, on the Giessen—Coblenz line, to WETZLAR (Restaurant "*Herzogliches Haus*" and "*Kaltwasser*" at the railway station). Here the cathedral, which was built in the 11th, 14th, 15th, and 16th centuries, but is still unfinished, is well worth seeing. At the Court of Justice, which formerly stood where the Post-office now is, Goethe was employed in the year 1772, and this town with its environs, especially the neighbouring village of Garbenheim (Wahlheim), forms the frame-work to his stories in "*Werther's Leiden*". The paternal house of Lottie was the house of the German Order — now the barracks — in the Pfaffengasse. Lottie's room is still to be seen and there are many relics of Goethe's time. Goethe dwelt in the narrow winding Gewandgasse; both houses are marked by marble tablets, as is the house in the Schillerplatz, in which Jerusalem lived and died. Goethe's favourite resort, the Wertherbrunnen, lies outside the Wildbacher Thor. In the year 1849 a monument was erected to the poet. At ten o'clock the train leaves *Wetzlar* and in 45 minutes arrives at *Weilburg*. The lovely situation of the town delights every one that sees it. After visiting the old castle which has often served as a residence for the Dukes

of Nassau, and from the windows of which there is a magnificent view, one takes lunch at the "*Deutsche Haus*", or in the "*Hotel zur Traube*", and half an hour afterwards catches the train to BRAUNFELS. From the station a well-kept foot-path leads through the hunting-park of the Prince of Solms-Braunfels and in an hour reaches the little town of Braunfels and the highly interesting castle, which contains a rich collection of antiquities. At the station there are also carriages and omnibuses to be had if preferred. Now there is also a local railway line running between Braunfels station and the castle. The building of this castle was commenced in the beginning of the 10th century; it has lately been repaired in a most beautiful manner. There is a magnificent hall with a collection of armoury. A great number of paintings, many of them by Hans Deiker. Beautiful view from the terrace. (Schloss-Hotel and Solmser Hof.) Braunfels is renowned for the purity of its air. On returning we take the road through the lovely Muehlthal, from which we get many beautiful glimpses of the castle we have just left behind. At 6.<sup>30</sup> a train leaves Braunfels for Giessen where it is met by the fast train arriving in Nauheim at 8 o'clock. There are, however, later trains if desired.

To visit Weilburg or Braunfels alone, it is early enough if one leaves Nauheim at 9.<sup>30</sup> or 11.<sup>30</sup> a.m.

Another excursion greatly to be recommended is to the

## NIEDERWALD AND THE NATIONAL MONUMENT.

The trains which leave Nauheim at 6 and at 9 o'clock in the morning for Frankfort are in direct communication with trains for Ruedesheim-on-the-Rhine. (Restaurant: Reinhalle).

From the station one can take a carriage to the cogwheel railway (*Zahnrad-bahn*) where trains start every 10 minutes for the Niederwald. If one prefers to walk there is a foot-path leading through vineyards to the Tempel (915 ft.), whence one of the most beautiful views in Germany is to be had, with a delightful panorama of the Rhine. A short distance farther on is the National Monument, designed by Professor Schilling in Dresden. The foundation-stone was laid on September 16th, 1877, in the presence of the Emperor William I. and the monument was unveiled, again in presence of the Emperor, on September 28th, 1883.

On a pedestal 82 ft. high stands the figure of Germania (34 ft. high), holding the German imperial crown in her hand. The small projecting socle in the middle of the lower socle bears figures symbolic of the Rhine and the Moselle. On the two corner socles of the pedestal are seen two allegoric figures (each 19 ft. high) of peace and war, between them the principal frieze illustrating the "*Wacht am Rhein*", at the moment in which the German warriors are gathering round their leader (100 life-size figures). To the

right of the Emperor who is on horseback is the King of Bavaria, to the left the King of Saxony; underneath the words of the well-known song: "*Es braust ein Ruf wie Donnerhall*" . . . On both sides of the socles are reliefs: "*the parting*", and "*the return*", etc. On the front side of the smooth part of the postament is the inscription: "*In memory of the unanimous, victorious rising of the German people and the re-establishing of the German Empire.*" On the other side the great battles are depicted.

