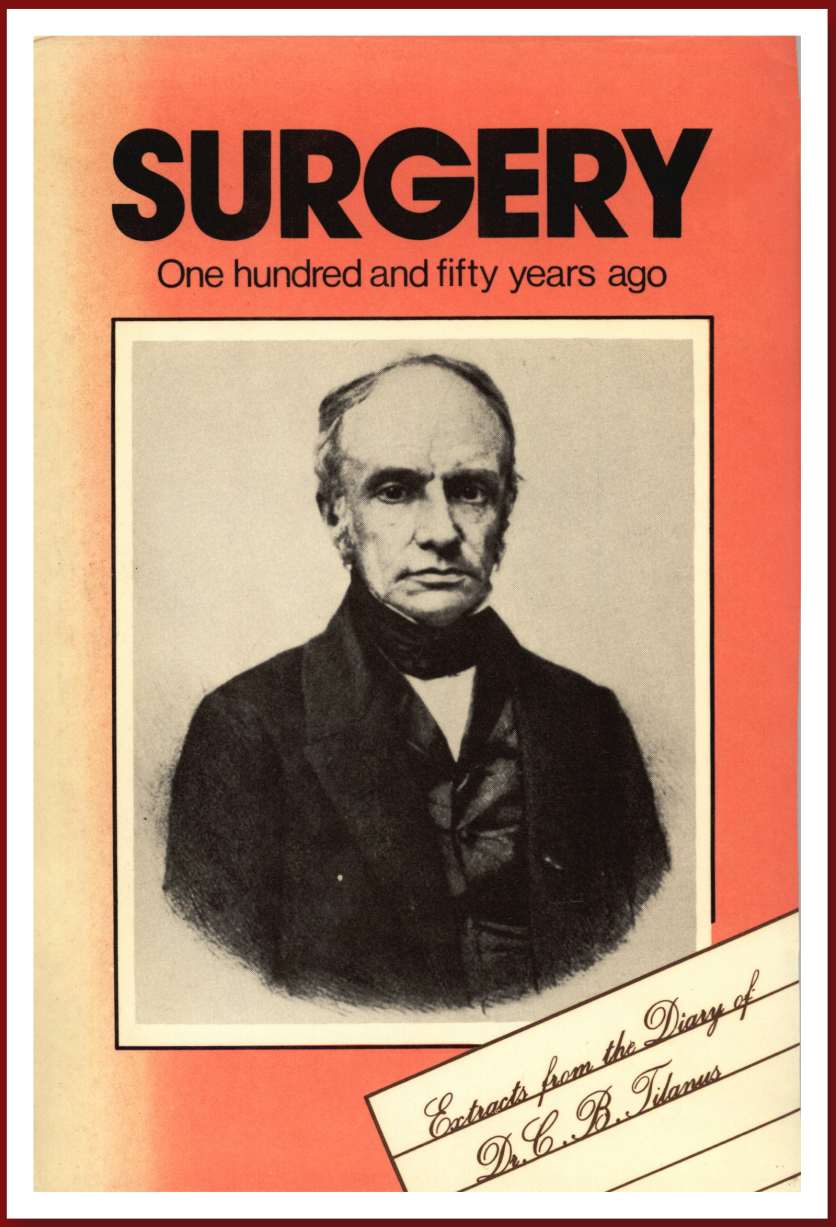
Surgery:
One Hundred & Fifty Years Ago



Dr. C.B. Tilanus

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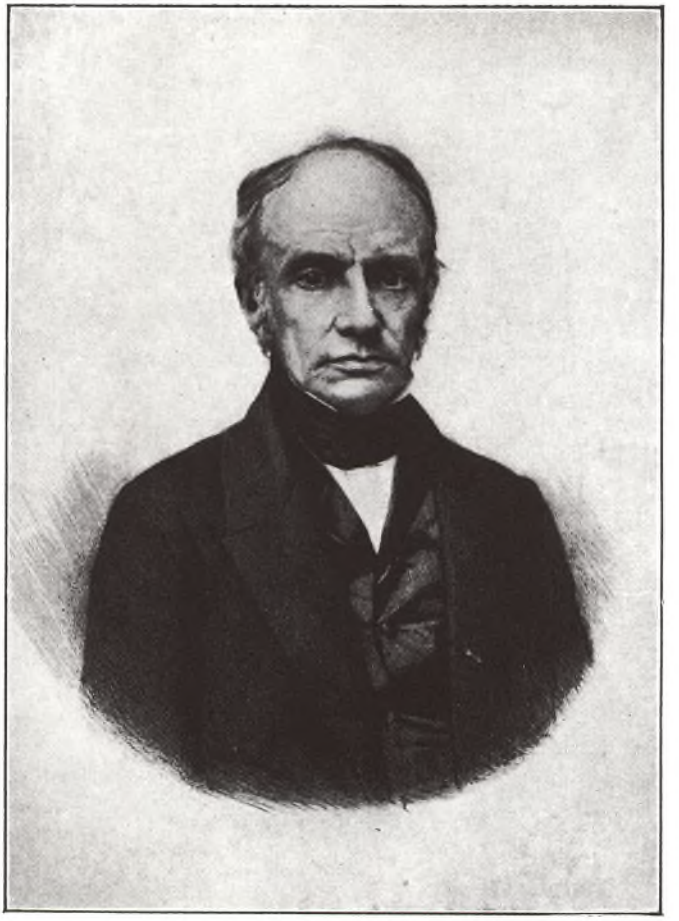

PROF. C. B. TILANUS

SURGERY:

A Hundred and Fifty Years Ago

Extracts from the Diary of Dr. C. B. TILANUS

Afterwards Professor of Surgery at the University of Amsterdam

Edited by Professor H. T. DEELMAN

Professor of Pathology at the University of Groningen, Holland

Translated from the Dutch by JOSEPH BLES

EP PUBLISHING LIMITED
1974

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East Ardsley, Wakefield
Yorkshire, England
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This is a reprint of the 1925 edition
published by Geoffrey Bles, London, under the
title "SURGERY: One Hundred Years Ago"

ISBN 0 85409 953 0

Please address all enquiries to EP Publishing Limited
(address as above)

Printed in Great Britain by
Redwood Burn Limited, Trowbridge & Esher

FOREWORD

IN November, 1818, three young doctors, who had a few weeks previously taken their degrees at the University of Utrecht, decided to travel together through Belgium, France, and Germany, to visit the various clinics. They were C. B. Tilanus, J. C. Broers and P. J. I. de Fremery; and it speaks well for their energy and thirst for knowledge that in later years they all became University Professors at Amsterdam, Leyden and Utrecht, respectively. Therefore, when Mr. J. L. L. Tilanus sent me his father's diary, I gladly perused it and found that it contained so many episodes of interest in the light of present-day surgery that I agreed to edit it.

This has afforded me much pleasure, and

I can only regret that no youthful portraits of these three brilliant men are available. That of J. C. Broers shows him at a fairly early age, but the others were evidently taken much later in life.

H. T. DEELMAN.

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THE INTRODUCTION

BY DR. C. C. DELPRAT, OF AMSTERDAM

I FELT greatly honoured when requested to write a preface to the extract from the diary of the late Professor of Surgery, C. B. Tilanus. It is my intention, therefore, to introduce to the present generation these three young surgeons and to recall the position which surgery held in the days when they started their journey, viz. in the autumn of 1818.

C. B. Tilanus, the son of the Rev. J. W. Tilanus, rector of Harderwÿk, was born in 1796, was educated at the Municipal school of that town and studied medicine at the University of Utrecht, where he first met

his future travelling companions. Shortly after taking his surgical degree he settled in Arnhem (an important and ancient town in Holland), and soon became known as a very clever surgeon, owing to his successes in lithotomy. He remained at Arnhem till 1828, when at the age of thirty-two he was elected Professor of Surgery and Obstetrics at the " Clinical School " of Amsterdam.

Present-day readers may wonder what this " Clinical School " was, and what its *raison d'être*, since there already existed at Amsterdam the Athenæum Illustre, where surgery and medicine were studied. The explanation is this : In those days surgery was taught in a manner totally different from the present. The professors of surgery and obstetrics lectured almost exclusively on the theory of these sciences and had but a very few beds at their disposal for explaining the practice. Moreover, these lectures could only be attended by the well-to-do young men, who studied at the recognized universities. The considerable majority of the future surgeons and obstetricians, often men

of small culture, served their apprenticeship with established, but frequently very inefficient surgeons and obstetricians, and had to build up their operative knowledge with experience gathered in this piecemeal manner. There existed no clinical school for these men, and, curiously enough, professors were cordially disliked in the hospitals. When in 1789 Mr. G. Vrolik was made Professor of the Theory of Obstetrics at the Athenæum Illustre, he had difficulty in obtaining permission to perform confinements, as he did not think obstetrics could be satisfactorily taught by theory alone! The President of the Board of Education was in favour of granting this permission, but the Municipal Chief Obstetrician of the general hospital, Mr. De Bree, made great objections, fortunately unsuccessfully.

A reaction was bound to follow. In Medicine, which enjoyed a higher reputation than Surgery, the reaction had come earlier. Van Heurn of Utrecht, Franc Sylvius de la Boe (1658), and Boerhaave (1714) of Leyden appreciated the advantage of

instructing their pupils at the bedside. They formed small clinics where they could teach their pupils how to examine and treat the patients and where diagnoses were verified at post-mortems. These clinics became widely known and served as examples for the later clinics at Edinburgh and Vienna.

Surgery and obstetrics did not move in this advanced direction until later.

Surgery in Holland in the beginning of the nineteenth century did not, it must be said, stand as high as in other countries. Johannes Mulder, Professor at the University of Franeker, stated in his inaugural address that in 1797 at the Dutch Universities more importance was attached to the study of medicine than of surgery; that, moreover, the lectures, being held in Latin, could not be understood by all the students, and that nowhere in Holland was there at that time an opportunity of studying surgery in Dutch.

In 1799 the Nosocomium Clinicum of Leyden added a Practical Institute for Surgery and Midwifery, an Institute of six beds,

of which, according to Professor Mulder, "there already existed many enviable examples" in France, Germany, and England. This addition was made so that "poor patients who required surgical treatment might be admitted for the benefit of the students at the University."

Then began a constant clamouring for clinical instruction throughout Holland, coupled with a demand that the Municipal hospitals should be available to medical students and be used as centres of instruction, as was the case in other countries. Especially in the agricultural districts, and in the lesser towns, practitioners were, as a rule, so ill-informed that there were far too many fatal results of their treatment. The effect of this agitation was that in 1823 a Royal decree ordered the provision of schools "for the education of future surgeons and midwives whereby to satisfy the need in agricultural districts of surgical and obstetrical aid to the medical practitioners." One of these clinical schools, namely that of Amsterdam, set itself a high standard, and

aimed at training both pathologists and surgeons of the very first rank, and Tilanus was appointed to the chair of surgery and obstetrics. At first he raised an objection to the combination, for though he was able to treat midwifery theoretically he did not feel himself sufficiently competent to teach it practically. The time had not, however, come as yet for the severance; at the other Universities the two sciences were also combined, and at Utrecht, where his travelling companion, J. C. Broers, was professor, it lasted until 1848.

Professor Tilanus remained with the clinical school until 1866. In the meantime the Athenæum Illustre had conferred upon him an honorary professorship, and when in 1866 the school ceased to exist, Tilanus was appointed Professor of Surgery at the Athenæum, while L. Lehmann was called to the chair of obstetrics.

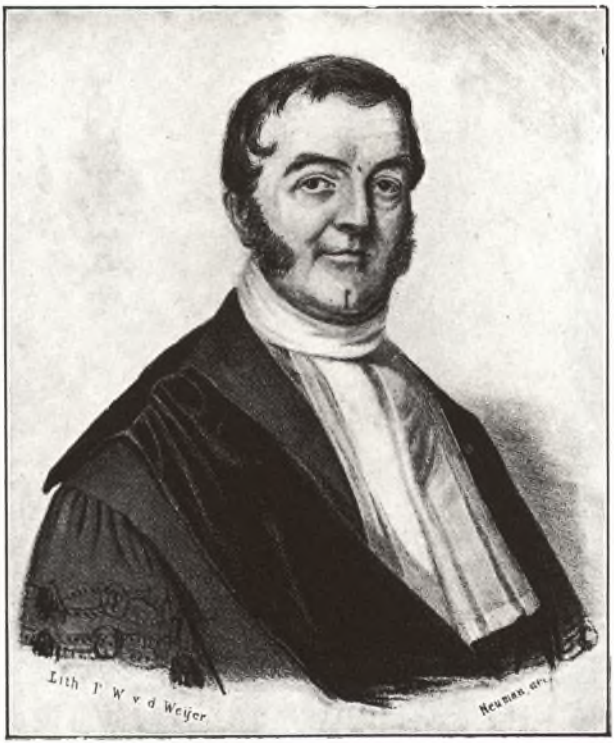
Professor Tilanus had never tired of urging this severance, for he had long suspected that the alarming death-rate from puerperal fever, the scourge of lying-in

wards, was largely due, in those pre-aseptic times, to the treatment by surgeons who had been in contact with suppurating wounds. This suspicion gained ground in other centres, with the result that the University College Hospital in Leyden was rebuilt in 1876 with its lying-in wards in a separate wing. According to the minutes of August 28, 1876, the committee decided upon this step, " being convinced that the proximity of the surgical wards is detrimental to the well-being of maternity patients, and the cause of the abnormal death-rate among them."

Professor Tilanus continued his lectures until 1873, when at the age of seventy-seven he retired.

From the time of his appointment to Amsterdam he took a lively interest in all surgical matters ; more so than ever when he became president of the Society for the Advancement of Surgery, founded in 1790, of which he became a member in 1830. He was, I believe, the first surgeon who showed his cases at the Society's meetings. In 1840, at the fifty years' jubilee of the Society, he

made an important speech which at the present time is highly interesting for two reasons : firstly, because it shows that then, when antisepsis, asepsis, complete anæsthesia, X-rays, not to mention highly specialized instruments, were unknown, this renowned surgeon felt himself justified in stating that though surgery " was not as yet quite perfect, it was within measurable distance of being so " ; secondly, and principally because on that occasion he urged surgeons not to hold themselves aloof from other practitioners, since, in difficult cases, the experience of the medical profession might be very useful. The result of this speech was that doctors of medicine were admitted to the Society which changed its name to The Society for the Advancement of Medicine and Surgery. It is not to be wondered at that in the early 'forties, when abdominal surgery so often ended fatally, Professor Tilanus was no friend of any operation that savoured of *bravura*, and that in 1843 he condemned the removal of ovarian cysts as too dangerous to be undertaken.



PROF. P. J. I. DE FREMERY

During his professorship and up to the time of his death in 1883 he took a prominent part in the improvement of the laws regulating medical and sanitary matters. His death was deeply regretted, and the Society of Medicine and Surgery commemorated his career by instituting a Tilanus Medal.

Dr. P. J. I. de Fremery, his travelling companion, was the son of the well-known Professor of Medicine, N. C. de Fremery, at the University of Utrecht, who not only lectured on medicine, but also on chemistry, zoology and mineralogy, a combination which at that time was not unusual.

P. J. I. de Fremery, after he became doctor of medicine, also took his degree in midwifery and natural philosophy. In 1829 a discourse on " Chemistry as applied to Arts " gained him the honorary professorship of the Utrecht University. Until 1851 he was professor at the Utrecht Veterinary School. He was an Honorary Member of the Royal College of Science, and wrote on such diverse subjects as zoology, pharma-

cology, chemistry, cholera and disinfectants. He died at the early age of 58.

Dr. J. C. Broers, the other travelling companion, was born at Utrecht in 1795, where he studied medicine. Already among his fellow-students he was a marked man, and in 1814 he was made president of their " Senatus Veteranorum." In 1815, the year of Waterloo, he and some fellow-students joined up as a company, and J. C. Broers was elected their sergeant-major.

In 1817 he continued his studies; in the same year won the gold medal for a prize essay, and in 1818 he took an honours degree with an essay on a subject which has, even in the late war, created great interest, viz. " Reasons why Injuries to the Head, at first apparently of minor importance, often lead to pronounced Epilepsy, which sometimes proves fatal."

He also took his degree in surgery and midwifery, and practised for some years as a general practitioner at Utrecht and later at Zeist, a residential town near by.

