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ROMAN OCULISTS'
MEDICINE STAMPS
AND COLLYRIA.

By C. J. S. THOMPSON, M.B.E.
(Curator of the Wellcome Historical
Medical Museum.)

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ROMAN OCULISTS' MEDICINE STAMPS AND COLLYRIA.

By C. J. S. THOMPSON, M.B.E. (*Curator of the
Wellcome Historical Medical Museum.*)

AMONG the many objects of interest to the pharmacist in the Wellcome Historical Medical Museum, the collection of medicine stamps used by the Roman eye-physicians from the first to the fourth century A.D. to impress the surface of their preparations, is well worth attention.

The ancient Romans may be said to have been the originators of proprietary medicines, and from the stamps or seals used for this purpose we know that one, Junianus, sold his "golden-yellow collyrium" for the eyes to the citizens of the Roman colony in the city of Bath nearly 1,800 years ago.

Collyria, a name which has come down to us for eye lotions at the present day, were preparations used for the eyes by the Romans for all affections of that organ. They were employed in both solid and liquid form, and several formulæ are recorded by early writers for their preparations.

The method of compounding is described by Celsus (ca A.D. 50), who directs that the drugs should be rubbed first to a fine powder; starch, gum, white of egg or milk was then to be added, and the whole made into a stiff paste and placed in its container and stamped with its seal.

When used in the form of a lotion, a small portion of the paste was mixed with rain water and applied to the eye as directed.

These preparations were generally associated with the name of the physician who had originated the formula, the colour, or the name of some great personage whom the preparation may have cured.

Among the Romans, diseases of the eyes appear to have been very common, in proof of which we may mention the numerous models of the human eye in clay that have been discovered that were used as votive offerings by those who suffered from eye troubles and visited the temples and springs to be healed. We know from contemporary writers that they suffered from ulceration of the eyelids, while inflammatory affections also appear to have been prevalent.

The Roman eye-physicians treated old cicatrices of the eyes with various collyria, their object being apparently to change their colour and make them less noticeable. These they classified as "concave" or "elevated." If they were concave they would use the Collyrium of Sphaerion or Asclepios, which was composed of laudanum, sagapentum, opoponax, verdigris, pepper, cadmium, lead and gum. For the elevated type they recommended the Smilion Collyrium, which contained cinnamon, acacia, cadmium, saffron, myrrh, opium, gum, white pepper, frankincense and copper. A collyrium called Hierax was considered as a very powerful application for affections of this kind. It consisted of myrrh, gum ammoniacum and verdigris.

Another collyrium mentioned by Celsus is that of Philo, which consisted of lead, spodium, gum and opium, while that of Dionysius contained dried opium, frankincense, gum and spodium. The formula of Nileus included opium, nard, gum, saffron and fresh rose leaves, which were to be mixed with water and used as a lotion.

Besides these the most common of all is said to have been the collyrium of Cythion or Tephron. This contained opium, lead oxide, litharge, acacia juice, gum, starch and tragacanth. The ingredients were directed to be bruised together and a small quantity mixed with rain water and applied to the eyes in all cases of inflammation or ophthalmia.

The Collyrium Dia-Libanou is recommended expressly for "ulcers generated from pustules." It was composed of calcined copper that was to be carefully washed, dried poppy-tears, spodium, frankincense, calcined antimony carefully washed, myrrh and gum.

In some diseases of the eyes accompanied by headache, the forehead was anointed with the collyrium of Andreas, which was composed of lead, antimony and litharge, boiled together in rain water. The ingredients were then to be mixed with gum and made into a paste with myrtle juice. This preparation is directed to be applied to the forehead, over which a starch poultice made with cold water (to which acacia juice or cypress was added) was to be placed.

For the same complaint some physicians recommended that the eyes should be anointed with the Diakeratos Collyrium, which was composed of copper scales, poppy-tears, and hartshorn (calcined and washed), together with lead, frankincense and gum.