After inspecting the monument and enjoying the panorama laid out below us, we go to visit the Adolphshoehe, the Rossel, the hunting-castle (restaurant), whence we return to the monument and to Ruedesheim, if we do not wish to walk (40 minutes) or go by rail to Assmannshausen. (Inns: Anker, Krone).

By taking the first train from Nauheim ample time can be gained to go to

## WIESBADEN

and be present at the afternoon-concert, to look round the town, until 8 or 9.<sup>30</sup> p.m., and then return to Nauheim, at 11 o'clock. To see Wiesbaden well a whole day at least is necessary. The principal sights are: the spring "*Kochbrunnen*", the Kursaal, the new theatre, the statues of the Emperors William I. and Frederick III., the castle, the new Protestant Church, the magnificent town-hall and lastly, adjoining the beautiful park, the Neroberg, on which is



situated the Russo-Greek chapel with the monument of the Duchess Elisabeth of Nassau, who is buried there. On the summit is a good restaurant and fine view.

For one day, or even for half-a-day, there are some excellent

### EXCURSIONS IN THE TAUNUS,

which will certainly afford pleasure; a few of them may be mentioned here, for the rest we refer to the "*Guide through the Taunus*", to be had at Bindernagel's and the "*Map of the Eastern Taunus*". In the whole of the Taunus the different routes, as already mentioned, are marked with different coloured signs, and boards placed here and there explain these signs, which are of very great assistance in finding the way.

The following short excursions are easy and very agreeable: by rail to Frankfort and from there to Cronberg (40 minutes), from there to Koenigstein on foot (<sup>3</sup>/<sub>4</sub> hour), returning through Hardtberg (look-out tower 1345 ft.) — Mammolsheim — Cronthal — to Cronberg (1<sup>1</sup>/<sub>2</sub> hours) or from Koenigstein to Bad-Soden, 2 hours, and from there by rail back to Frankfort (30 minutes).

Somewhat longer, but uncommonly beautiful is the excursion to Cronberg — Koenigstein — Eppstein (2 hours 20 minutes) and from there through the Lorsbacherthal to Hofheim (1<sup>3</sup>/<sub>4</sub> hours), from there by rail to Frankfurt (32 minutes). The train can also be taken at Eppstein (42 minutes) if the way is found too long.

The above-mentioned excursions can all be made very comfortably in a carriage which is always to be had in Cronberg. Omnibuses run between Cronberg and Koenigstein to meet the trains.

**CRONBERG** (1032 ft.) where there is an old castle is a favourite residence for summer guests. Good restaurants: "*Schuetzenhof*" and "*Frankfurter Hof*". In front of the latter a street branches off to the right leading to **FRIEDRICHSHOF**, once the summer residence of the late Empress Frederick. At present her son-in-law, Prince Frederick Charles of Hesse, is the proprietor of the beautiful castle.

**KOENIGSTEIN** (1242 ft.), with the ruins of an old castle is in summer the most frequented of all the places in the Taunus. It possesses a hydropathic establishment and many beautiful villas (Country-residence of the Grand Duke of Luxemburg).

**EPPSTEIN** is a little old town with well-preserved castle now in possession of the Prince of Stolberg-Wernigerode. Restaurant: Hotel Seiler, near the railway station. Eppstein is also much frequented as a summer-residence.

**FALKENSTEIN** (1398 ft.), with the ruins of an old castle, was once the seat of an ancient family. Here there is a celebrated establishment for consumptive persons.

For good walkers the climbing of the highest mountain in the Taunus, the **FELDBERG** (2930 ft.) can be well recommended. From the

summit there is a magnificent and extensive view. One can go from Cronberg over the so-called Fuchstanz in  $2\frac{1}{2}$  hours and back over the "*kleinen Feldberg*" through the Reichenbachthal and Falkenstein to Cronberg in about 2 hours; or can return by the Saalburg to Homburg (3 hours) and from there by rail to Nauheim.