PROF. J. C. BROERS

In 1826 he was called to the chair of surgery and obstetrics at the University of Leyden. His inaugural address was " The Necessity of Courtesy and Humanity on the part of Surgeons." Curiously enough, the subject was treated exclusively in connection with surgery, and not a word was mentioned about obstetrics; which, from so eminent a man, clearly shows that in 1826 midwifery did not rank very high. During his professorship at Leyden, he made several journeys to the various German Universities, one with his former travelling companion de Fremery, when he once more visited Dr. Langenbeck of Berlin. The lectures of Professor Broers were famed for their clearness and their modesty; moreover, he illustrated them with pathological-anatomical specimens which he himself had prepared. These he perpetuated in 1839, by writing his *Observations Anatomico-pathologicæ*. After his death in 1847 the specimens were bought by the University for 3,000 gulden, then a considerable sum, for the benefit of the students.

In connection with the remarks in the biography of Professor Tilanus it is noteworthy that, after the death of Professor Broers, separate professors were appointed at Leyden to fill the chairs of surgery and of obstetrics.

When reading the diary we are struck by the great importance attached in all surgical cases to venesection. Up to the middle, in fact, of the nineteenth century venesection, or phlebotomy, as it was formerly called, was the sheet-anchor of surgery. It had been practised for many centuries, and though we know several of the quaint tests which the barber-surgeon apprentices had to give of their prowess and learning, such as (in the earliest stage of their apprenticeship) the preparation of blades or lancets which would cut through leather without the slightest sound, it would be highly interesting if international research produced all that is known of the rules and regulations of these ancient guilds, whose practice remained in force until less than a century ago.

INTRODUCTION

It must have been heartbreaking to the surgeons of those days to find that in very many cases all their efforts to save the lives of their patients by venesection were useless. The records of that time, and also this diary, show how alarmingly great the mortality was even of minor operations such as herniotomy, lithotomy, operations for cataract, etc., not only through accessory infections such as erysipelas, but largely even through traumatic pyrexia as a result of the operation. If this was the case with Dupuytren, that " chirurgus incomparabilis nemini secundus," how will it have been with the lesser lights ? To read this diary recalls the importance which Lister's antiseptic treatment and which asepsis had for surgical patients at the time of their introduction.

I therefore greatly appreciate Professor Deelman's idea of bringing the great significance of these discoveries, which are now accepted as a matter of course, back to our minds by editing this diary.

C. C. DELPRAT.

PART I

TO LOUVAIN AND PARIS

THE three young doctors started on November 25, 1818. On that day they reached Antwerp, where they spent one day sightseeing, as they did also at Brussels. From there they travelled to Louvain, where they closely inspected the University and its institutions.

The diary reads :

" We visited the hospital at 8 a.m., the chief house physician, with the courtesy title of professor, named Linkgraaf, accompanied us. The hospital is a handsome and large building, four stories high, with many wards, a good dispensary, laboratories, kitchen, etc. We saw there a bath of sulphur fumes, in which two patients had just been placed, viz. a *hydropicus* and a *rheumaticus*. It is an oak box, in which the patient is

seated on a chair, with his head outside. Next to it is a small oven of which the pipe runs through the box. When the flat top of the oven becomes red-hot sulphur is strewn on it and a lid placed over it. A second pipe leads the fumes into the box, while a further pipe leads the fumes from the box into the chimney.

"There are at present 156 in-patients, including many consumptives, cases of intermittent fever, etc., etc."

"They use here *acetus morphii*, even up to 4 gram (60–62 grains), but they do not appear to have as yet obtained any satisfactory results from it. It is in the form of reddish-brown crystals and was prescribed to-day in small doses in a case of persistent vomiting of several days' duration.

"We then went into the clinical ward, a long hall with a stone floor, high domed ceiling, rather chilly, divided into male and female wards by a partition. At the end was an altar. The beds were arranged in rows along the walls. Everything very neat and clean; the patients attended to by nuns. Two small rooms, one for men and one for women, were set aside for surgical patients. About thirty students were gathered here, with sticks and ironshod boots, making a

great clatter. Only those in their last year are admitted in these wards. After some time Professor Jacmart appeared, addressed us with French politeness and began his round. He asked the students if there were any important symptoms in any of their patients, what medicine was required, etc. He spoke very rapidly and here and there drew attention to some points of interest. There were, however, few interesting cases. Many *hydropici*, an old man with *hydrothorax* who sat in his cot almost doubled up with pain and *dyspnœa*, etc. Above every cot there is a tablet with the patient's number, name and illness. The professor himself did not prescribe the doses of the drugs ; a pupil was with him who wrote them down for the student whose case it was and gave instructions in Latin, of which he hardly knew a dozen words.

" After going through the wards we visited the University building, where we attended a lecture on chemistry by Professor Mons. He stood at a large rough table, spoke in French without notes to an audience of about fifty. Next to him stood his son, who translated it into Latin and dictated it to the students.

" After an hour Professor Mons left and

was replaced by one who lectured on physics, but we had not the time to attend, so Professor Mons was kind enough to show us through the University building, quite an antique building with an imposing entrance and with several large rooms. The library was a fine room, both wide and long; the books were arranged on both sides in semi-circular bookcases like niches, which made the room look rather old-fashioned but quite handsome."

We then find our young friends in Paris. Here the diary is in two parts: the first containing the notes of their numerous visits to the principal clinics; the second with remarks about celebrities of those days, their visits to theatres, museums, crèches and prisons, foundling hospitals, deaf-and-dumb institutions, etc.

I could not possibly reproduce all these, and have selected such incidents as give an insight into the treatment of those days, into the teaching of medicine and similar matters, and only now and then have I ventured into other channels.

ALEXIS BOYER

The notes begin on December 11 with a visit to the clinic of Dupuytren.

There were at that time in Paris three great surgical clinics: the Hôtel Dieu, where Dupuytren reigned supreme, the clinic of Boyer at the " Charité," and the clinic of the celebrated war surgeon, Jean Dominique Larrey at the Hôpital de la Garde.

For more than six months these clinics were visited repeatedly; that of Dupuytren most of all, and it is of this clinic that we find the most detailed descriptions of the various cases. That of Larrey is, however, not neglected. Boyer's is only visited at long intervals.

Boyer, with his rather clumsy appearance, and his dull lectures, which though clear and methodical were delivered in a slow and halting manner, had not much attraction for our friends. Compared with him Dupuytren and Larrey were brilliant; the former, with his boundless ambition, and the latter, of whom it is enough to say that people spoke of him as " le plus honnête homme de son siècle."

At the time that young Dr. Tilanus visited

Paris, Dupuytren of the Hôtel Dieu was a giant among the surgeons, the " chirurgus incomparabilis nemini secundus." In 1795, when he was barely eighteen, and medical tuition was reorganized in France, he was made " prosector," and when as early as 1801 he replaced Duméril as " chef des travaux anatomiques," he gave himself up heart and soul to the study of anatomy and experimental physiology, defending in 1803 his thesis " Sur quelques Points d'Anatomie de Physiologie et d'Anatomie pathologique " and forming with Bonnet and others the " Société d'emulation." Not content, however, with working at anatomy and physiology, he entered the competition for the post of second-class surgeon at the Hôtel Dieu. He defeated Roux, Tartra, Maygrier, and Hedelhofer, and had henceforth a wide field for his ambition ; he devoted his exceptional energy entirely to surgery, acquired a remarkable operative skill, and gave private tuition in anatomy in the Rue des Cordiers St. Jacques, three hours daily and without neglecting his other work.

GUILLAUME DUPUYTREN

At the age of thirty he had already made a great name, and in 1808 was appointed joint chief surgeon with Pelletan, the eloquent successor of Desault, at the Hôtel Dieu.

He looked still higher. Ever seeking to reach the top rung of the ladder of fame, he entered the list for " Membre de la Faculté de Médecine," where a vacancy had occurred owing to the death of Sabatier. This competition in operative surgery lasted forty days. Dupuytren was once more successful, having wrested the honour from Roux, Marjolin and Tartra.

Though now Pelletan's equal at the Hôtel Dieu, he was determined to drive away Pelletan and to become Chief Surgeon. Wherever he could, even by underhand means, he damaged Pelletan's reputation, with the result that in 1815 he did indeed become " chirurgien en chef."

In this capacity he showed an energy which has but rarely been equalled. Following Desault's example, he was ever first to arrive at the Hôtel Dieu and last to leave.

Even then time was all too short, for he insisted on doing everything himself. Proud, rather frigid, suspicious and always on his guard, he left nothing to chance nor to his assistants ; he never gave his opinion about a difficult case until he felt sure about it after careful consideration ; it is said of him, " nul chirurgien n'eut le coup d'œil plus sûr, le jugement plus sain, la main plus ferme, aucun n'eut l'âme plus imperturbable dans le danger." His lectures were always improvised, clear and didactic, with hardly any quotations and solely concerning the patients in the wards.

No wonder that our enthusiastic young surgeon was drawn to a teacher like Dupuytren !

Tilanus wrote in his diary :

" G. Dupuytren is the son of a Justice of the Peace at Limoges and is now forty-five years of age. We visited him with an introduction from Cuvier. He was very friendly, accepted the theses which we wrote to qualify for our degree, said that he would have much pleasure in reading them and

DUMÉRIL

that he would do all in his power for us ' avec tout dévouement possible '."

His visit to Dupuytren's clinic of December 11 already gives an impression of this professor's mode of teaching.

" Dupuytren performs an operation for cataract at the patient's bed, but is so surrounded by his students that we could see nothing of it. His visit at an end, he discusses some illnesses, first of all cataracts. He prefers depression, but adds that he has often, as was the case this morning, found the cataract so soft and gelatinous that it cannot be depressed by the instrument, but is immediately split up, with the result that some particles fall on the visual axis. Still even then this operation may serve a useful purpose, since this very division facilitates absorption."

It is not my intention to quote all the cases mentioned in the diary, but only some of the most important. I will, however, quote one more operation on the eye, which at that time was within the scope of general surgery.

" A young man in his twenties has been wounded in the eye with a knife twelve years ago. The wound has healed and cicatrized ; the eyesight was retained, but it gradually diminished. There is a small cicatrix in the cornea, which is not, however, in front of the pupil ; the iris is somewhat deformed. Behind the pupil is seen a white film, opaque, being a thickening of the *cataracta lentis* or *cataracta membranacea*. This often occurs after damage to the cornea, as Dupuytren has learned from about twenty cases. Dupuytren tries to sever the adhesions with a needle and to move them outside the visual axis, with the intention of extracting them in case this preliminary operation did not prove successful. The patient, whilst being operated, says that he cannot see more light than before, which causes Dupuytren to suspect an affection of either the *retina* or the *nervus opticus*, the more so as the iris is toneless and soft, which is a symptom of *paralysis retinæ*."

The result, however, was not favourable. A week later we read :

" The inflammation has not diminished, notwithstanding blood-letting ; the iris is

divided and the eye totally lost ; it is already shrinking and in a state of atrophy."

We find three more cases of cataract: aged persons who have regained their eyesight after depression of the lens.

There is a great difference in the surgical domains of those days and now. Whereas now abdominal surgery occupies an important place, in those days there was hardly any attempt at real abdominal surgery. One knew one's limitations and did not exceed them, knowing full well that the spectre of infection was lurking nearby. In Dupuytren's clinic we find principally three operations: firstly, the removal of stones from the kidney, a disease which is now much less prevalent than formerly; secondly, the treatment of hernia; and, lastly, fractures with their subsequent amputations.

Most of the surgical notes in this diary refer to cases in these three categories.

We will begin by taking a case of nephrolithotomy.

" January 13, 1819. Hôtel Dieu. A man of thirty-eight has suffered since he was a boy of six or seven from difficult and painful micturition. This became accompanied by pain in the kidneys and vomiting, and he soon began to pass small stones. His manual occupation caused these pains to increase, so that now they are unbearable. He has never been seriously examined and came to find relief. Dupuytren found a stone on his first sounding. It is probably of considerable size, having been in existence twenty-five or twenty-six years ; moreover, it can be felt above the pubis and far into the rectum, and with a hand on the pubis and a finger in the rectum the stone can be felt by both and its size to some extent determined. The patient begs to be operated on on account of the terrible pain. The pain in the kidneys, which has been present so many years, is an important contra-indication. They fear that three or four days after the operation there is sure to be inflammation in the diseased kidneys, and then fever and death. They also fear they may find a diseased bladder. A small amount of urine is examined and found to contain small quantities of mucus and pus. The size of the stone renders a decision as to the mode of operation very

difficult. The *apparatus altus* is always accompanied with danger owing to the dispersion of urine, to peritonitis, etc.; there is also the contraction of the sides of the incision, which would prevent the extraction. The stone appears to be too large to be drawn through the perineum. The best method is probably by extraction through the rectum, after cutting the sphincter, etc., a method indicated by the stone showing so conspicuously in that region and by the fact that so few other parts have to be cut into. This method tried upon a corpse, a short while ago, appeared to be difficult. Dupuytren therefore decides to obtain a correct idea of the condition of the kidneys and the bladder by close examination of the urine, and to find the best method by experiments upon corpses with a stone of fully M.5 in his possession, before he operates on the patient. In the meantime he prescribes clysmata and a tepid bath.

" The following day Dupuytren introduces this stone into the bladder and above the pubis of a corpse. He performs the sidelong incision after the manner of Frère Côme, and shows that it is impossible to extract the stone by this operation. Now incisions are made into the sphincter ani

and the rectum and the stone is extracted, though with difficulty. As this may, however, have been successful owing to the previous incision into the neck of the bladder, this experiment will be repeated this evening on another corpse. . . . The experiments with the stone are continued. Dupuytren does not like using the *apparatus altus ;* the right abdominal muscles impede the extraction ; the peritoneum is easily damaged ; also the patient's bladder is very small, as he passes his urine about every quarter of an hour, and therefore the surface above the pubis not sufficiently large. There must also be an opening into the perineum for the use of the sound and for removal of the urine after the operation by means of a *cannula.* On the other hand the incision into the sphincter ani and the rectum has never yet been attempted ; but it affords the largest opening in the soft parts ; the neck of the bladder and also the back wall which is in contact with the rectum are then to be opened ; the incision into the other parts is not dangerous, but there is fear of infiltration of fæces and urine into the bladder and the rectum.

" This method and also the lateral one are tried on two corpses, but the stone cannot

possibly be brought through the opening of the pelvis. It could only pass in its smallest diameter; its other dimension is far too great. It is therefore quite impossible to relieve the sufferer in this manner, and moreover his stone is likely to be even larger than the one used. To crush the stone is not practicable. If it is hard the *tenette brisepierre* cannot do it, besides the removal of the débris causes great contusion and laceration. Nothing remains therefore, but the *apparatus altus*. It will take place to-morrow, for Dupuytren decided upon the operation on being convinced that there is no ulceration of the kidney, since his inspection of the urine, both of the day and of the night, has shown that although it contains much mucus it is free of pus. It is therefore simply *catarrhus vesicæ*.

" January 16, Hôtel Dieu. The operation is performed above the pubis after Frère Côme's method. The incision in the *linea alba* is 3 to 4 inches long; before the bladder was opened all the urine escaped; it is, however, opened without damage to the *peritoneum*. The muscles had to be severed across and aslant on account of the contraction; the incision in the *perineum* was performed along the middle of the *rapha*. The

extraction of the stone was very difficult, as the bladder had totally collapsed and the stone's outer side adhered to it firmly. Two small pieces broke from the uppermost point; in the end a stone appeared of exceptional size, $3\frac{1}{2}$ inches in length with 3 flat surfaces; one being quite smooth was an indication of a second stone. This too was found and easily extracted; it was of the same size and shape and it was off this stone that the two small pieces had broken. The bladder was examined both with sound and finger and nothing further was found. Now followed the bandaging. A catheter was placed in the nethermost opening and held by a double T-bandage, as a passage for urine. In the upper wound a small piece of frayed linen is placed. Over this a strip of gauzy bandage smeared with wax, wads of linen and cotton threads,[1] pads, etc. The patient is put to bed with chest up, knees drawn so as not to strain the abdominal muscles. A venesection in an hour's time and strict diet is prescribed to avoid severe inflammation. The venesection to be repeated if the pain becomes severe.

[1] The threads used to be drawn out of old linen and cotton articles, and sent to the Hospitals for such purposes as sterilized wads of cotton wool are now employed.

" The stones weighed 12 ounces. The smooth surfaces suggest that they have from time to time changed their relative position. On one we saw distinct traces of an adhesion to the bladder.