In certain cases of eye inflammation the collyrium Caesarean was recommended. This was composed of white pepper, poppy-tears, cadmia, washed antimony

and gum. This collyrium, according to Celsus, is "admitted to be a proper remedy for all diseases of the eyes, except in those cases which require lenient applications."

The word Basilicon is well-known to pharmacists at the present time, and is perpetuated in the ointment of that name. There was also a collyrium Basilicon used by the Roman oculists, which was composed of poppy-tears, lead, Assian stone, white pepper, saffron, psoricum and gum. Psoricum was made by rubbing together a little chalcitis and cadmia with vinegar. It was then put inside an earthen vessel, covered over with fig leaves and deposited under ground. After twenty days these substances were taken up and bruised again and were known as Psoricum. The Basilicon collyrium was considered to be a proper remedy for all affections of the eyes which did not require mild medicines.

Many of the stamps used to label these preparations of the eye-physicians or oculists have been discovered from time to time on the sites of old Roman cities in England, France and Germany, and agree in their general characteristics. They are quadrilateral, oblong or circular objects generally made of green schist or steatite, and have inscriptions incised on one or more of their flat edges so that an impression could be made on the surface of the preparation after it had been placed in the container. They were also used to stamp the labels attached to liquid collyria.

A study of some of the interesting inscriptions throws a light on the pharmacy of the period. The Wellcome Historical Medical Museum contains twenty-three specimens, some original and other casts of stamps to be found in other institutions.

Some of the collyria appear to have achieved considerable fame, and Marcellus gives special praise to one called "Evodes," which, he states, "should be used by dissolving a small quantity in water and introducing it into the eye with a probe." Although he describes this about 379 A.D., curiously enough the actual stamp of the preparation has been discovered, and we find it bears the following inscriptions:—

THE EVODES OF LUCIUS VALLATINUS FOR CICATRICES
AND GRANULATIONS THE MILD CROCODES OF L.
VALLATINUS FOR AFFECTIONS (OF THE EYES).

An oculist's medicine stamp found at Bath in 1731 is inscribed:—

THE LEADEN MELINUM OR OCULIST'S YELLOW COLLYRIUM
OF T. JUNIANUS FOR CLEARNESS OF VISION.

Celsus tells us that the collyrium of Cleon was "very famous," and was composed of dried poppy-tears, saffron and gum, to which, while they were being rubbed, was added the juice of roses. Another more powerful collyrium originated by the same physician consisted of copper scales, saffron, spodium, and calcined lead, with an equal quantity of gum.

A collyrium called Attalian was used for the same affection, but was only to be employed when there was an excessive discharge. This contained castor, aloes, saffron, myrrh, lycium, prepared cadmia, antimony and acacia juice. As this contained no gum, it was to be kept liquid in a small box. Lycium is mentioned by Dioscorides, Pliny and Galen and many other early writers on medicine, and for some time puzzled all commentators as to its origin. It was held in great esteem by both the Greeks and Romans, and little vases are extant which were made specially to hold Lycium and were inscribed not only with the name of the drug, but also with that of the person who was probably the seller or maker of the composition. The Lycium of Jason, the Lycium of Heraclius, and other names have been found on these vases. Lycium is mentioned among the Indian drugs on which duty was levied at the Roman Custom House by Alexander, A.D. 176, and from further investigations made by Royle there is little doubt that the Indian Lycium of the ancients consisted of an extract prepared from the wood or root of a special species of berberis, grown in Northern India. It was well known in the bazaars as "Rusot" or "Rasot," and was commonly used among the Hindus in various forms of eye diseases.

THE DIALEPIDOS OR COPPER COLLYRIUM OF MARCUS JULIUS SATYRUS FOR GRANULATION OF THE EYELIDS, is inscribed on another seal, while the MYRRH COLLYRIUM OF L. J. JUVENIS is directed to be used twice a day mixed with egg at the commencement of ophthalmy.