Should one decide to pass the night in the Feldberg-house (good inn) to see the sun rise next morning, there is then time to make the return journey through the Saalburg — Lochmuehle — Capersburg — Winterstein and so direct to Nauheim (about  $5\frac{1}{2}$  hours).

Among the excursions which can be made in one day we may also mention that to

### DARMSTADT,

the capital of the Grand-Duchy of Hesse. The fast train from Frankfort takes 27 minutes. The principal objects of interest are: the Grand-ducal castle, parts of which were built in different centuries, the oldest in the 14th and 15th centuries: the clock-tower, built by the Landgrave Ludwig IV. in 1664, being in the baroque style. It contains a chime likewise of that era. In the castle are the Grand-ducal archives, the library, the museum and the picture-gallery (open on Sundays, Tuesdays, Wednesdays and Fridays from 11—1 a.m. and Thursdays from 3—5 o'clock p.m.). The celebrated Madonna by Holbein is in a separate room (apply to castle attendant). The other sights worth seeing are:

the new theatre, the square in front of the theatre with the statues of Philip the Magnanimous and his son George I., the founder of the Hesse-Darmstadt line; behind the square is the entrance to the Herrengarten, in which there is the tombstone of the Landgravine Caroline Henriette with the dedication written by Frederick the Great: *Femina sexu, ingenio vir.* At the end of the Paradeplatz near the castle a large building for the museum and the picture-gallery is being erected. In front of this building there is the beautiful Kriegerdenkmal (a monument in memory of the Hessian soldiers who fell in the war 1870/71), and in the middle of the square the monument of the Grand-Duke Ludwig IV., an exquisite sculpture by Schaper. Further on in the Louisenplatz stands the high monument (142 ft.) of the Grand-Duke Ludwig I., with its bronze statue designed by Schwanthaler. The Protestant church contains some very interesting tombstones of Hessian princes. The Catholic church is built after the model of the Pantheon in Rome: here there is also a beautiful tombstone of the Grand-Duchess Mathilde of Hesse. Opposite the latter church is the Grand-ducal palace built in 1862/65 in the Italian Renaissance style. The remains of members of the Grand-ducal family are now interred in the mausoleum on the Rosenhoehe, where there is a beautiful statue of the Grand-Duchess Alice, Princess Royal of Great Britain. Another monument of the same princess has recently been

erected opposite the above-mentioned palace by the Hessian "*Alice-Frauenverein für Krankenpflege*" which she founded.

By taking an early train there is time enough to make a little trip from Darmstadt to the

### BERGSTRASSE

with its castles and picturesque villages situated along the skirts of the Odenwald. Any one who is unacquainted with the Bergstrasse should, if possible, go there direct from Nauheim. If the time is short it is best to go by train to the station Eberstadt (1 hour) and from there to the nearest point, the Castle of Franckenstein for instance, along the so-called Herrenweg in  $1\frac{1}{4}$  hour to Seeheim (Bickenbach station) or only visit Jugenheim with its beautifully situated castle, formerly the favorite residence of the Emperor Alexander II. of Russia, or go to Auerbach and see Auerbach Castle. In the afternoon there is also time enough to take a drive from Darmstadt to Burg Franckenstein and the Felsberg, pay a visit to the interesting "*Felsenmeer*" and return from there to Jugenheim.

If one does not wish to visit Darmstadt at all, it is best to take the 9 o'clock train from Nauheim and after stopping an hour and a half in Frankfort arrive at Bickenbach at 12 o'clock. From thence on foot (6 hours) or in a carriage to Jugenheim, Heiligenberg Castle, Felsberg, Auerbach Castle, Fürstenlager, and the Schönberger Thal, finishing the trip at Bensheim

(Inn: Deutsches Haus), where the fast train for Frankfort leaves at 10 o'clock p.m. After half an hour's stay in Frankfort, Nauheim is reached at 12 o'clock.