" January 19, Hôtel Dieu. The patient died. An hour after the operation there was difficulty in breathing, three ' palettes '[1] of blood were taken. During the day he was peaceful ; urine was evacuated by the cannula, he received injections of decoct. alth. and others, and soothing drinks were given him. In the evening he had two applications of twenty-five leeches each in the region of the kidneys. The night was peaceful too. Sunday morning he felt well ; his eyes were clear, his breathing full and his abdomen soft. He complained of a gnawing pain in the stomach, which he ascribed to hunger, and begged for food ; a few spoonfulls of broth were given him ; the pulse was frequent. Towards noon feverish shiverings ; the abdomen becomes painful, his appearance bad, his breathing difficult, his pulse very frequent, twenty-five leeches are placed on the abdomen. At the evening visit he already appeared moribund ; a palette of blood was drawn with the order that

[1] A " palette "=4 ounces.

it should be repeated every three hours. This, however, was not necessary, for at eleven he died.

" The corpse was opened. Upon opening the abdomen they find a considerable quantity of thin, watery pus, as a consequence of the severe peritonitis ; the *peritoneum* near the pubis is suffused with blood, but it is entire and has not been damaged in the least by the operation. The intestines appeared to me to be here and there inflamed. The bladder is small, but shows no other peculiarity. The right kidney is enlarged ; upon being opened it is found to be very wide ; it contains much urine and so does the *ureter*, which is almost as wide as the small intestine ; this enlargement is caused by a calculus which has moved close to the bladder ; the remaining part of this kidney forms small nodules. The left kidney contains coralline stones ; these are firmly attached to the walls, since the substance of the kidney has grown into the crystalline excrescences ; there are three principal ones, which are connected by articulations. In this left kidney there is also a small pocket of pus.

" The patient, therefore, died of *péritonite suraigue*, which within twelve hours developed into fatal pyæmia.

"The condition of the kidneys was not the cause of death, but would have ended his life in a short time. The chest and other organs were healthy."

We find a few more records of cases of lithotomy. One is successful, and after nine weeks the patient is dismissed with vesical catarrh as a souvenir of his sufferings. We also find the record of an operation for *calculus urethræ* with fatal result. Further of two children who underwent operations for lithotomy.

There are several notes concerning the treatment of fractures in Dupuytren's clinic. I give one case verbatim.

"A fracture of the forearm is set and tightly bound. Gangrene ensued. Along the entire area nodules are formed, so that the muscles are exposed and stand out; also the sinews are showing and the pain is severe. As the patient, a female, is young and healthy, Dupuytren hopes to save the arm. Others had previously claimed that this was the objection to Desault's bandage, but it is Dupuytren's first opportunity of

observing it." Ten days later we read: "The young woman with the fractured forearm has fever, with difficulty in breathing. Two blood-lettings with soothing drinks and leeches on the painful place have improved matters. There is now little or no pain, but still difficulty of breathing, and amenorrhœa; leeches are, therefore, applied to the genitals. . . . (Following day.) The leeches have had a good effect; menstruation has been resumed and her breathing is full; the fracture, however, is now exposed and necrotized; one fragment of 5 inches in length of the *ulna* has already been extracted and another of the *radius* will follow; the arm can, therefore, not be saved, and they will either have to amputate or try to unite the sound ends so that a shortened arm may heal. (Four days later.) The girl with the broken forearm is in danger. The inflammation in the chest continues, notwithstanding four blood-lettings and four applications of leeches. This has made her very weak; a vesicatorium which now appeared to be indicated produced no result. The last two days she has had jaundice. Dupuytren is not sure if the inflammation is seated at the nethermost surface of the lung, or at the convex side of the liver. Local pains

have almost ceased, and now there is but a general *malaise*, such as is often observed towards the final stage of inflammation of the lungs. Sinapismi are now applied. . . . (Two days later.) The patient has already died. They find inflammation of the pleura and ' engorgement infl.' of the nethermost part of the right lung. Notwithstanding the most perfect antiphlogistic treatment, begun at a very early stage, they have not been able to fight this inflammation."

We constantly come across such records. We knew that infection occurred very often, but I at least had no idea that it was as bad as appears from these cases. And even if the patient's life was saved, it lasted often many months before he could be dismissed as cured. The hospitals and homes for incurables of those days contained many chronic invalids, especially those who had undergone operations for fractures.

Tilanus and his friends did not make many notes about such invalids. The operations themselves absorbed all their enthusiasm.

Compound fractures were almost without exception infected. It is difficult to state the percentage of recovery, but we know that the death-rate was colossal. The terrifying vision of tetanus stood all too frequently by the side of that of infection. Now and then, however, all went well. Here is an example :

" A patient, from whom three weeks ago some necrotized pieces of bone had been extracted from the calf of his leg, is showing early symptoms of tetanus. He has difficulty in opening his mouth (although he has no physical defect), contraction of the thighs, etc. Dupuytren uses sudorifica ; air and light are excluded as much as possible, also opium is administered, but not as yet in a large dose. . . . (Ten days later.) The tetanus has been completely cured by enemata, purgatives, emetics, vesicatoria, etc. . . ."

But as I have stated before, this was a very great exception. Generally the patient died.

Although in those days stretching band-

ages were known, we find that they were but very sparingly used. Fractures of the *Collum femoris* were treated somewhat differently by Dupuytren, for we read in the diary :

" For these fractures Dupuytren does not use an apparatus for *extension continuelle*, which often is the cause of inflammation, severe pain, etc., and which sometimes produces displacement where the strength of the muscles exceeds that of the force applied. He therefore lets the leg rest on two splints which meet under the knee and slope, one to the heel, the other to the head of the femur. Two patients, who came in three months ago, have just been cured in this manner. The patient lies flat on his back, thigh and knee moderately drawn. The sloping splints are fixed by firm cushions which support the thigh, whereas a sheet drawn across the calf of the leg and fastened to the bed, keeps the leg in its place. . . ."

Also at the Hôpital de la Garde, where Larrey reigned, there are many fractures. We will quote an example of the treatment :

" A fracture of the *tibia* is set and Larrey's

own bandage without wooden splints is applied in the following manner : The leg is placed on a double sheet, reaching from the knee to below the foot, two rolls of straw, about 2 inches in diameter, are rolled into the two sides of the sheet ; the hollow below the calf is levelled with pads moistened with *Eau de Goulard* ; after this an 18-cornered bandage, also moistened, is firmly applied. Cushions filled with chaff are laid by the sides of the rolls of straw which are rolled up till they are close to the leg : everything is then fastened by three or four tapes ; the sheet is sewn together under the foot, which is supported by a simple stirrup made of a straight strip and which is fastened to the foot, which is previously wound round with narrow bandage. These are the principal items of Larrey's bandage ; on the upper side of the leg there are small pads so as to make a perfect fit. This bandage is very firm and very neat. It is not removed until after the fortieth day. If there is swelling, which afterwards subsides, the tapes are drawn tighter."

The notes about fractures do not give us much of importance. Fractures of the ribs

are treated with tight bandaging and rest. The appreciation of symptoms was then quite different from now ; for instance, when an injury to the head is accompanied by bleeding from the nose, no importance is attached to it. Here is, for instance, the case of a man who had fallen head foremost :

" There are no signs of contusion of the brain, but these may still appear ; the accident has its dangers, for owing to the contusion, he may easily have severe suppuration and gangrene ; there has been severe bleeding from both nostrils ; this, however, is of no importance."

The usual course of amputations is best illustrated by quoting another case from Tilanus's diary :

" A girl, twenty-three years, suffering from *tumor albus articulationis genu*, had her thigh amputated five or six weeks ago, but healing *per primam intentionem* is here very rare. The stump looked very well ; the flap covered it entirely and a clean perpendicular slit from which healthy pus flowed indicated a favourable cicatrization."

As far as I can judge I do not think there is any great difference between then and now, as to whether amputation was indicated, but as in Dupuytren's clinic they mostly dealt with compound fractures and the subsequent inflammatory conditions, this point is not easily decided. It is greatly to be regretted that in those days these great operations so often ended fatally through sepsis ; repeatedly I find in the diary the sentence : " the rapid breathing causes them to fear inflammation to which patients so often succumb a few days after the operation, especially when there is *serious* suppuration. . . ."

The treatment with venesection and leeches —perhaps too severely abandoned nowadays—then reigned supreme. Thus we read :

" (After an amputation below the knee.) The patient is fairly well, but his expression ' trop animé ' and his eye too bright ; if this continues a venesection will be ordered. Antispasmodica have been ordered and for food broth. The situation is becoming

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critical ; ¾ *palette* [1] of blood is taken with instructions to repeat this every three days. But if too much blood is drawn the patient becomes exhausted, and if the blood-letting is stopped the inflammation increases. . . ."

Especially in the Hospice de la Garde of Larrey we find most of the details of amputations after wounds and accidents, for to this hospital, which was still principally used for military patients, are sent almost all cases of wounds and such like. Larrey, the great War surgeon, was considered even in peace-time the best man for this work. The chapter " Vulnera " is here the most important.

Sword and bullet wounds, cases of patients that have been run over or trampled on, compound fractures, all are gathered here. I will quote a portion of the history of the case of a man who received a blow on the knee with a sabre, by which the head of the fibula has been cut off.

" There is a gap of a quarter inch, and

[1] ¾ palette=3 ounces.

it is feared that it will be necessary to extirpate the severed portion ; meanwhile the wound is simply bound up without strong stitches. . . . (Two days later.) The extirpation of the head of the *fibula* is necessary. . . . (Following day.) Dead ! Though the nervous fits, which had set in, had somewhat diminished by the dilatation of the wound and the severance of the *Nervus Saphenus*, his condition has grown worse through *fièvre traumatique*. Post-mortem : Small pieces of the splint-bone are discovered in the wound, which on being dilated shows that the sabre has opened the articulation of the thigh bone and the *tibia* ; there is a gathering of ichor, the ligaments are destroyed, the heads of the bone show caries ; there is pus in the muscles, etc. Nothing abnormal in the abdomen, but the left lung has a pus-like covering though the body of the lung is sound. The scull has not yet been examined. Larrey is of opinion that the ichorous matter of the wound has found its way through the *venæ* to the brain and orders its examination. He declares that wounds in the joints of the lower limbs are much more dangerous than those of the upper limbs ; he proves this by stating that of the twenty upper arm extirpations nine-

teen have been healed, but that of seven or eight thigh-bones extirpated by himself only two were saved. Of all those extirpated by other Surgeons, but by his method, only one was cured. . . ."

Among other woundings which are mentioned there are two of sabre-cuts on the skull: one, which after five days developed erysipelas, to which the patient succumbs; finger wounds, where they try their utmost to save the finger. Also a case of a nose pierced by a fencing sword. This patient dies, and it is found that the *carotis interna* has been severed. Also a case of damage to the elbow which will heal but with *ankylosis*, and quite a number of other cases.

A considerable portion of the surgical patients are cases of inguinal and femoral hernia. They are generally strangulated when they enter the wards. Especially at the Hôtel Dieu with Dupuytren one finds these cases. I will select the most important from the histories of a dozen cases.

First of all a thorough attempt was made by taxis in a warm bath and no *hernia incarcerata* was operated on until there were serious intestinal symptoms. Even when the operation was decided upon, the appearance of the gut was earnestly considered with a view to the possibility or otherwise of a replacement into the abdominal cavity. If there were extensive growths and adhesions, then the replacement after removal of these adhesions was considered dangerous. The gut was then opened and the wound filled with lint of cotton and linen threads (see note p. 42). A long process of healing then followed, the wound closing by granulation and the passage of the intestinal canal re-establishing itself. These open wounds, always suppurating to a greater or lesser degree, cost many lives. And even when the operation resulted in a perfectly smooth replacement, there followed but too often peritonitis and its consequences. Then the " rows of leeches arranged in military order " were futile. The sufferer was hopelessly lost. A few examples from the diary :

" January 16. . . . Dupuytren gives an account of three *herniæ incarceratæ* which had occurred that week. A long-standing *hernia inguinalis*, which only contained epiploon, became strangulated by a violent movement of the body, and a portion of the *intestinum* shot into the hernia ; rigors indicated an operation ; the intestine was put back, though the net remained in the hernia. The patient is fairly well.

" A second had extremely serious rigors about two or three hours after strangulation, and would have had to undergo an operation had it not been possible to replace it in a very short time by means of blood-letting and warm baths. Dupuytren remarked that when considering the question of operating, one had to take into account not so much the time elapsed, as the nature of the strangulation, the constitution of the patient, etc. A third *hernia cruralis* was sufficiently released by a slanting incision of ½ inch, and the gut was easily pushed back, the patient lost about two spoonfuls of blood, but this had no ill effect. Dupuytren mentioned that the oblique incision is to be preferred, because the *vasa spermatica*, the wounding of which may have the most serious consequences, as also other vessels,

draw away from the knife when it meets them on the slant. He speaks of Scarpa's proposal to make an incision into the *processus* of the *fascia lata*, which is attached to the arcus, instead of the arcus itself, as '*une proposition infantile*.' Dupuytren has already operated on more than forty *hernia cruralis*."

I will follow on with a couple of *hernia* cases :

" A thin little man has had for a considerable time a *hernia inguinalis* in the right side, which slipped in easily, but was not supported by any truss. He came in yesterday with a strangulation five days old, no stool, colicky pains, hiccough, vomiting and retching. The earnest attempts to replace only resulted in making the abdomen more tense and painful. Was operated upon. The spermatic cord ran along the fore and outer side of the hernia ; the sac was thick and cartilaginous ; on opening it blood escaped ; the inner side was covered throughout with bleedings, as also the dark red gut ; the incarceration was not in the ring but in the neck of the sac. In order to remove this

incisions were made first in the ring and then in the neck. Some of the gut was drawn out and showed a weak spot, but no hole ; it withstood rubbing with the finger, and was therefore put back. Towards nightfall there is delirium ; the patient tears away the bandage and pulls fully a foot of gut out of the wound. Vomiting recurs, but ceases on the gut being put back. The abdomen is now tense and painful. Leeches and baths are prescribed. Dupuytren has observed this occurrence four times. An old man pulled out more than 5 feet and died of peritonitis. He therefore always applies a well-fitting spica, which in this case was evidently not properly attended to. The patient died on the following day."

Another case :

" A man of 62 came into the hospital. Has had for thirty years a *hernia inguinalis completa*, which was constantly going in and out, and always quite suddenly. Three days ago it suddenly came out and cannot go back. Vomiting ensued. After Monday no stool ; the ring is painful, the hernia the size of two small fists, the scrotum red and tense,

venesection and bath give no relief. The hernia is adherent as is shown by the going back '*en masse*.'

"A straight incision opens the skin; slowly the cellular tissue and hernial sac are dissected; at last a small thin jet of turbid yellowish liquid escapes from the gut, caused no doubt by its complete adhesion to the sac; the flow increases, a silver vaginal catheter is introduced which produces about 4 litres of liquid; the catheter is left in, is firmly fixed, a *linge fenêtre* with lint placed on the wound and loosely bandaged. The record of the operation mentions further:—The *annulus* felt hard and oblong; the incarceration therefore appeared to be caused by the neck of the sac; the cellular tissue formed on the sac was very abundant and had the appearance of omentum. Dupuytren diagnosed complete adhesion, since there was no fluctuation whatever, and, therefore, deliberately opened the gut.

"The patient was fairly comfortable the next day. On Friday the patient pulled the catheter out of the wound, and the flow ceased; pain, vomiting and other symptoms of peritonitis returned. Venesections were made, also a bath was given; the abdomen

is tense ; to-day evacuation per anus, vomiting and the pulse almost nil ; *facies collapsa hippocratica ;* abdomen swollen and tender ; no flow from the opening of the wound ; a bath, clysmata and injections into the opening are prescribed. If the patient had not pulled the catheter out, evacuation in the usual manner would have been restored, and the small opening would have closed at an early date. Now he is in a very precarious condition. . . . The patient dies.—Peritonitis."

Finally we will give the history of a case of *hernia umbilicalis incarcerata.*

" A woman, forty-five years, mother of few children, very stout and fat, and menstruating regularly, has a *hernia umbilicalis incarcerata adhaerens*, two inches above the outer navel. Two or three years ago she had some symptoms which suggested adhesion ; these showed themselves again six or seven days ago. During the last five days there has been no evacuation of fæces, but continual vomiting. The tumour is tender and quite three inches high with a circumference as large as a plate. It was therefore

decided to operate. Venesections and baths were given, for thirty hours she was without vomiting, and, therefore, fairly well yesterday morning; she even thought she noticed the passage of flatus through the hernia. Another bath is given, but this was followed by a vomit of a basinful of thin yellow offensive fæcal matter. Yesterday evening an operation was suggested to the patient, but refused; this morning, however, she gave her consent. A simple incision of fully a finger length above the navel gives access to the umbilical ring which is divided; as the *hernia* is adherent it is not put back. By this method the exposure of a large portion of the *peritoneum* and *omentum* is avoided, and with patients of great *embonpoint* this easily leads to gangrene. (Evening visit.) The woman feels better and has evacuated fæces. Dupuytren gives an account of the operation. On opening the sac he found it to be 'multilocular,' but a free communication between various parts. This caused him to hope that the strangulation confined itself to the umbilical ring; this was, therefore, divided twice. Thereupon followed renewal of rigors and evacuation of a large amount of fæces. At the evening visit she was fairly well; towards ten

o'clock the pain becomes worse, vomiting, hiccough, etc., return during the night, and towards morning she dies. They found inflammation of the *peritoneum* and pus in the hernial sac ; the large and the small intestine in the hernia, the latter healthy, but the former circularly strangulated and gangrenous. The peritonitis, therefore, probably existed at an earlier date, and its symptoms confused with those of strangulation."