If the whole trip is made in a carriage an earlier train can be used for returning, in which case it is better to begin at Bensheim and after visiting the other places mentioned return there, as all the trains stop at Bensheim. (Carriages for 8—10 Marks can be hired at the "*Deutsche Haus*". It is advisable to order them in advance.)

By taking the 6 o'clock train in the morning from Nauheim one can even visit

### HEIDELBERG

arriving there at 9 o'clock. There is ample time till 12 o'clock to view the town and its surroundings, and especially to inspect the castle which was begun in the 13th century, but nearly destroyed by the French in the years 1689 and 1693. It is the grandest and most beautiful ruin in Germany; there are also some pretty collections inside and the celebrated "*Heidelberger Fass*". Then we return as far as Bensheim, take the above-mentioned drive through the Bergstrasse, catch the slow train at Bickenbach or the fast train at Bensheim and return to Nauheim.

### STEAMBOAT EXCURSION ON THE RHINE.

Very often after finishing the course of baths, and occasionally even during the course, the

opportunity is seized to make a trip down the Rhine. For this two days are required, the first for visiting the Niederwald Monument and then going down the Rhine by steamer from Ruedesheim to Coblenz and the second to return by the Lahnthal-railway through Ems; this excursion can, however, be done in one day, although it makes a rather tiring trip. Take the 6 o'clock train to Frankfort, leave there at 8.30 for Mainz, go from there by steamer to Coblenz, where the boat arrives at 1 o'clock. The train on the right side of the Rhine leaves Coblenz at 3 o'clock and arrives at Ruedesheim at 5 o'clock; after having several hours to inspect the Niederwald Monument one arrives in Nauheim at about 12 o'clock. 30 minutes can be saved by taking the 3 o'clock train from Coblenz on the left side of the Rhine to Bingen and crossing from there by ferry-boat to Ruedesheim.

In a similar manner there are many other pleasant excursions to be made from Nauheim, of which we will only mention one more, a trip to

### KASSEL AND WILHELMSHOEHE.

Kassel is undisputably, on account of its situation and surroundings, one of the most beautiful towns in Germany, and possesses much that is worth seeing: the Friedrichsplatz with the marble statue of the Landgrave Friedrich II.; the former electoral palace (can be visited on application to the custodian): the beautifully designed Museum Fridericianum (open Mondays

and Thursdays from 11—1 o'clock); the Natural-history Museum (open Mondays and Thursdays from 10—1 o'clock); the Bellevue-Schloss (Schoene Aussicht-street), containing on the first floor a picture-gallery with many fine pictures of the Dutch school (open Sundays from 11—1 and Tuesdays, Wednesdays, Fridays and Saturdays from 10—1 o'clock, entrance free; at other times application to be made to the custodian); on the underground floor there are some mediaeval works of art (open Mondays and Thursdays 10—1 and Sundays from 11—1 o'clock). In the Staendeplatz is the Art-Gallery with a permanent exhibition (from 11 a.m.—1 p.m., from 2—3 p.m.)

A long straight avenue of lime-trees leads from Kassel to the world-renowned WILHELMS-HOEHE, where Art and Nature have united in forming a most delightful park. The tramway, starting from the Koenigsplatz, takes the excursionist to the very foot of the mountain, from there he quickly reaches the castle, built in the old Roman style, where Napoleon III. dwelt as a prisoner of war from Sept. 5th, 1870, till March 10th, 1871.

To the south of the castle lies the Chinese village of Mu Lang, a plaything from the time of Friedrich II.; still higher up lies the Loewenburg, an imitation of a castle of the 14th century, now falling in ruins but still inhabitable.

The water-works, cascades and fountains, are in play regularly on Wednesdays and Sundays in the afternoon; the cascade begins on the



summit of the hill and falls down to the castle, it is therefore better to ascend on foot or in a carriage, and then follow the waters downwards.