A not insignificant portion of the operations is devoted to tumours. Every hard lump in the mammary gland is looked upon as cancer. When, however, we read the following : " Roux extirpates from one breast of a girl in her twenties, a scirrhus the size of a hen's egg, and from the other, one the size of a boy's marble " ; we are more inclined towards *fibromata mammæ* than to *carcinoma*, especially also when we read how easily these lumps were " shelled." The pressure-bandage after the operation was in those days evidently not yet appreciated, for to our surprise we find that the resulting cavities in

the mammæ were filled with lint.[1] Then, as always, followed suppuration !

In such cases as appear to be true cancer of the mammary gland, with large ulcerating tumours, swollen glands in the armpits, etc., surgeons were satisfied with the excision of the tumour. The axillary swellings were not treated, as these were considered to be symptomatic. But even so, by no means all these cases were operated.

" A woman of forty-five has an ulcerated carcinomatous swelling in the armpit and numerous scirrhi in the breasts and under the skin ; her complexion is typical of general *affectio-carcinomatosa*. She is sent away as incurable. . . ."

I now give an account of an operation :

" (Dupuytren.) Extirpation of *carcinoma mammæ*. A woman of sixty-five, with a pale yellowish face, has, during the last $2\frac{1}{2}$ years, a tumour in the left breast ; it is the size of a small fist, is hard, movable, and at one

[1] The wads of linen and cotton threads described at the foot of p. 42.

point protuberating and discoloured. She has suffered from pains in arms and legs long before the formation of the swelling; the axillary glands on the left side are swollen. Two oval incisions are made, the lower one first; the whole of the mammary gland shelled out; minor arteries are tied whilst operating; the tumour bursts partly, and a clear lymphatic fluid escapes: the patient faints and revives with difficulty. The wound is immediately stitched. The tumour is half the size of the entire gland, and is in three parts: one part is a *scirrhus*, one has degenerated into a *carcinoma*, and the third formed a cyst from which the fluid escaped. The prognosis is doubtful owing both to the age and the poor constitution of the patient; the axillary glands have not been removed, as their swelling is regarded as symptomatic. (Fourteen days later.) The woman is doing very well; the wound is rapidly healing. . . ."

This is, therefore, a case which evidently ended well, but in almost all other cases which I find recorded the erysipelatous inflammation around the wound becomes more and more severe, and the patient dies of the infection.

We will quote a few more forms of tumour :

" They find nowadays many carcinomatous swellings of the neck of the womb. These show themselves by the white fœtid flow and bleeding after coitus, fatigue, etc. The womb is destroyed, and death ensues. Cicuta,[1] opium, clysmata, etc., are given, but without success. Osiander proposed extirpation and performed it successfully. It does not always succeed ; of nine or ten who have undergone it seven or eight have a return of the disease after five to six months. Dupuytren knows a woman who has been free from recurrence for two years. Osiander drew four sutures through the *ostium uteri*, drew it towards him and cut it away. This method is decidedly to be deprecated. Dupuytren uses ' pinces a museaux,' then draws them towards him and cuts away the portion with curved scissors or curved bistoury. In order to keep the neck, thus operated upon, under treatment, Dr. Récamier has either invented, or brought back into use, a hollow tin cylinder or *cone allongé* which is easily introduced into the vagina and, as it were, contains the *ostium uteri*, which can easily be kept under observa-

[1] Hemlock.

tion. A lady was operated on by Dupuytren ; the upper labia was removed entirely, the lower one not quite ; this was then, by means of a speculum, treated with a causticum, composed of *nitras hydrargyri* and *acid. muriaticum*. The result was very good. Dupuytren, therefore, is of opinion that this treatment ensures safety from recurrence, but prefers to use *potassa caustica* to the above fluid caustic, since it causes far less irritation and practically no pain.

" A young woman who has had four children is now here. She has a *carcinoma* at the cervix of the uterus, probably in consequence of whites of a venereal origin. This tumour is, however, very soft and bleeding, so that extirpation is not feasible ; it is, therefore, treated solely with a causticum. This has already been done three times, and with a reduction of the tumour ; eight or ten applications will be necessary."

In another case the result is favourable owing to the youth of the patient. That the causticum has no ill effects is proved by the resumption in due time of the menstruation.

But also more serious operations for malig-

nant tumours were ventured upon. Tilanus was very much struck with a lower-jaw-resection for *carcinoma* and gives a detailed account of the operation from which we extract the following :

" This man is operated upon. The bone itself is affected, as is shown by a small piece, the thickness of a little finger, which has detached itself ; the two extremities are movable and there is a space between them. The first cicatrix is scirrhous and must be removed : the skin has an affected space the size of a 6-franc piece, but under the jaw-bone it is healthy. The cellular tissue around the place where the jaw bone is divided is in an unhealthy condition ; the glands are sound, the gums are thick and red, and swollen around the fragments ; the teeth are loose. Much phlegm and pus-like matter flows from the mouth. He can at the utmost live from 1 to 1½ years unless he undergoes an operation. The operation is decided upon, for it is not a dangerous one, neither on account of the parts which have to be dissected nor of the consequences. Blood-vessels can be tied or seared and the dissection of the bones is an easy matter.

The inflammation after the operation will not be so severe as to endanger the life of the patient. There will be deformity, for it will not be possible to join the two bone-extremities, and the wound will be slow to heal, but it will always be possible to give liquid food. He is young (thirty-nine), and his constitution '*sèche et saine*.' The operation, therefore, takes place. One incision divides the underlip and extends to the tongue-bone ; a second one, from the far side of the affected skin, joins the first incision under the chin. The flap of skin is removed, the jaw exposed and from both the sides of the gap a piece taken either by sawing until it reaches the sound bone, or broken off with bone nippers so that the distance between the two sides is now $2\frac{1}{2}$ inches, and the hindmost piece now is shortened to the basis of the *processus coronoideus*. The soft portions behind the jaw are also removed where unsound, and blood-vessels tied at the same time, etc. The operation was difficult, and took a considerable time, especially the sawing of the diseased bone, owing to inferior saws and to the absence of bone-nippers of suitable design. Lint is placed in the wound, the skin of the upper portion stitched to some extent, but

the lower portion is left open for the free flow of collected saliva, pus and mucus. . . . (Following day.) The patient feels very well ; he had a sound sleep. There is a slight discharge tinged with blood, but no pain or swelling of any importance ; drink has been given him with a syringe. . . . (Following day.) Yesterday morning the patient seemed very weak and prostrated. Dupuytren feared an internal inflammation, but found no symptoms and ascribed his condition to a dream with pollution. In the evening he was quite himself again. The wound looks well and suppurated moderately. Broth with rice and vermicelli, wine and water are prescribed. . . . (Five days later.) The patient feels very well, the wound suppurates well and is growing smaller. In two or three weeks it will be healed. . . . (Fourteen days later.) Died yesterday ! The last eight days he had *frissons*, but nowhere pain, however carefully he was examined. Great weakness. Dupuytren was in doubt if the cause of death was internal inflammation or simply weakness. The *frissons* and the experience of other surgeons point to the former, but there was no pain. The loss of saliva had caused exhaustion for some time. One hour before his death he bled

freely and lost 1½ palettes,[1] which hastened his death. The day before tonics were given which would do him good in case of weakness and would not harm him if there was inflammation. The post-mortem disclosed nothing of note in the abdomen, an inflammatory condition of both lungs, but according to Dupuytren not sufficient to have caused death. They will examine the brain. (The result is not recorded.) . . ."

Some other forms of cancer :

Cancer of the tongue is regarded as long as possible as a lesion of a syphilitic nature ; if an antiluetic treatment gave no relief, then, if at all extensive, the case was considered inoperable and, according to Tilanus, Dupuytren remarked : " After all, we cannot extirpate the entire tongue."

A few words about what were then called " erectile tumours " ; they were vascular swellings which were divided into veinous and arterial. They were also called sponge-swellings, since it was possible to slowly

[1] 6 ounces.

squeeze out all the fluid. Tilanus saw three : in the groin, on the forearm of a boy, and on the outer side of the knee of another boy. The operation was considered very difficult ; they feared serious loss of blood at the extirpation, and therefore the tying of the principal artery was always attempted in such cases.

With all inflammatory conditions, but especially in acute cases, leeches were used, as has been seen from the histories given. But I find mention of something which was repeatedly used, especially in the more chronic cases. I allude to the treatment with the so-called moxæ. These were small rods specially prepared chiefly of charcoal. They were lighted and they then burned on. While burning they were pressed to the body. It was evidently intended, by placing them around a chronic inflammation, to set up a counter-irritation.

I quote from a case in which they are applied :

" An onanist has brought upon himself

caries of the fifth costa : below this an oblong, fairly large cold tumour has formed '*per congestionem*,' and moxæ were placed around it. An iron ring on three short legs and a long handle in which the moxa is firmly held ; a large piece of wet linen covers the patient's back to protect it from flying sparks; an incision is made in the place where the moxa is to burn, a large sound is used to keep the moxa alive by blowing. After the burning the spot is washed with ammonia. . . .

" Moxæ chinois are grey rods of the thickness of an ordinary churchwarden pipe ; a quarter of an inch is broken off, lighted and pressed to the body. It continues to burn and causes a burn of about three-eighths of an inch in diameter. . . ."

Tilanus is evidently rather sceptical about them : for after attending a meeting of the *Société de Médecine* he writes :

" We listened to a lecture about the value of the moxa in cases of chronic inflammation of the respiratory organs, of *phthisis* and *hæmoptysis*. The lecturer reported a number of complete cures from the use of *one*

moxa ; there was, however, no mention made of the failures. . . ."

We herewith end the principal quotations from his visits to the surgical clinics. Many other cases are mentioned, but, as they are mostly sole instances, they do not afford a view of the methods which at that time were generally practised.

We will, however, follow them in their visits to other institutions where they held advanced classes in Medicine and Surgery. As they had only recently taken their degree, they were of course highly interested to watch the mode of teaching elsewhere.

The examinations were then—as now—public ; but in those days most of the students were also present, which for didactic reasons is perhaps an advantage.

Tilanus gives here and there a description of the course of these examinations, and it is often amusing to read how they went. Here are a few examples :

" Was present at an examination in Mat.

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Med. pharmac. chemistry. There are a row of bottles with various medicines, which form the subject of the questions. Five students are examined in a batch, and while one is being examined the others have to write down the ingredients and the preparation of some medicines, which are named by the examiners. . . .

"Was present at another examination. This time in pathology and nosology. Examiners, Dergenettes, Pinel, Lallement. Dergenettes comes first, questions in Latin: *Quid est febris ?* Answer : *Une maladie générale avec agitation du pouls, augmentation de chaleur et soif pendent* 8 *ou* 10 *heures.* Pinel interrogates another about *fièvre ataxique* ; and is very annoyed when the student uses the word '*Maligne.*' He talks nearly all the time and makes fun of the shyness and confusion of the 'victims' who either don't answer at all or give wrong answers. One, for instance, attempts to give the causes for *fièvre ataxique* and mentions excessive study as one. Pinel laughs at him, sneers at the want of study and jokes by saying that nowadays overwork is considered the cause of all illnesses from *calculus vesicæ* to *mania*, etc. The last one gives a correct answer to the question as to what the post-

mortem of this fever shows; he replies, infl. of the membr. arachn. gathering of *serosité* in the *ventriculi*, adding that the lungs are always healthy, but the heart sometimes '*flétri*' and that one finds ulceration in the mucous membrane of the intestinal channel, but especially near the cæcum. *Très bien!* Pinel keeps his audience in constant laughter; he not only accuses his examinandi of ignorance, but shouts at them for want of politeness if ever they interrupt him, etc., etc. . . ."

A degree-day.

"Witnessed a degree-day. The thesis propounded by the young doctor was: Cancer as an affection of the nervous system. All the professors are against this hypothesis. Chagrins with cancer patients proves nothing, for very often cancer is found with jolly people and those who take life easily. Its connection or interchange with epilepsy, etc., has not as yet been sufficiently examined . . ."

They did not visit the colleges much. Far and away the greater part of their time is spent in the clinics and the rest mostly utilized in viewing places of interest in

BÉCLARD

Paris. They attended repeatedly the meetings of the *Société de Médecine* (*fondé dans le sein de la faculté*).

Tilanus wrote :

" January 25, 1819. Larrey is in the chair. Books received are reported, etc. Dupuytren shows a man from whom he removed two years ago an aneurism at the upper end of the art. crur. The art. iliaca is underbound. The patient is completely cured and does not complain of cold or of loss of activity in the limb. Béclard [1] shows half a foot, amputated this morning in the *articulatio-tarso metatarsienne ;* the operation has been very neatly done ; the cartilages are undamaged ; the flap correctly rounded off. The cause for this operation was a round tumour the size of a small apple on the metatarsal bones. Béclard opens it and finds a gelatinous mass, which could easily have

[1] In another part of the diary I find that Tilanus attended a class where Béclard lectured on the anatomy of the eye. He is still young, only became professor last year, after having been *Chef des travaux anatomiques*. He speaks rapidly, but without fuss ; uses notes on which he has sketched his lecture. . . .

been removed from the perfectly sound underlying bones. A sample this of a mania for operating !

A case was read about a heart, where at the post-mortem the *ductus botalli* was open and a wide communication between the two bosoms, without there being *morbus cæruleus* during life. Not until six weeks before death was there any irregularity in the circulation, etc. The very rapid delivery of the lecturers makes it difficult to take in every word ; besides, the members chat continually while the lecture is going on.

" Another meeting. . . . Demours, who is in the chair, shows his instrument for *la phlébotomie dans le vide*. It consists of the bell of an ordinary cupping-glass, above which a leather box, through which a small brass rod, which at the lower end carries a lancet ; at the side is a tube to which the air-pump is screwed ; as soon as the air is extracted he pierces the raised skin with the lancet and obtains a jet of blood as from a small vein. By this method one obtains much more blood than by the ordinary cupping-glasses ; it is, therefore, much more suitable for local blood-letting."

" Dupuytren reports a case of *carcinoma colli uteri* cured by cauterization and requests

MARJOLIN

a pupil to read the paper. It contains nothing new. The woman was examined at the previous meeting by Marjolin, who has testified to the cicatrix. The woman is perfectly well and has no trouble either at coitus or at menstruation. Husson and others mention cases treated by Récamier in the same manner. One is cured; with the other the body of the womb was too seriously affected. Récamier used *nitras hydrargyri* instead of *potass. caust.*, but it is generally held that the latter is to be preferred principally because the action of the nitrate of mercury on the metal of the speculum develops so much heat that the speculum becomes very hot. Husson mentions a porcelain speculum and claims that it throws much more light into the vagina.

" Then a girl of thirteen is shown, treated for fracture of both legs and cured. A few months before, this child was buried under a fall of stone and soil, from which it extricated itself with great difficulty. The surgeon who saw her an hour later found luxation of both feet ; in the left leg both the *tibia* and the *fibula* showed through the flesh wounds ; in the right leg the *tibia* alone. Reduction he considered unfeasible, as in

his opinion the bone-ends, bared as they were of *periosteum* and covered with earth, could not survive. He, therefore, decides to resect ; he saws about 1½ inch from the ends, cleanses the wounds, places the feet in proper position and bandages. Venesection, diet, etc. There was collapse, severe swelling, pockets of pus, etc. ; general weakness was remedied with cinchona and food ; the healing began, continued and completed in four months, so that in four months the girl began to walk again. There is *anchylosis* of the left foot, but the movement of the right has been preserved ; there is some deformity owing to the increased size of the bone-ends and the scars of the flesh wounds are very marked. Curiously enough the left leg, where from both the shin bone and the splint bone pieces have been taken, is not only not shorter, but actually longer than the right leg where the splint bone was left intact. The pieces, sawn off, could not be shown ; these have been stolen (!) by people who blamed and maligned the surgeon for his treatment. . . .