On the highest summit stands the Octogon or Riesenschloss with the enormous bronze statue of Hercules (33 ft. high) whose club, which has steps inside, will hold nine persons. From here there is a magnificent view of the Harz and Thuringian mountains, etc.

Under the Octogon there is a grotto containing statues and the so-called "*Verirwasser*", then a large basin from which starts the grand waterfall with pine-trees growing on either side; the cascade falls over 525 steps down the mountain to the grotto of Neptune; here follow other waterfalls, aqueducts, etc., down to the temple of Mercury.

If one leaves Nauheim in the morning at 7.<sup>30</sup> or 9.<sup>30</sup> one can go direct to Wilhelmshöhe, see the park and in the evening go to Kassel and pass the night there. The town can then be inspected the next day, leaving for Nauheim at 5 o'clock and arriving there at 8 o'clock in the evening.



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## ERRATA.



### First part:

- For milk, and whey read milk and whey. p. 5. l. 19.  
For specialty read speciality, p. 20, l. 5.  
For baths, resembles read baths resembles. p. 25. l. 19.  
For I cannot, enumerate read I cannot enumerate. p. 26. l. 6.  
For unbe-arable read unbear-able. p. 48. l. 20, 21.  
For yea read year, p. 49, l. 28.  
For Their is read There is, p. 53, l. 8.  
For remained in good health ever since read remained in  
good health for a long time, p. 83, l. 7.  
For dissease read disease, p. 105, l. 12.  
For comparavitely read comparatively. p. 108. l. 6. 7.

### Second part:

- For Victoria-Melitarung read Ernst-Ludwig-Ring. p. 7. l. 27.  
For turns off the left read turns off to the left. p. 18. l. 12.  
For Freiherrn read Freiherren. p. 24, l. 22.  
For by this read by His, p. 27, l. 30.  
For last century read the 18<sup>th</sup> century. p. 35. l. 10.  
For Forsthaus. Winterstein read Forsthaus Winterstein.  
p. 35, l. 28.  
For physican read physician. p. 43, l. 8.



**APPENDIX**  
**OF ADVERTISEMENTS.**







# Grand Hôtel METROPOLE.

This magnificent Hôtel,  
opened 1903, is Nauheims  
finest and most modern Establishment.

**Grand elevated location**  
overlooking the Kurpark and opposite to Springs  
and Baths.

Every possible modern comfort and luxury.  
Numerous Suites with Private Bath and Toilet.

**Grand Marble Hall.**

**Fine open air restaurant facing Park.**  
Personnally conducted by the Proprietor.

For Tariff apply to  
**Max Lehr, Proprietor.**

Branch House: Hôtel Post, Partenkirchen, Bavaria.

**Bad-Nauheim.**

**Sprengel's**  
**Park Hôtel.**

**First class House,**  
in finest position of the Park, close to  
Springs and Baths.

**Greatly enlarged for the Third  
time.**

**Lowest charges for Board  
and Residence.**

Electric Light. Lift and every comfort.

**Own Omnibus to the Station.**

**Dependance:**  
**Parkhaus, finest family house.**



# Bristol-Hotel.

**First class Hôtel,**

opposite the Baths.

☞ Lift, electric Light. ☞

Central Heating.

Omnibus meets all trains.

Special rates for families making  
a long stay.

*A. Bittong, Proprietor.*



---

**Bad-Nauheim.**

• • •


## Hotel du Nord

at the bottom of the Johannisberg and near  
the Kurhaus, most beautifully and healthfully  
situated.

Comfortably furnished rooms.

Great dining-rooms with Verandas.

### Table d'hôte

 at 1 and 7 o'clock. 

*Johanna Brussatis.*

# Villa Tielemann.

Proprietor: H. Tielemann.

**First class House**  
with all comfort.

**Electric Light.**

**Telephon and Bath.**

# Pension Irene.



 Parkstrasse. 