A few days later we find our travellers visiting the Maternity clinic and the Found-

CHAUSSIER

ling Institute. Tilanus describes them as follows :

" After having called a few times in vain at the '*Maternité*' we found there to-day Professor Chaussier, house physician of the hospital, who politely allowed us to accompany him on his visit. This hospital is entirely separate from the Foundling Institute with which it was formerly combined, and is now used exclusively for the care of women during the last four weeks of their pregnancy, for the confinement and for the after-care. The first-named live in a separate part of the building, where the beds are placed in large wards ; they can do sewing and other work for the lingerie of the hospital and for which they are paid. For the confinements a couple of large rooms are set apart, where there are some ordinary small beds for the purpose ; the mattresses are very firm, so they don't sag, but beyond this no apparatus of any kind ; at the confinement the woman is placed across a small bed standing along the wall, supported by cushions and her feet on a couple of chairs. A certain Doctor X had just sent down to the Hospital a couple of complicated and useless labour chairs, which they will

experiment with to please him, but which they are convinced beforehand will not be a success. Two women are now in labour.

" The healthy mothers are taken to two galleries, which appear to be very well arranged. Here every woman is separate with a white curtain in front ; the beds are without sides and by each of them a cradle on a fixed stand. The mothers are allowed to keep their babies if they wish ; if not, they are taken at once to the Foundling Institute.

" The sick mothers are in other wards, each of which only has a few beds. At the moment there were few inmates ; a couple with erysipelas, etc. Puerperal fever is sometimes rampant, especially last winter. The infirmary for the prospective midwives is arranged in a similar manner. There are here annually between 2,000 and 3,000 confinements, most of them in the winter, when it is sometimes impossible to satisfy the demand. Then there are often twelve to fourteen confinements per day. Madame La Chapelle is *sage femme en chef :* she effects the most difficult confinements, so that Professor Dubois needs hardly ever come to her assistance. Under her there

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are other midwives, who, along with the pupils, attend to the straightforward confinements.

" From every district in France girls are sent here to be trained as midwives. Last year there were 105, of which all but 40 have left after the public meeting and prize-day which took place a couple of days ago. After the holidays new batches are expected. The tuition consists in two lectures weekly from Professor Dubois, daily lectures from the *sage femme en chef;* and repetitions in the various sections, with one of the advanced pupils appointed to conduct these. Most of these pupils are, both in dress and behaviour, very attractive. We were present at their midday meal, and so enjoyed the good fortune of which so much has been said by others.

" We also visited the very large lecture-room, the kitchens, the chapel, the very neat linen-closets, the well-arranged dispensary, etc.

" We then visited the Foundling Institute. We were shown through the building by one of the *Sœurs grises* who live here and undertake the care of the children. In the upper portion are a few intercommunicating rooms for sick children; every child lies

in a peculiar iron crib in the form of a cradle and covered with a white counterpane. The bedclothes and the garments are all very clean, but most of the infants look awful and at death's door. Below is the large hall, called '*la crèche*'; it is large and airy and has cribs at both sides. Here the healthy children are sent immediately after their arrival. At the moment there were barely 100 children in the Institute, as a great number had left the last few days. The children are kept here only five or six days, and are then given to foster mothers from outside the town. Some people called '*Meneurs*' are sent around by the Committee, to find a certain number of wet nurses per month, who, when examined and found satisfactory, are sent back each with a baby. Only a very few wet nurses are kept in the building for the ailing infants. The Committee provide for all the children thus sent into the country up to the age of twelve; they then give to each 50 francs and a suit of clothes, and if possible find work for them. At present they provide for 16,000 children. Every year 5,000 to 6,000 children are taken in; the daily minimum is twelve to fourteen. Near the entrance is a room with four cribs where children

are received by a *Sœur*. The lingerie is exceptionally nice ; the kitchen very cleanly, etc. . . ."

With this report I end the visit to Paris. I don't wish to refer to the many other matters, such as their visits to prisons, to water-supply stations, historical monuments, etc., as I wish to confine myself to such subjects as are of interest to the medical profession.

In conclusion I will, however, give his description of a visit to the Dutch Consul and to the Panorama, as they give an insight into the character of the diarist and strike a personal note.

" Went at ten o'clock in a cab to a ball given by the Dutch Consul Thuret on his invitation *pour passer la soirée*.

" You shake hands with host and hostess and then you stand or move where you will ; you can leave whenever it suits you without good-bye, etc. Brilliant rooms. Furniture very beautiful and costly, especially the chandeliers with all their candles burning. The staircase decorated with plants and

with baskets of lovely hothouse flowers. The dancing-floor was small—about 500 or 600 guests constantly entering and leaving the ballroom. Brilliant dresses of the Parisian ladies ; some beautiful women and young girls—also some old made-up hags. We moved through the rooms, all of which had two doors ; in one small room they played whist, and in the drawing-room there were two tables where some gambling game was going on. Between the dances refreshments were handed round. Some men wore knee breeches and openwork silk stockings through which their bare skin showed quite clearly ! About two o'clock I left, disgusted at the thought of having to spend every evening in such a manner ! Thuret is the son of a distiller of Hollands gin in Weesp ; has made a fortune in the West Indies, and married a Demerara girl. He is rather a dandy, lives in very great style, and very fond of showing off his wealth ! Hope he likes it ! His wife is rather sweet. . . ."

And then just this :

" Visited the Panorama of Amsterdam. The view taken from the Montelbaan tower at Amsterdam. The city is represented in its

winter garb covered with snow. The cloud-effect full of power and the whole very correct. These few moments here were delightful for, seeing this work of art, brought my thoughts back to the Amsterdam of my native country. This hour is one of the most enjoyable I have spent in Paris ! "

PART II

STRASBURG AND A WALKING TOUR THROUGH GERMANY

OUR travellers left Paris on June 23, 1819, and arrived in Strasburg in the early morning of July 8, by stage coach. Unfortunately the notes of that fortnight's journey have been mislaid. The arrival in Strasburg is described by Tilanus in the following words :

" We arrived in Strasburg at about half-past six in the morning and, on the advice of the guard of the coach, we took rooms at an inn called *Le Corbeau*, where we were received in a very polite and friendly manner. We straightway went to our rooms for a wash and then asked where we could find a bathing place. This was not far from our lodgings and situated at a wide and navigable stream which flows into the Rhine and is

called the ' Ill.' Somehow, though for no particular reason, we had no great expectations, and thought it was bound to compare unfavourably with the roomy, clean and well-arranged bathing places which we had so often visited in Paris ; but, when we arrived, we were immediately asked if we preferred it ' warm or cold.' As we had got hot travelling and as the weather was hot too, we had our baths cold and were requested to step down to the dressing-rooms. We came out thoroughly refreshed. . . .

" We visited the *Faculté de Médicine*. The collection of Natural History is in the University building, which is old and ugly and contains nothing remarkable. This collection has been housed in a top corridor. The specimens are not placed in show cases but stand on unpainted wooden shelves, and some of the large ones lie loose on the floor. In front of this is a rail, presumably to keep the visitors away from this valuable collection ! In addition to mammals and some birds in this corridor, there are a few small rooms with birds. They have very few insects, only a few cases of no importance against the wall of one of the small rooms. The mammals were not many in number, most of them were quite common,

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and, with very few exceptions, they were badly and unrealistically mounted. Of the monkeys only a few were worthy of note; there were good specimens of the *Ursus Americanus* and of a few other mammals. The remainder of the collection need not be mentioned. Among the Amphibia I saw a crocodile which was labelled Egyptian, but which appeared to me to have come from the Ganges.

" Minerals were piled on wooden pyramids. Here everything was topsy-turvy.

" There was no collection of *anatomia comparata* in the true sense of the word. It confined itself to a few skeletons of animals, some of which were very good. That of the *Ursus Americanus* deserves special mention, and among the skulls those of the *Elephas Africanus* and Hippopotamus.

" In the same building is also the collection of the Medical Faculty, consisting principally of pathologic-anatomical specimens. It is placed in a large room, with physical instruments in the centre. The arrangement and the classifications are much better than at the *École de Médicine* in Paris. The fluids in the bottles are fairly clean, and all bottles labelled in Latin; many desiccated specimens, especially of intestines, were kept on black shelves.

" Not many skeletons. Especially remarkable that of a *Syphiliticus*, where all the bones except the ossa nasi and the sternum, which as a rule are the first to suffer, were affected. Another remarkable skeleton was that of a child, probably a scrofulous one, with deformed limbs.

" I had no time to note everything, but I single out the following as the most remarkable: Among the specimens of *læsiones organorum digestionis:* 1st, a specimen of *ruptura œsophagi* caused by ulceration of the œsophagus 2nd, specimens of *carcinoma ventriculi*, both of which occurred in 1814—a disease, we were told, not rare in these parts. 3rd, a specimen of *hernia ventriculi* forcing its way through the diaphragm into the chest. 4th, many *calculi biliares*.

" The most successful pathological preparations of the *organa respiratoria* and *circulatoria* were: 1. Some specimens of *angina membranacea*. This polypous concretion was plainly visible in the trachea which was laid open. One was that of an adult where it had grown into the bronchi. 2. A *phthisis laryngea* where the ulceration had penetrated into the bronchi. 3. A partial ossification of the pleura. 4. The same disease in several *arteria aortæ*. In one of

them the entire *arcus aortæ* was ossified. 5. Several *aneurysmata cordis et arteriarum*. To the *læsiones organorum sensualium* belong several fine neurologic preparations. 1. *Oculi ossificati neuro-optico-atrophico*. 2. An *ulcus thalamorum nervorum opticorum e læsa oculi functione*.

" Among the *aberrationes organorum genitalium* and kindred diseases, such as *graviditas* and *conceptio*, the most remarkable were: Of the male there were but few hydrocele, one of a terrible size. Far more numerous, however, were the female specimens of the lesions of these parts and their functions. Here we found: 1. A vagina and uterus duplex, already described by Eisermann. 2. Several very large ovaria of *hydropicæ*. 3. Two conceptions in the ovarium and the Fallopian tube, with the fœtus plainly visible. 4. A false conception in the ovarium showing a piece of bone with some molars. 5. A uterus gravidus with a monstrous fœtus. 6. A placenta full of hydatids, similar to that described and illustrated by Weisberg. 7. Many different monster fœtuses.

" In addition we found there many specimens of diseased bones, especially one showing a considerable *concrementum osseum* between the lamella of the dura mater.

Specially fine was a dissolved head, which had been used by our compatriot Albinus at his lectures, and from which his drawings had been made. It had been presented by him to Gaudius, then got into private hands, and eventually into the Strasburg Museum."

As regards the newly opened Botanical Garden we find the following notes :

" We then visited the recently opened Botanical Garden. It is of fair size and tastefully laid out. The plants are arranged in their orders according to the system which is in general use in France, and in front of each specimen is a square tin label hinged to a metal rod, with its name. . . ."

A considerable time was also spent in visiting clinics and some professors, among them Johann Friedrich Lobstein, the teacher of Goethe. From Tilanus's diary we read :

" At one end of the town is a large airy building standing in its own grounds, which serves as a hostel for the aged poor, and as a municipal infirmary and University Clinic ; a small portion is reserved for lunatics.

There are 1,100 inmates, chiefly poor persons, who are here on account of their bodily ailments or their age. They inhabit large plain wards, which, however, contain far too many beds. The same remark applies to the Hospital wards, for the Institution is evidently short of room. These two Departments are in the old portion of the building; a more recently built addition contains the peaceful lunatics; men and women are kept apart, but without any classification, and live in large plain rooms on the ground floor. A small promenade lined with lime-trees is set aside for them. Among the lunatics we found a professor, who, when he heard we were Dutchmen, spoke very enthusiastically about Holland, of which he had evidently got to know something from descriptions.

"At the back is the building of the University Clinic; it is handsome and efficiently arranged. The surgical division is in the hands of Professor Berot, whom we accompanied on his visit. This gentleman was very friendly and complained of having so few patients, since he had to be satisfied with what the doctors of the Municipal Hospital were pleased to send him. A couple of rooms for surgical cases only contained six or eight patients, among whom

an enormous sarcocele which reached far into the abdominal ring and caused considerable suffering. It was considered, and rightly so, to be inoperable. Also a rather large swelling in the muscles of the forearm, without any history of hurt or damage from outside. Berot confessed that he was ignorant of the nature of this case, but thought it to be an infiltration of the cellular tissue, which he hoped might be absorbed. Among the women there was a dartrous ulceration of the leg, which was noteworthy.

" Professor Flamant, a man of fifty, already grey, less affable than Berot, came to visit the in-patients and the women in childbed. As a matter of fact only the latter are under his care ; he was attending the in-patients only during the absence of Professor Coze.

" The in-patient department contains thirty-nine beds, divided into three rooms, and these were almost fully occupied. A large lying-in ward had fifteen beds ; there were but four inmates, including both the pregnant and the delivered.

" The visit was soon over and produced nothing of importance. When we got to another room Professor Flamant spoke about the treatment of some of the patients, among others of a syphilitica, who took internally

a solution of merc. subl. corr. which troubled her greatly ; he declared himself against the internal use of mercurial preparations on account of their harmful effect on the digestive organs, and prefers ointments as being more effective and less harmful ; he considers the skin as the principal seat of syphilis and ascribes to this the greater efficacy of external treatment, the more so as the difficulty of affecting the skin by internal remedies is generally recognized.

* * * * *

" Professor Lobstein, professor of pathological anatomy, whom we found in, was kind enough to show us some anatomical preparations in the anatomical amphitheatre. There was, however, nothing of interest. A small collection of poor physiological preparations with nothing of moment except the prepared nerves of the tongue. Also a heart with four branches from the *arcus*, where the *subclavia* most to the left went behind the other ; and finally a heart where the *arcus* of the *aorta* was split, and the *œsophagus* and *trachea* were situated in the split. We also had the pleasure of meeting Professor Lauth, who has but one eye ; he had been in Holland about forty years ago and had met several of the Leyden professors."

As for the town itself, although the young doctors admired its large squares and wide streets, they found it somewhat disappointing after their long stay in Paris ; and not only the town, but also its inhabitants. The women, whose dress compared unfavourably with the " loose and tasteful " dress of the Parisiennes, were not to their liking. Also the language was curious ; a mixture of French and bad German, principally the latter. From the walls of the city there was a glorious view of the country around ; which, however, they were not allowed to enjoy to the full as they were constantly being warned off by sentinels. Tilanus adds :

" We wanted to visit a café ! Generally speaking, the Strasburg cafés do not impress one favourably, especially from the outside. We found one, on the first floor, in the large square, and this seemed to us roomy and clean, but one must not look here for the brilliant and smart Paris cafés such as the *Café Corinthien*, or the *Mille Colonnes*, etc., where tobacco-smoking is strictly prohibited. Here this did not seem to be the case, for we found standing a small lamp and a few

cigars, such as one meets in Paris in the cigar shops. There was here, as in Paris, a large bar with liqueurs, etc., in which a girl, young but not pretty, made herself conspicuous."

They left Strasburg *via* the bridge over the Rhine, which Tilanus describes in the following manner :

" When we reached the Rhine we found we had to cross by the pontoon bridge, as the wide bridge to the right had been placed out of commission owing to the considerable damage it sustained during the late war, when the Germans sawed through its wooden pillars. On the bridge one was not allowed to remain in one's carriage, still less to smoke. The latter I discovered in a rather unpleasant manner. Quite ignorant of this restriction, I walked across the bridge thoroughly enjoying my morning pipe. Midway a Baden soldier shouted something I did not catch and I walked on, but I had barely crossed the bridge when a second soldier caught hold of me with one hand and with the other tried to get my pipe. I then understood that my pipe was the cause of the trouble ;

I resisted its capture and finally succeeded. In bad German he shouted at me that I was not allowed to smoke on a bridge of boats, and that if I did not halt he would knock me down with the butt-end of his gun. I need hardly say I obeyed! Then a second soldier arrived who took me to the guard-house, where a Sergeant referred the matter to the Colonel, at the same time giving a note to my escort stating the offence. The Colonel, however, was very polite; he asked me if I had smoked, and to this I confessed, stating that as a stranger I was completely ignorant of the regulation. Upon this I was released; very pleased that we could continue our journey and that we had only lost a little time over the incident. . . ."

We next meet our friends at Tübingen. They had walked the whole way *via* Griesbach and Freudenstadt and arrived at the old German University town on the evening of the fourth day. Tilanus made voluminous notes of the intense enjoyment of this trip, but as it is almost unchanged at the present time, I will only quote a few words, written in the rather stilted style of those days:

" Our guide was a strong lad of fifteen who, to our astonishment, carried our rather heavy suitcase with great ease on his back in a kind of basket. Here we climbed the mountains for the first time and were so in ecstasy over the glorious view, that we continued our walk in excellent spirits and without feeling any fatigue. It was a calm evening, among the mountains a ghostly silence ; no other sound but the rushing of small becks and in the far distance the tinkling of cow-bells from cattle coming home down the slopes, with here and there a faint flicker from the huts on the mountain sides. . . .

" July 13. . . . We arrived at Tübingen at night at half-past ten, and, although it was very dark, it was light enough to discover that the houses were far from beautiful and the streets very cobbly and difficult. The gates were already closed, though by no means hermetically. A man we met in the street conducted us to the *Lion*, where we had sent our luggage from Freudenstadt the night before. . . .

" Next morning. . . . We soon saw that we had not been mistaken in our impression of the town, for we could hardly find a fine house. The streets were dirty and very

uneven and tiring. Mr. Schmidt showed us the Library. For this Library and for the Museum of Anatomical Specimens and of Natural History spacious rooms in the old Castle had been adapted; especially for the Library had been taken a very fine room, which had only just been finished, so that they were very busy placing the books on the shelves. This room had a gallery which was also intended for storing books. The simplicity and good taste of this room made it look very handsome. We were told that they possessed 50,000 books, but that the medical section was rather poor. We saw casually very good lithographic plates of the muscles, copied from the great work of the Great Albinus.

" We then saw the collection of anatomical specimens and of natural history. The two rooms, though smaller than the previous one, appeared to be sufficient for the purpose, since, with a very few exceptions, there was nothing of merit. The collection had in the past been neglected, or rather it hardly existed since Professor Authenrieth, the first lecturer on Anatomy, was kept too busy with the clinic and with surgery. Professor Froriep, who succeeded him, had his own collection and did not trouble himself about that of

the University, whereas the present professor, Emmert, had experimented so frequently upon himself in the cause of toxicology that for the last two years he has been in bad health. The prosector, Braun, too, was fully occupied with taking duty for Professor Emmert, and complained of the want of assistants. Of natural history there was formerly nothing at all, and only about seven years ago, when the University was enlarged, had they begun a collection to which the King added by buying last year at Heidelberg for 9,000 gulden a small collection of birds which he presented to the University. . . .

" Nothing of any importance in this section in mammals, birds, fishes or insects, and I will only mention as a curiosity some Japanese beetles made of brass which were excellent imitations. . . .

" All these animals stand there without any classification, so that one hardly knows where to begin or to end ; here and there some are named but the greater portion are not. . . .

" The human preparations, physiological and pathological, are also unimportant. The best were a few skulls of cretins, about a dozen rachitic skeletons, and some bones affected by *caries* and *necrosis*. Bones with

wrongly set fractures, a fine *hydrops ovario*, a few calculi and a preparation of an *aneurysma arteriæ aortæ descendentis*, in which the artery had burst and the burst was visible. But even these preparations had not been kept clean. . . .

" In the meantime we had made the acquaintance of Professor Schiebler, who kindly offered to take us after the midday meal to the University Gardens and to show us round. . . . It is situated near the city walls a few minutes' walk outside the gates. About a year ago the garden had been laid out afresh in the English style. Professor Schiebler had kept the various orders together, as is usual in France, and took trouble to teach his pupils the System of Linnæus. The names of the orders were painted on wooden strips, but those of the genera and species were only written on slips of paper pasted to bits of lead which were attached to wooden sticks. The hothouses appeared to be well arranged : one was for plants which live in a high temperature and was viewed by walking around it ; the others were similarly arranged, but were ordinary greenhouses and conservatories. Near these houses is a place for lectures in botany. Nearby the professor had had dug four oblong beds,

which he had filled with lumps of stone from the mountain (which appeared to be chiefly granite), so that they looked like rocky ground. In these he grows some of the principal alpines, which according to him do very well there. . . .

"We then called on Professor Authenrieth, who lives in the building of the clinic, in order to become acquainted with its arrangements and to see the building. We had called there before, and found to our disappointment that this great professor, whom his own colleagues describe as the ornament of the Tübingen University, was out of town. He was still away, but we were received in a most affable manner by his son, who is a medical student. He allowed us to see everything in connection with the clinic and then showed us into his father's library and study. We found it liberally provided with books ; but we cannot refrain from remarking that there were hardly any French books, or at least not by recent authorities. Young Authenrieth gave us from his small collection a few granite crystals and varieties of marble, such as are most common in the Kingdom of Würtemberg. We also saw Mrs. Authenrieth, who received us very politely. We had already

noticed on previous occasions that in Tübingen it is not the custom—as with us at home —to offer chairs to visitors ; they only say ' Legen Sie ab, meine Herren,' upon which one deposits one's hat on a neighbouring chair or table. This was also here the case, so that after we had stood talking a few minutes we went home, leaving all that was still to be seen to the morrow. . . ."

I will now quote fairly fully from Tilanus's notes concerning the clinic itself :

" This building has only been a clinic for a few years ; it was adapted under the guidance of Professor Authenrieth. The situation is both agreeable and healthy, being on the banks of the Neckar. The two principal floors are for the patients ; on the ground floor the maternity cases, both the pregnant and those in childbed ; on the first floor the surgical cases. Other indoor patients are not admitted, as the clinic is too small, since it has but fifty beds. Clinical teaching is, however, not neglected. From ten to twelve out-patients are admitted, who are examined and for whom medicines are prescribed. Those who cannot attend

are visited between ten and eleven by the students, who report at once and who have prescriptions prepared for their patients between eleven and twelve.

" The rooms are all quite small and can only hold four beds, which are made of iron, at least those on the upper floor. Every bed has its mattresses, a blanket and a sheet ; this also applies to those for the pregnant woman, but as soon as they are delivered they receive a plumeau,[1] such as we saw there. In every room is an apparatus for purifying the air. Two iron tubes, one on either side of the fireplace, come up from below and end in the room, so that fresh air streams in. To draw off the foul air two similar tubes are placed in the corners of the room ; they go down below and are led into the flue of the chimney. I cannot pretend to be able to judge, but it appeared to me that, notwithstanding this apparatus, the air was very close, and in some cases fetid.

" Of the three rooms set aside for surgical cases, one was for eye-patients and painted green throughout. All the rooms are around a central one and also run into each other.

[1] An eiderdown quilt very lightly filled with a mass of feathers and thus having the appearance of a huge oblong cushion.

At the end of the surgical rooms is a small operating theatre. There is an operating table and a chair adapted for operations to the eye. This theatre is very well lighted.

"The principal patients were a man who had a lithotomy and one whose thigh had been amputated. There was also one who had a compound fracture of the leg, which was slung in a hammock.

"The ground floor was arranged in a similar manner. Also in this clinic the pregnant women work as long as they are able. These and the women in childbed are in separate rooms. After the delivery the women have feather beds and plumeaux, whereas the babies are placed in wooden cribs. As long as either mother or child are ailing they are kept in the Institution. When they do well, they leave in three weeks. The birth-chamber is a good and roomy one ; it not only contains a couple of beds, on which the woman rests during the first period of her travail but also a labour chair, on which she is placed during the final stage. This chair is the usual one with boards for the woman's feet, with handles and with a movable back ; the cushions are made of leather. The obstetrician sits on a low stool in front of the woman, between her legs.

" They have 70 to 100 confinements here per annum, most of them straightforward. Professor Georgÿ, who lectures on Surgery and Midwifery, told us that in three years they had only sixteen complicated deliveries.

" Finally I must mention the chamber where the corpses are taken for post-mortem. It is an ordinary little room. The corpse is, however, not finally abandoned, since, in order to guard against apparent death, strings are tied to the arms which are connected with a bell in the inspector's room, so that he would be warned by the slightest movement. The inspector told us that as yet it had never happened.

" Behind this mortuary was an ordinary room used by Professors Authenrieth and Georgÿ.

" On the top floor is a small room where formerly lunatics were placed, but now the Nosocomium no longer admits these and the room is used for patients in a raging delirium. It has a high window, and a stove, but with a wooden guard in front of both. To prevent the door being smashed in a fit of rage, it has a covering of wooden laths nailed slantwise across the door, so that when in a rage he bangs against them, he does not hurt himself badly, but still sufficiently to desist.

" July 14. As we were very anxious to be present at a class of a German professor we went at ten to the place where Professor Schiebler lectured on *physiologia plantarum*, and we were not sorry to have spent our time on the able treatment of this important subject. On the previous day we had seen the whole of the clinicum with the exception of the surgical and obstetrical instruments, and we therefore decided to visit Professor Georgÿ, who lectured on Surgery and Midwifery. Fortunately we found him in and very pleased to show us everything very fully. Some very good surgical instruments, made in Vienna, and also some obstetrical instruments, kept us so occupied that we were with the professor two full hours.

" After the midday meal we were introduced to the ' Museum,' the name given to some rooms where many students and also some professors congregated ; many newspapers and magazines were lying about ; there also was a billiard-room, so that there was occupation and amusement for one and all.

" The number of students in Tübingen is now between 600 and 700, of which about 120 study medicine.

During the last few years, owing to improved conditions, especially in clinical

tuition, the number has increased considerably; before that time there were only about thirty medical students. The prosperity of the town largely depends on these students and also on cattle-breeding. It is not difficult to single out a Tübingen student; not only do they dress very peculiarly, but having beards and moustachios, they look a wild lot; in fact, they resemble a band of robbers rather than students. We were told that to clothe themselves peculiarly was more common among the students of Tübingen than those of any other German University town. At the same time there was nothing but praise for their morality and general conduct, and if at any time disputes arise among them, they are settled by a tribunal called *Germania*, made up among the students themselves.

" We spent there a considerable time talking and smoking and then hurried home to make our notes of the day's experience.

" We had hardly been home an hour and were still busy writing when we heard a great noise on the stairs, and two of our Utrecht fellow-students burst into the room. They were Kok and Palthe, on their way to Switzerland, and you may imagine how delighted we were to see again two of our

Dutch friends after having spent more than seven months in France. We stayed together at our inn till about seven, when we all went to see the Tübingen students at their *turnen*. This *turnen* is a kind of gymnastic exercise, formerly very much in vogue at the German Universities, but now, we are told, almost confined to Tübingen. At the other Universities it has been abolished, as it became a practice to make political speeches on these occasions, and this was considered to have an evil influence on the minds of the students. This *turnen* took place on a large flat piece of ground a little distance from the town, and fenced round, so that the public were kept out. It was almost square and about 424 steps in circumference. In the middle stood a wooden shed for their clothes, which consisted of a short linen jacket and wide linen trousers ; here they changed and got ready. The exercises were very similar to those we had seen in Paris ; they climbed a high smooth pole, they jumped over a high string which was held in its place by two bags of sand, so that it fell if touched ever so slightly, etc., etc. There was also a stump to the top of which a very heavy block of wood was hinged and which the students had to knock down by throwing

sticks at it from a distance ; also a ditch for practising long jumping. About 120 students had joined this *turnen* club, but we were told that already several had retired from it as being too strenuous.

" They had as instructor a powerful well-proportioned *Turnmeister* called Voelker, who was a Doctor of Law, and who had come from Berlin at the urgent request of Tübingen to place the club on a proper footing. He was a pupil of the renowned Jain, and was considered in Tübingen to be absolutely indefatigable. He was also very popular.

" This *turnen* lasted from seven till sundown, and concluded with running down the place in single file and that seven times with their instructor at the head."

The following morning they travelled to Stuttgart, which they reached in the evening.

" We were not at all tired and went to the hotel, *The King of England*, where a good meal was very welcome."

Stuttgart, with its beautiful situation and glorious surroundings, was much admired by them. They spent a long time in the

library, where they were greatly interested in the collection of 5,200 Bibles printed in fifty-two different languages.

"We saw there a folio Bible printed in Holland by order of Tsar Peter the Great, in Dutch and Russian, in two adjoining columns. Also the collection of medical works was very considerable."

They also write about the great number of antiquities there, the prints, etc. They visited the Museum of Natural History, where they are struck by a collection of skeletons of the animals which formerly belonged to a menagerie in Stuttgart.

"The natural history collection which is kept at the Castle is quite interesting. It is not a large one, but during the last few years several good skeletons and stuffed animals have been added. These belonged to the menagerie of the late King, which was abolished by the present King on his accession owing to the great expense attached to it, and which was very much resented, since, for instance, there were three elephants

who received daily several pounds of rice, whereas there were a great number of poor inhabitants who had to leave the country for want of food.

" In the old Castle are two rooms with natural history objects and rarities. The first room is in the roof, very high, and contains the anatomical objects which principally belong to Comparative Anatomy. Generally speaking they are not well arranged nor kept clean ; this refers especially to those kept in spirits of wine.

" In this collection were a few specimens of unnatural birth ; one was quite remarkable ; it was of two children so united that the skulls formed practically one mass, with the one skull at right angles to the other. All the other limbs had their normal shape.

" Another very curious object was a dead fœtus in the Fallopian tube and preserved in spirits of wine. It was of remarkable size. It had been retained in the tuba fallop. for forty-six years ; and its history is that the woman has subsequently given birth to two children and lived to ninety-six years of age. (Further details. When pregnancy had run its full course and labour-pains had set in, a quack gave her a powder which it is

supposed caused a rupture of the uterus. After this she enjoyed good health and menstruation continued regularly. At her death a round bony tumour was found in the belly, which a surgeon opened with a hatchet. The translation of the Latin description is as follows : *and then, when the two halves were completely severed, there appeared a dead fœtus of the male gender and which had attained its full development. It was not in a state of dissolution, but was of a blueish corpse-like hue, which, according to the report of the clergyman present, had in parts changed into a brownish tint as of smoked beef, whereas the surgeon himself states that even in its hardened condition it looked still fresh and in all respects like a fœtus recently dead. The umbilical cord was fixed to the bony casing.*) In 1732 this extraordinary object was sent to Paris for examination, and in 1740 an account of this strange affair was published in Tübingen, entitled Diss. de Fœtus 46 annorum, by G. F. Orth."

From Stuttgart they went to Heidelberg via Wildbad, Baden-Baden and Carlsruhe. Baden-Baden was evidently then already a favourite health-resort, for Tilanus writes :

" They have not failed to add to the beauties and delights with which Nature has endowed this lovely spot, the attractions of art and luxury, so as to provide a pastime to the swarm of rich idlers who come here to take the waters. There certainly was no scarcity of visitors ; the hotels and lodging-houses were almost completely full, and the printed lists of arrivals showed nearly 3,000 since the first of May. We had not the time to stay long enough to enjoy the beautiful environs, and had to be satisfied with one day, after which we continued our journey to Carlsruhe. We are in *The Golden Dragon* and are fairly well treated, though owing to the great influx of visitors it is rather dear."

There was evidently much political talk at their hotel in the evening, for the diary reads :

" We were often amused at the conversations, principally political, of the hotel guests and others ; on this occasion they discussed the Sessions in Baden and the many arrests which were made throughout Germany, which showed us clearly how little content-

ment there was at present among the German population.

"We had thoroughly enjoyed our stay in this town, and when we had eaten our midday meal we took leave from our new acquaintances, from our fat and hospitable host and his willing head waiter Fritz, and started our journey to the place of our desire, the celebrated Heidelberg."

I will give here an extract of his description of the last portion of that journey.

"(Leaving Carlsruhe.) We left by the Durlach Gate and straightway entered the beautiful avenue of old high poplars, which runs in a straight line to Durlach, which lies at rather less than an hour's distance from Carlsruhe. Whilst sauntering along smoking our pipes, we met two farmers, who were carrying two roedeer and a stag which they had shot. About half-way we found a fine inn with Ionic columns at the front and with statues on the terrace. In an hour we reached Durlach, where, at the gate we had to show our passes and where a friendly sergeant offered us wine from a large tin bottle to quench our thirst.

The little town is rather pretty, but quite small, and the Castle is unimportant. From Durlach we went to the beautiful Weingarten, which we reached in about two hours and where we found excellent beer and a host who was very agreeable, and very fond of talking politics.