**First rate Boarding House.**

**Officers-Club.**

Elegantly furnished Dining Room.

Large shadowy Garden.

 Dinner at the usual therms for strangers  
residing other houses. 



# Medico-Mechanical Institute.

System Dr. Zander, Stockholm

Bad-Nauheim (Nauheim-Springs).

Institute for mechanical and manuel swedish  
Gymnastics, Massage and Orthopaedia; 2 separa-  
tes halls for ladies and gentlemen, equiped with  
150 original-apparatus.

Besides:

1. Exercises for ataxia.
2. Electric massage of vibration.
3. Electric bath.
4. Treatments by hot air.

Opened from the 1<sup>st</sup> of april till the 1<sup>st</sup> of  
november.

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## Elisabeth Bindernagel

in Friedberg i. H.

near the Stadtkirche.



Teacher of music and languages.



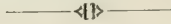
Apply to Mr. Bindernagel's bookstore,  
Parkstr. 10 in Bad-Nauheim.





**Friedberg. — Bad-Nauheim.**

(Hessen.)



# **Carl Bindernagel's**

Trade in books, works of art  
and music.

## **Large library**

(12 000 volumes).

### **Ware-house**

for all sorts of writing- and drawing-  
materials.

**Letter-paper and post-cards with  
views.**





Grand Hôtel  
**KAISERHOF**  
**Bad-Nauheim.**




The leading Hôtel of Nauheim  
Bath.

**Highly recommended.**

Large open air Restaurant.

*H. Haberland, A. Kochler,*  
*Proprietor. Manager.*





**Kohenzollern**  
**Hôtel.**

**First class modern house.**  
**Right opposite baths.**

∞ Lift. ∞

Electric Light, etc.

**Apartments with Private Baths.**

Fine Hall and Terrace.

∞ Large garden. ∞





**Bad-Nauheim.**

**Pension Victoria**

(not Hôtel Victoria).

Parkstrasse 34.

First-class family-pension.

Beautifully situated,  
close to the Kurhaus,  
parc and bath-houses.

**Comfortably furnished rooms.**

Excellent table.

Good society.

☞ **Best references.** ☞

Telephone 377.

☺ **Lift.** ☺

Open from April 1<sup>st</sup> to the end of October.

Proprietors and managers:

*The Misses*

**Emily & Theodore Schneider.**

Hôtel Belle-vue,  
Parkstreet  
and  
Villa Fischer,  
Terrassenstreet.

First class quiet Family Houses,  
wonderfully situated opposite  
the large Park, close to the  
Kurhaus, Baths and Springs.  
Exquisite cuisine and wine-cellar.

**Moderate terms.**

*Herm. Fischer, Proprietor.*

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**BAD-NAUHEIM.**

**Hôtel de l'Europe.**

Two minutes from springs and baths.

Splendid situation shady garden.

Every modern comfort and luxury.

**120 Rooms, Salons, Reading and music  
Room, Coffee and Billiard Room.**

Excellent cuisine.

☞ Lift. ☞

Omnibus at the station.

Electric light.

# Plan von Bad Nauheim

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Johannisberg

1. Sprudel
2. Kurbrunnen
3. Karlsbrunnen
4. Ludwigsbrunnen
5. Konitzky-Stiftung
6. Musikpavillon
7. Musikpavillon
8. Apotheke
9. Milkuranstalt
10. Rathaus
11. Post
12. Amtsgericht
13. Spar- u. Vorschuß-Verein
14. Evang. Kirche
15. Kath. Kirche
16. Synagoge
17. Teichhaus
18. Elektr. Anlage
19. Restaurant König
20. Turnhalle
21. Engl. Kirche
22. Zollamt
23. Lawn-Ten-Platz
24. Neuer Postbau
25. Kinderhospital
26. Ernst-Ludwig-Garten
27. Sprudel 14
28. Inhalations-Geb.
- V M Victoria-Melitta-Ring
- Z Zollamt

