" The road was—like most of the roads in Germany which we knew so far—very good, and had fruit trees lining both sides ; the country, however, is rather flat. In three hours we reached Brücksal, where we meant to stay the night. It was almost eight o'clock before we entered the inn *zum Badischen Hof*. We had to hunt for it quite a long time, for this little town seems, as it were, filled with inns ; almost every house appears to be one. The number of inns in these neighbourhoods is extraordinary ; in the smallest villages there are three or four or even more. If one reckoned the population by the number of inns, it would be legion ! We had a wash and then sat down to a good supper with several other people, among whom we specially noticed an officer with a cruel face and a soft, drawling voice. We soon after went to bed, as we had to be up very early for our walk to Heidelberg. The next morning, July 24,

at five we were en route. The road was planted on both sides with well-grown walnut-trees, and on the left were fields filled with many different crops; we saw some with flax, others with hops, which gracefully wound itself round the tall poles. Near the town we cut across by a side path which led us into the centre of the town, quite near the inn *zum Carlskag*, where we intended to stay and where we were soon seated at the dinner table.

"That same evening we presented our letter of introduction at Professor Tiedemann's, who was not at home, so we had an enjoyable walk along the beautiful and fast flowing Neckar.

July 25. We again called on Professor Tiedemann, who sent word asking us to come to-morrow at twelve to see the Museum of Physiology and *anatomia comparata*, so we set out to see the town, which is beautifully situated in a valley along the Neckar, which rushes past noisily and is unnavigable owing to its shallow and rocky bottom. Sometimes, as in 1817, this river rises to an immense height to the level of several feet against the houses in the neighbouring villages. Heidelberg is fairly large and has some good wide streets. The houses are mostly built of

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wood and plastered over as is so often the case in Germany. It has 9,800 inhabitants. There are two principal squares, one the Parade-Platz, where the military revues are held and in which the University building —large but not handsome—is situated, and the Carls Platz at the east side of the town which is pleasingly planted with young trees. The chief building of the town is undoubtedly the University, to which twenty-nine ordinary and eleven extraordinary Professors are attached in addition to eleven private tutors.

" Of these numbers eight ordinary and one extraordinary professors and one private tutor belong to the Medical Faculty, which has sixty to seventy students, whereas the number of students at the University totals 600 to 700. The University institutions include a well-appointed library, a botanical garden which is small and not very good, collections of natural history objects and physical instruments, a chemical laboratory, an anatomy theatre, a sanatorium and whatever else belongs to a good University.

" The 26th July we spent in inspecting the scientific departments. At 10 a.m. we attended Professor Tiedemann's lecture. The subject was ' The Action of the Arteries.'

Their contraction we were told was not due to elasticity alone. This was proved by the new experiments of Parry ; if an artery is tied in two places and the intervening space is pricked, there is a jet of blood ; whereas if the same is done to an artery of a corpse, only a few drops of serous fluid appear, which proves that in the living artery there are two forces at work.

" Then at twelve, for his lectures last two hours, we made the professor's acquaintance. He was good enough to show us the principal objects in the collection of *anatomia humana* and *comparata*. We were no longer so surprised at the students themselves, though many wore the old German costùme and very many the red caps, which are almost exclusively worn by Heidelberg students. We also saw many, both at the lectures and in the streets, who had considerable scars on their faces caused by duelling, which is very much the fashion here."

The following is Tilanus's account of the Heidelberg Anatomical Museum :

" In the building where the chemical laboratory, the physical instruments, etc.,

are, some rooms have been arranged for anatomical preparations, and objects of Natural History. Passing through the lecture room we came into a large airy and very light room which is used as a dissecting room and is admirably suited to the purpose. Two fountains, placed in both corners of one of the walls, contribute much to this suitability. Out of this room one goes into another where the anatomical preparations of the human body are preserved, and which contains specimens both of diseased and of healthy conditions. This room is fairly large and so arranged that not only below but also above there is ample storage, which is reached by stairs at the sides, an arrangement which we have found in several institutions. The cases are of brown wax-polished wood, not very tastefully made, and here and there the glass in the doors is missing. As this collection is still in its infancy it is not very rich in specimens ; it has however been considerably increased by Professor Tiedemann, who has given to it many important specimens, especially of comparative anatomy, a section which had been improved very little by the late Professor Ackermann.

" Before all else I must mention the

collection of embryos and fœtuses, among the latter some very fine ones : also some very useful preparations of placentæ, which had been macerated, inflated, etc., and lastly some good preparations of reproductive organs, among which an excellent example of testicles kept to their natural size by a filling of mercury. Among the ' healthy ' objects there were some very good preparations of bone-development in the human embryo, very well prepared, some of them syringed with red liquid, which makes them very suitable for teaching. As to the remaining collection of dry bones, there is nothing of importance with the exception of a fine specimen of the bones of the ear. There were mounted skeletons, among which that of the notorious Schinderhannes, who was beheaded in Maintz and whose skeleton was brought to Heidelberg by Ackermann.

" Generally speaking, there were some very good red inflations, especially of the main arterial system, also of organs connected with digestion and many others, among which the active principles of smell and taste. The preparations of the eye were good, but not exceptional. Especially noteworthy, however, was a collection of brain preparations, all very fine, and among which

the cranium of an embryo, the one hæmispherium horizontally separated in which there is nothing but a filmy sac, the other hæmispherium left entire to show the smooth surface, on which there is as yet no trace of *gyri*, as are found with the more developed.

" That this collection has not been brought together as a collection only, but to provide sufficient examples for the education of the students, is proved by the preparations of nerves, which the professor showed us. These were beautifully made and comprised the nerves of the upper and lower limbs and those of the Great Cavities. All the nerves were very clearly shown in their relation to the adjacent limbs, arteries, muscles, etc.; all these preparations were preserved in a large tin-lined case filled with spirits of wine, with which they were all so thoroughly saturated that even the topmost could not perish. These nerve preparations had all been executed by the prosector, who seemed to be very learned and also clever with his hands, and who was just then occupied with the dissection of a guinea-pig.

" In the same place is also the collection of pathological preparations, some of them very important. The diseased bones were

not many, nor were they remarkable; a few crania with large holes caused by *fungi dura Matris*, and also a cranium terribly affected by syphilis, were the noteworthy features. Also a plaster cast of a curious head found in the Darmstadt Cemetery and the original of which is in that town. As we are going there I will refer to it later.

" Among the specimens of diseased pelves there were some which attracted our special attention; one especially where an enormous exostosis had practically filled the entire pelvis, leaving but a very trifling space between its foremost surface and the back of the *os pubis*. This exostosis had its origin in a fall on the sacrum; the woman became subsequently pregnant, was delivered by Cæsarian section, but died of the consequences. Whilst we were examining two deformed female skeletons the prosector informed us of a very important observation of Professor Ackermann, viz. that curvature of the spine does not necessarily mean a deformed pelvis when the lower limbs have their proper shape; that there is a far greater correlation between deformed lower limbs and a deformed pelvis, and that there will certainly be a deformed pelvis if there

is in addition curvature of the spine. The first skeleton showed this ; the lower limbs were well-shapen, and though the curvature of the spine was extreme, there was no deformity whatever in the pelvis. With the other, however, the lower limbs were deformed, and though there was no curvature of the spine the pelvis was considerably misshapen. We have confirmed this observation on later occasions.

" Besides these there were several other preparations of diseased conditions, such as *ventriculi* affected by *carcinoma*, also some where the walls were so thickened that they were almost cartilaginous. Further some heads in spirits which clearly showed the ravages of *carcinoma* in the softer tissues of the face. And also a portion of a *peritoneum* considerably covered with *tubercula*. There were tracheæ of children that had died of *Angina Membranacea*, and lastly some fine specimens such as a fœtus plainly visible in the *tuba fallopiana dextra*, a *uterus duplex* and a *uterus bicornis*.

" Next to this room came one exclusively devoted to comparative anatomy. Although somewhat larger, the cases and also the room itself were less well kept, notwithstanding the fact that the specimens are in no way

inferior, and that it owes everything to Professor Tiedemann himself.

" The collection of *Osteologia Comparata* was still in its infancy and contained very few specimens, so need not be dwelt upon. What pleased us very much, however, was an excellent array of preparations of brains and nerves from several classes of animals, and some very correctly—though not beautifully—imitated in wax. These are indeed of great value to the student and testify amply to the cleverness and the anatomical knowledge of the maker. This remark also applies to the nerve preparations of molluscs, insects, crustaceans, fishes, birds and mammals, all of which were beautifully prepared. The collection was in fact so arranged that it contained a sufficient number of specimens for the illustration of all the branches of anatomy.

" Professor Tiedemann drew our attention to the brains of an embryo without any convolutions, as a proof of the evolution which the embryo undergoes, and remarking that any check in this evolution may produce a monster. He also mentioned that the so-called corp. cavern. penis is no special tissue but a network of veins, which swell more or less.

" Another important remark made to us by the prosector was that the absorption of chyle did not begin immediately after its coming into contact with the bile, and not until the food-products had travelled a considerable distance in the intestines. According to him this is very plainly seen in the case of horses, the first 25 feet of the small intestine contain only secernating glands, and then only begin to appear the absorbing *villi*. The action of the bile on food in the first portion is but *chymification*."

I will now give an extract of his account of a visit to the clinicum at Heidelberg, not only because it gives one a good idea of an in-patient department of those days, but also because it differs sufficiently from the one at Tübingen to be recorded.

" Clinicum. Until a few years ago there only existed here a poor and inefficient *polyclinicum*, instituted by Ackermann. Now it is excellent, both as regards the building and the administration. The building stands in its own grounds, at the Neckar side of the town, is oblong and has three stories which all have a corridor along the entire length,

with wards on both sides. These wards are roomy and airy, and have but few beds, at the utmost eight. There is a ventilating tube in the outer wall which can be closed, and in the door opposite a square hole with a sliding panel.

" The surgical patients and the obstetrical division are on the top floor, with separate rooms for the pregnant, those in labour and those in childbed. The beds are open and made of wood, and the same in miniature for the babies. This division is under the care of Nägele, who has it kept exceedingly neat and clean—160 births per annum. The surgical division contains twenty-two beds. Downstairs is a very good operating room, where the light enters by a very high and wide window with large panes ; the light, in fact, is so strong as to almost dazzle one on entering : in the middle is the operating table or chair, and on both sides of it benches for the spectators. There is further a very good lecture room where excellent lectures are given.

" We attended here a surgical lecture by Professor Chelius on *carcinoma*. Diagnosis prognosis, etc., were treated as usual ; as regards the cure we noticed that Chelius was against all attempts at resolving a

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scirrhus, and in every case extirpated it at the earliest moment. This gave him good results, and he felt convinced that as long as there was a single *scirrhus* there was no general diathesis, and that when this occurred it was owing to the absorption of ichor formed by resolution.

"After the lecture Chelius very kindly took us with him on his round and drew our attention to some interesting patients. Professor Chelius is young and very affable, and gave a good deal of his time up to us. He has travelled much and appears to be a very able man. He often showed very correct judgment. He had been in Paris some time ago and we fully agreed in our opinions concerning the professors there; Larrey, for instance, he held in great esteem as regards his treatment of wounds, etc.; he also praised his cures with moxæ, but thought him quite unfit for the more delicate operations; a lithotomy which he performed in his presence would, he said, not bear criticism."

After this Tilanus gives an account of some of the patients which he saw on the round. I will quote some of them:

" A man of twenty-eight, born of healthy parents, had when two years old contracted elephantiasis of the right leg and foot. He was taken into the Clinicum, in November, 1818; the circumference of his leg at the ankle was then 22 Paris inches; his foot was of an enormous size as is shown by a gigantic slipper which then fitted him. The skin was scaly, in many places ulcerating, especially in the creases, and terribly fetid. Also his thigh was considerably swollen and his knee-cap more than double the usual size. Notwithstanding all this his general health was quite normal. They prescribed complete rest with extensive bandaging of the leg. (For this they required about 60 yards.) From time to time fairly strong purgatives were administered, with very little food; whereas his general drink was a *decoctum lignorum*, slightly modified. With this treatment the patient kept in good health, but the leg only diminished very slowly in thickness; its circumference is now 18 inches: the ulcerations have healed; at the sides the skin is already clear, but the front and the back of the leg still have thick scales which, however, are loosening. Also the foot is partly clear, the toes can again be distinguished, and the joints have retained their full mobility.

" After the healing of the ulcerations he had some congestion of the chest. Purgatives and low diet are continued. Once they tried a warm bath, which had, however, a bad effect ; it resulted in a serious outbreak of erysipelas with acute gastric attacks.

" An *abcessus per congestionem* of the back, with *caries* of the vertebræ, was treated with moxæ ; a symptomatic one in the groin would be opened with potass. caust.

" An amputation of the leg which had already taken place last December ; the closely clipped sutures had come away all but one ; there was now a small fistulous opening through which this last one would probably appear.

" A boy had his foot, which was affected with scrofulous caries, amputated after the method of Chopart. His frontal bone is also affected.

" In the room of eye-patients was a boy, whom it was vainly attempted to give an artificial pupil.

" A man of sixty-four, whose hand, affected with caries, had been amputated, died a few days ago with symptoms of metastasis to the brain, for which he had in vain been treated with vesicantia and synapismi. At the post-mortem they found a peculiar

hernia epiploica partly congenital, partly of later date.

" After visiting the Museum we attended the Zoology Class of Professor Tiedemann. He discussed the natural history of a horse, spoke about horse-breeding and the animal's economic utility ; this was followed by the history of bi-sexual mammals in general and seals in particular. The following day—July 27—was spent in a similar manner. First we visited Professor Nägele's class and made the acquaintance of this most charming man. We attended his lecture on the causes and consequences of unnatural presentations. The twisting of the umbilical cord, considered by some authors as one of the causes, he acquitted in toto, for according to him it occurred as often as not without any change in the presentation. As to consequences of unnatural presentations Professor Nägele has twice seen a child which was born doubled-up owing to an imprisoned arm, but considered these cases great rarities ; generally the consequences are inflammation, gangrene, rupture, etc. As to treatment, there must be turning for a head—or foot presentation. Erhard and Osiander have again started the former operation. D'Outrepont in Würzburg wrote a pamphlet in

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praise of it, but did not state how it was to be done ; he believes in this *culbute*, because one cannot feel the head in a downward position until seven weeks before parturition and because in cases of abortion the fœtus is always born feet foremost ; these statements, however, belong to those, which, as Shakespeare said, ' lie like truth.' The operation has been but rarely performed even by Osiander. Wigand advises turning by external manipulation. Nägele is inclined to believe that the idea is good, but that it would be extremely difficult to achieve.

" An extraordinary size of the fœtus is also reckoned among the many causes of a difficult parturition. Nägele says that this is extremely rare, and that he has never seen a child of 11 pounds. A few years ago an Austrian prince was born and reputed to have weighed $15\frac{1}{2}$ pounds ; he simply does not believe it, unless pounds for princes are different from those for other people. Enlarged liver, *hydrops ascites*, are possible causes of difficult childbirth. Nägele has seen a child, born with its abdomen burst, which lived for four days. Professor Nägele spoke without book or notes ; he came late, but was very quickly in his place and started

his lecture immediately after. We soon after had the pleasure of making his personal acquaintance; he received us most affably, and when he heard the name ' de Fremery ' he immediately remembered the article of my friend's father, Professor de Fremery, on a diseased female pelvis, and asked if he belonged to the same family. He also took us round the clinicum of midwifery and showed us his fine collection of obstetrical instruments.

" Coming to a newly-born infant, he drew our attention to the pressure which the left cheekbone had had to endure from the *promontorium ossii sacri* when in the first position, to the askew position of the head (or, in his words, ' der Kopf ist wind-schief ') and to the sideways position of the *caput succedaneum*. He asked us if Dutchmen still made so much of the mechanical aspect of childbirth, calculated arithmetically, as done by Van Solingen; he did not seem to think much of it, and told us of a Dutchman, Halbertsma, who, being a great mathematician, calculated the position of the fœtus from the size of the head and of the pelvis, but whose result differed entirely from the actual fact. Nägele did indeed seem to attach little value to the details of the *axis*,

the inclination, etc., of the pelvis, which are found in the handbooks, and which he considered to exist rather in the brains of the author than in nature. Leaving the umbilical cord untied and the so-called drawing-off of smallpox and other infections, advanced by Messner and Wolfart, and only recently praised again in another book, he considered not only ridiculous but dangerous. But such ideas are believed by the multitude, and a child of wealthy parents in Heidelberg had already bled to death, because the midwife believed in it and did not tie the cord.

" We saw in the collection of instruments several which we only knew from descriptions: the pelvimeter of Wigand has been in so far improved by Nägele that it is introduced by the thumb and the middle finger instead of the thumb and the first finger, thus necessitating the lengthening of the handles to 5 inches. The head scissors have been altered by Nägele so as to open by bringing the handles together, which enables the operator to use much more force, so that he need not confine himself to the *fontanella* and the dividing edges. He is strongly against abuse of instrumental delivery, e.g. Osiander's use of the forceps in 60 per cent. of his deliveries, and he com-

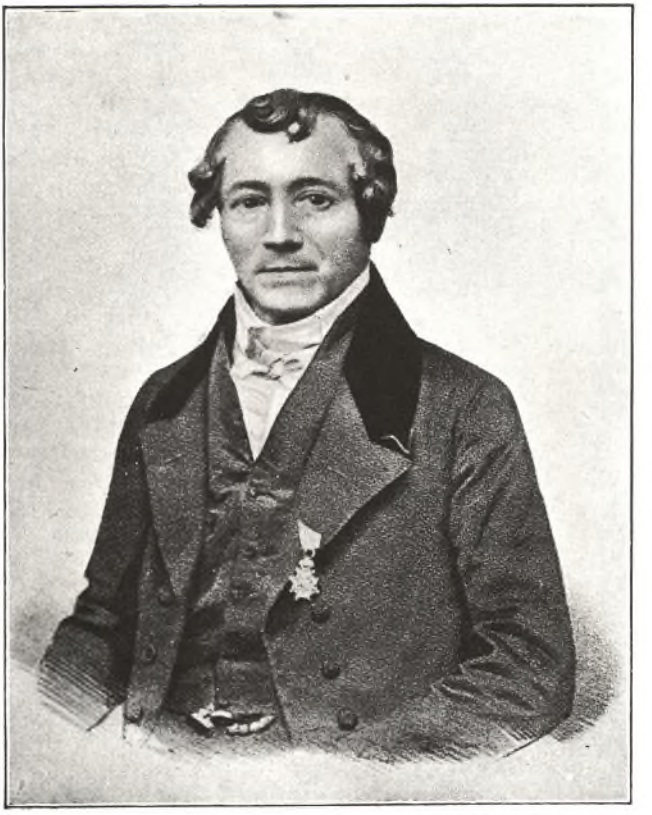
plains of the large number of rough and unskilled workers still to be found. A short time ago one of these bunglers, about fifty years of age, used the forceps without result in a case of slow labour; then, when the head was already beginning to appear, he still tried turning, with the result that, shortly after the woman was delivered, intestines escaped and both mother and child perished.

"We also saw the pelvis of a woman, who died after Cæsarean section, and where the conjugate diameter was barely $\frac{1}{4}$ inch. The woman had borne five children, and this malformation was due to arthritis; the pelvis was, as it were, folded backwards.

"Professor Nägele made an important observation, viz., that with a rachitic curvature of the spine, the pelvis is usually normal in shape, as long as there is no deformity of the lower limbs, and that *per contra* deformed lower limbs permits one to diagnose a deformed pelvis.[1]

"We then visited the clinic of Professor Conradi. Thirteen students foregathered in the auditorium; a few patients came to be examined, amongst others an old woman with a rather considerable swelling of the

[1] See also p. 128 and 129.



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neck, which Conradi regarded as of too long a standing to be curable ; he informed us that the powder of *Spongia usta* taken inwardly is almost a specific against this malady if used at the very commencement. We also saw a patient with a *Scirrhus ventriculi*, which could be plainly felt in the abdomen. The professor went the rounds of the beds, followed by the students, to whom he gave the necessary prescriptions."

I have now quoted the principal events of the visit to Heidelberg. Tilanus adds :

" That afternoon we said good-bye to Professor Tiedemann, who seemed to be sorry to lose us. Then we had our dinner and after that we made our farewell visit to Professor Chelius, who was not at home. We called on Professor Nägele, who showed us some obstetrical instruments and deformed pelves, gave each of us a reprint of one of his observations and took leave from us with the utmost cordiality."

The walking tour is continued, and the travellers arrive at Frankfort *via* Mannheim and Darmstadt. On this stretch nothing of

importance occurs, beyond the loss of Tilanus's diary in some small town; it is, however, recovered by the aid of the town-crier.

In Frankfort they visited, among many others, the Senckenberg Institution, which, as we know, has been considerably enlarged since those days, and even in 1919 gave signs of life to the outer world by offering a prize for the best essay on Cancer. Tilanus describes this institution as follows:

"Among the notable and useful institutions of Frankfort the Senckenberg Institute takes a high place. It stands at the City-walls at the end of the 'grosse Esschenheimer Gasse.' Joh. Christ. Senckenberg, doctor and physicist, left his entire fortune to the town, out of sheer kindness of heart, in order that this Institute might be founded for the well-being of mankind, his letter (which appeared in print in 1770) stating that two-thirds of the revenue of the capital was to be spent on the maintenance of old and ailing citizens irrespective of religious creed. The building occupies more than 100,000 square feet, and is situated in the

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highest portion of the town on a site where quiet and fresh air are of great value to the Institution. At the back of the garden is a roomy laundry. At one side of this laundry is the entrance to the Botanical Garden, which again leads to the former dwelling of Dr. Senckenberg, and at the other side is the entrance to the bleaching fields and to the anatomy hall. The hospital building is in good taste ; it is two stories high, but with a broken roof line. In the forecourt is a memorial to the generous Mr. Bethmann, who left a considerable legacy to the hospital, and also other memorials, and behind this the dwelling of the director, with a beautiful statue of Christ above the doorway, and the words : ' Come unto me, all ye that labour and are heavy laden, and I will give you rest.' We were then led by two easy staircases to two broad galleries along which are situated thirty-three rooms and a kitchen, and leading to two large halls, so that the patients can either be together or kept separate, and men and women entirely apart. There are at present forty-two in-patients, and we were told that the place was arranged for 150, and that now and then this number was reached. The above-mentioned anatomy hall is

also very well arranged and has a glass cupola. The collection of anatomical specimens, though in its infancy, has some very important pieces, among which those of Stein stood high in our esteem ; Dr. Crehtzmar, who showed us round, told us that Mayer's fine ornithological collection had been bought for 6,000 gulden (£500). The botanical garden, with its stoves and hothouses, also contained a fair collection of plants from various parts of the world. In a corner of the garden stands the Mausoleum of the Founder, and there he rests. A great pity that this noble benefactor of mankind did not live to see his Institute completed ! In 1772 he lost his life through a fall from a beam whilst he was inspecting the builders' work."

From Frankfort they walked *via* Friedberg to Giessen, where they witnessed a degree day. Tilanus describes this as follows :

" After we had rested at Friedberg in the shade of some trees we walked on to Giessen, which came into view rather sooner than we had expected. From a distance the town

looked rather pretty and the approach was improved by well-arranged walks around the town, new guard houses and some newly built residences, but we soon found that appearances are deceptive, and that in reality the planning of the town itself was no better than at Tübingen.

" The following day we spent in inspecting the University, which has now 240 students, among whom forty are medical. Luckily we noticed placards announcing a public degree-day this very morning, so we made inquiries. It began at ten o'clock and was heralded by a lengthy tolling of bells. In the University building we found a large hall on the first floor, arranged for the occasion. The platform and seats for professors and visitors were railed off from the space where the students had to remain standing. The beadle very kindly showed us to seats within the railing and gave us reprints of the theses. The reading and the defence occupied about two hours. Only the professors could oppose them and the candidate had to invite each of them in turn to do so. The professors did not wear their gowns ; some of them were not even in black. Professor Balzer opposed forcibly and apparently from conviction. Professor Wilbrand

refused to oppose, as he considered the *theses* to be perfectly true and correct. The remarks of the other professors were unimportant. The candidates had to thank each of the professors separately. Professor Wilbrand, as president, spoke a few words against the practice of doctors learning solely from experiments, addressed the candidate and made him take the oath on the University Sceptre, which was held up to him by the beadle. The candidate was then pronounced to be Doctor Med. Chir. et art. obstetr. There was nothing solemn about it. It was all done in German, both the defence of the thesis, and the reading by the Dean of the Faculty.

" We also visited some other institutions and called upon a couple of professors. Wilbrand and von Ritgen received us affably. Professor Wilbrand had formerly been ' pedagogue ' with van Nispen at Zevenaar (in Holland). He has now been nine years professor in anat., phys., bot., chem., Nat. hist., etc. He wrote an essay on the classification of animals, to which the prize was awarded at Haarlem. He showed us his collection of anatomical preparations with great politeness, but we had never seen a more miserable and decaying lot ; there was

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not a single fine example ; a collection of rubbish ! A few nerve preparations of molluscs were the best items. Wilbrand anticipated us by saying that he wasted no time in prettily arranging his collection (which nobody doubted.) Professor Wilbrand lectures on the entire organic world. He appeared to be a born natural philosopher ; every inch of him. He assured us that all organic beings from the lowest upwards seek the sunlight, an example we see in the caterpillar which attaches itself to some object and then changes itself into a butterfly to fly towards the sun. The same with man ; hence his erectness, which Camper and others wrongly seek to ascribe to the structure of his body. In fact, if the law of gravity did not keep him on the ground he would surely fly towards the sun. Also with plants. In the spring they appear out of the ground as soon as the power of the sun increases ; they move to meet the sun and would fly if they were not fastened to the soil ; in the autumn, on the other hand, they disappear because the sun has lost its warmth. *Per sapientiam insania !*

" We also saw the botanical garden, which is but small and has only one conservatory.

" Professor von Ritgen took us to the fine

and well arranged lying-in hospital, but had to leave us to look into a riot among the students. He, therefore, handed us over to the resident midwife. The house is outside the town and was newly built in 1814. It is square and detached and has three floors. The rooms for the pregnant, those in labour, and the delivered are duly separated ; everything is in splendid order. The women are examined by the students behind a curtain, in which is an opening for the student's arm ; also the labour chair is surrounded by curtains so as to hide the face and the upper part of the body. There are about 100 deliveries a year. Eight months are fixed for the tuition of the students, and four for that of the midwives. The latter live in the house, and receive, when they leave, a labour chair (a very unsuitable one), an enema syringe and a catheter.

" Next door to this hospital is the dwelling of Professor von Ritgen (Prof. art. obst.). On our return from this Maternity Home we heard that nearly all the students had left the town, as the commander of the garrison had called out the entire battalion and distributed ball-cartridges to prevent the students gathering in the streets. Some days ago there had already been trouble, which

was started by an officer boxing the ears of a student who had stared at him, at the same time refusing to fight him when satisfaction was demanded. This incident was followed by several little outbreaks between the soldiery and the students, on account of the Commander having dispersed all gatherings of students. This afternoon some soldiers patrolled the town for this purpose, whereupon the students foregathered outside the gate and left Giessen to move into an old castle, situated on a hill at an hour's distance from the town. The professors and the citizens seemed to side with the students, judging by the comments we overheard. They talked of lodging a complaint with the Ministry of War. Towards evening we heard that the Rector and one of the professors had gone to the Castle to induce the students to return and to discuss the matter; upon which the latter formulated the conditions of the satisfaction which they demanded. We heard afterwards that the Government had strongly disapproved of the Commander's conduct and forbidden him ever to call out the military against the students. Also the officer who had been the cause of the trouble was removed. Upon this the students returned on the following Tuesday.

" Sunday morning, August 8, before sunrise we left Giessen on our way to Marburg, which we reached at eleven."

The travellers only remained a very short time in Marburg in the old Electorate of Hessen. They paid a visit to the professors and then saw the sights of the town. The few remarks of Tilanus are the following :

" Here we made the acquaintance of the Professor of Anatomy and Surgery, Bünger, who received us most kindly. He told us of a nose, eaten away by sarcoma, which he re-shaped with skin from the thigh. The main flap was successful, but the nostrils eventually sloughed. He had then repeated the manipulation with skin from the arm, which up to now had gone well. A boy who had been kicked by a horse, and had his nose, a part of his cheek, and an eyelid torn off, had these parts neatly stitched again. In a fine collection of surgical instruments we saw here for the first time Graefe's instrument for giving a good shape to a new nose. Professor Bünger cures cataract by couching or reclination ; he is not in favour of extraction,

and says that even with extraction the *capsula lentis* does not always come away. Bünger believes in sutures made of gut, and thinks they are absorbed ; at least he noticed this in a calf (which he showed us) after tying the *carotis* and cutting the ends of the suture. He used these also in the case of a woman who had fallen on her knee and had a considerable extravasation and swelling. He further ligatured a fistula and amputated a thigh. During the first six months he has already had six amputations and the extirpation of a humerus on account of gangrene of the entire arm, all quite successfully.

" Among the eye cases is that of a girl he treated for cataract which has been absorbed all but a tiny spot. A cataracta membr. of an elderly man has been twice couched without effect, the two artificial pupils look quite well-shapen.

" We also inspected the fine anatomical collection and made the acquaintance of Professor Büsch. There we saw the slovenly Maternity Home and the rather insignificant section of veterinary surgery which are in his charge."

Following these Medical notes there is in

the diary a remark which gives an insight into the state of the country and is therefore worth repeating:

" The hotel proprietor told us that he was on the whole satisfied with the conditions of the Electorate which, according to him, were misjudged abroad. The taxes were the same as a hundred years ago and no higher than those in the neighbouring States of Nassau and Hessen-Darmstadt, and as to the Elector he could only be accused of ultra-conservatism and avarice. He does not squeeze the inhabitants to gratify his dissipations, as is done elsewhere; on the contrary, he is immensely rich and brings much money into circulation by his building of a new palace at Cassel, etc. But his mode of government is extremely despotic, as is shown by the way he levies recruits. The three towns of his domain, Cassel, Marburg and Hanau, are, by virtue of old charters, exempt from conscription, which, therefore, only oppresses the countryside; but the recruits are not raised by voluntary enlistment or by drawing lots; the Chief Constable of every district turns into soldiers (and that for the rest of their lives) all those whom *he* considers unsuitable for civilian

life, either on account of bad conduct or for any other reason."

From Marburg they walked to Cassel, and many pages of the diary are devoted to the description of Wilhelmshoehe and the magnificent waterworks. As these are outside the scope of this book I will only quote what Tilanus writes about the Museum.

" Professor Matsko showed us the Museum which was founded by Landgrave Frederick II and is situated on the Friedrichsplatz. Its façade is a handsome colonnade. In this museum is a mixture of all sorts of objects, rare and ordinary, beautiful and ugly. At first Professor Matsko was very affable and showed us a fine collection of physical instruments, drawing our special attention to very large convex-looking glasses, one made of glass and one of metal ; also to a magnet which carried a weight of 109 pounds.

" Coming to an electrifying machine he told us as a curiosity that when he was walking in the country with our learned compatriot Van Marum, a storm broke loose

with thunder and lightning, and to his surprise Van Marum became very frightened, which seemed all the stranger to him as electricity was Van Marum's speciality!

"He then showed us a collection of natural history objects, consisting of very fair birds, mostly German, a few mammals miserably mounted, but which nevertheless included an elephant, and a few very good bats.

"It was at this point that I am afraid we rubbed him up the wrong way by one of us saying that the birds were spoiled by their painted beaks and legs; for he then inquired sarcastically how they were done in Holland, and asked if we had seen a better and finer collection; and when we readily answered in the affirmative, the fat was in the fire, and whatever else we saw, he kept saying: 'But you will have seen better ones, I suppose!' We thought we had seen enough and thanked Professor Matsko for all the trouble he had taken, at the same time slipping two thaler [1] into his hand, which his Excellency did not refuse! Afterwards we heard that he had only a very small stipend, and had to depend somewhat on these gifts."

[1] A thaler equals 3 shillings.

C. SPRENGEL

On leaving Cassel they walked two days to the celebrated University town of Göttingen, where they met the great Professor Langenbeck, but unfortunately the Göttingen pages of the diary are missing.

They travelled through the Harz Mountains to Halle, about which Dr. Tilanus remarks :

" We contented ourselves with calling upon Professors Sprengel and Meckel with a view to seeing Meckel's anatomical collection. Professor Sprengel was in his garden and we recognized him at once by his well-known portrait. He is a genial little man, with his hair cut in the German way, and dressed very simply. He told us that he now confined himself entirely to gardening, which he thoroughly enjoyed, and which gave him ample work. He did not intend to occupy himself any more with the Medical Sciences, although he might possibly publish a ' literatura medica,' at which he had worked for many years.

" We enjoyed going through Professor Meckel's museum escorted by Dr. Schültze. This fine and large collection of anatomical specimens, human, comparative, and also of

diseased conditions, had been started by his grandfather, continued by his father and considerably added to by the present Professor. The grandfather was so greatly attached to his collection that in his will he stipulated that his own skeleton should be included, and to be marked No. 1. A pity we did not know this till afterwards; we would have liked to see it."

Here ends the diary as far as Medical Science is concerned.

Originally published by Garnstone Press (1925)
Original ISBN-10: 0-85409-953-0