Theodotus was the originator of a proprietary collyrium, which was called Achariston. It consisted of castor, Indian nard, lycium, opium, myrrh, saffron, lead, aloes, cadmium, calcined copper, gum, antimony and acacia juice. It is interesting to note that Indian nard or spikenard (*Nardostachys Jatamansi*) has been traced to the "jatama" of the Hindus. There was extracted from this plant an oil of great fragrance, similar to otto of roses. The "jatamasi" is a species of valerian, that grows among the Himalayas, and is still used by the Brahmans in the sacred rites concerning the sacrifices.

The greatest eye-physician of the 1st century is said to have been Euelpides, and his collyrium, which he

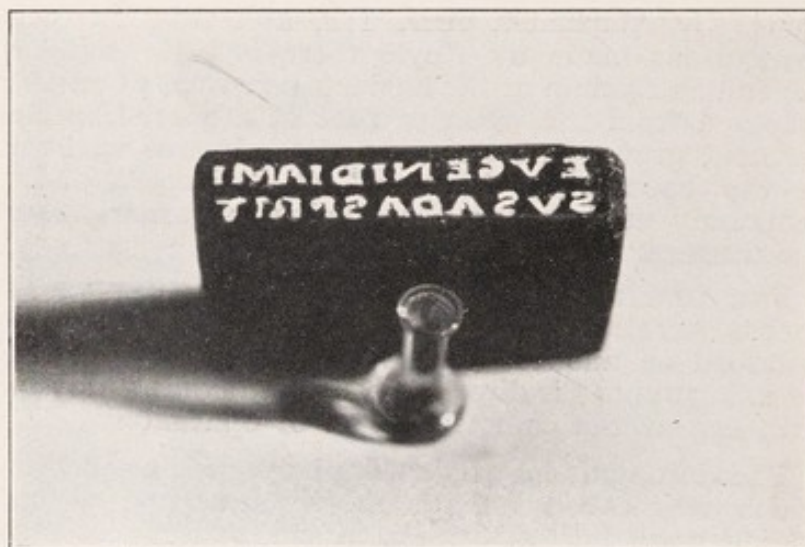
called Trygodes, had a great reputation. It contained castor, lycium, nard, opium, saffron, myrrh, aloes, calcined copper, cadmium, antimony, acacia juice and gum.

For pustules arising from inflammation the collyrium of Philalethes was regarded as the best remedy. It was composed of myrrh, opium, lead, Samian earth, tragacanth, burnt antimony, starch, spodium incorporated with rain water, and when used was mixed with an egg or milk.

An interesting stamp found at Winchester about sixty years ago bears the following inscriptions :—

1. ANICETUM OR INFALLIBLE COLLYRIUM OF F. VINDAX ARIOVISTUS.
2. NARDIUM OR SPIKENARD. COLLYRIUM OF F. VINDACIUS ARIOVISTUS.
3. THE CHLORON OR GREEN COLLYRIUM OF VINDAX ARIOVISTUS.

The latter collyrium takes its name from the colour imparted to it from calcined copper, which formed one of the ingredients.



A ROMAN OCULIST'S MEDICINE STAMP DISCOVERED IN THE BED OF THE MOSELLE, NEAR TREVES.

Another stamp, discovered in Scotland, bears the inscription :—


- THE DIALEBANUM OF TIBERIUS CLAUDIUS THE PHYSICIAN, FOR ALL COMPLAINTS OF THE EYES, TO BE USED WITH EGG.

An original stamp now in the Wellcome Historical Medical Museum was discovered in the bed of the Moselle at Trèves about fifty years ago. It is composed of black schist, 4 cms. square and 1 cm. in thickness, and on the four flat edges are the following inscriptions :—

1. PENICILLE OINTMENT FOR PUTTING BEHIND THE EYELIDS.
2. CHLORON OINTMENT FOR ALLEVIATING PAIN.
3. DROPS FOR PUTTING IN THE EYES.
4. DIARHODON FOR ANOINTING THE EYES.

On the flat top these words are repeated with an ornamental device in the centre.

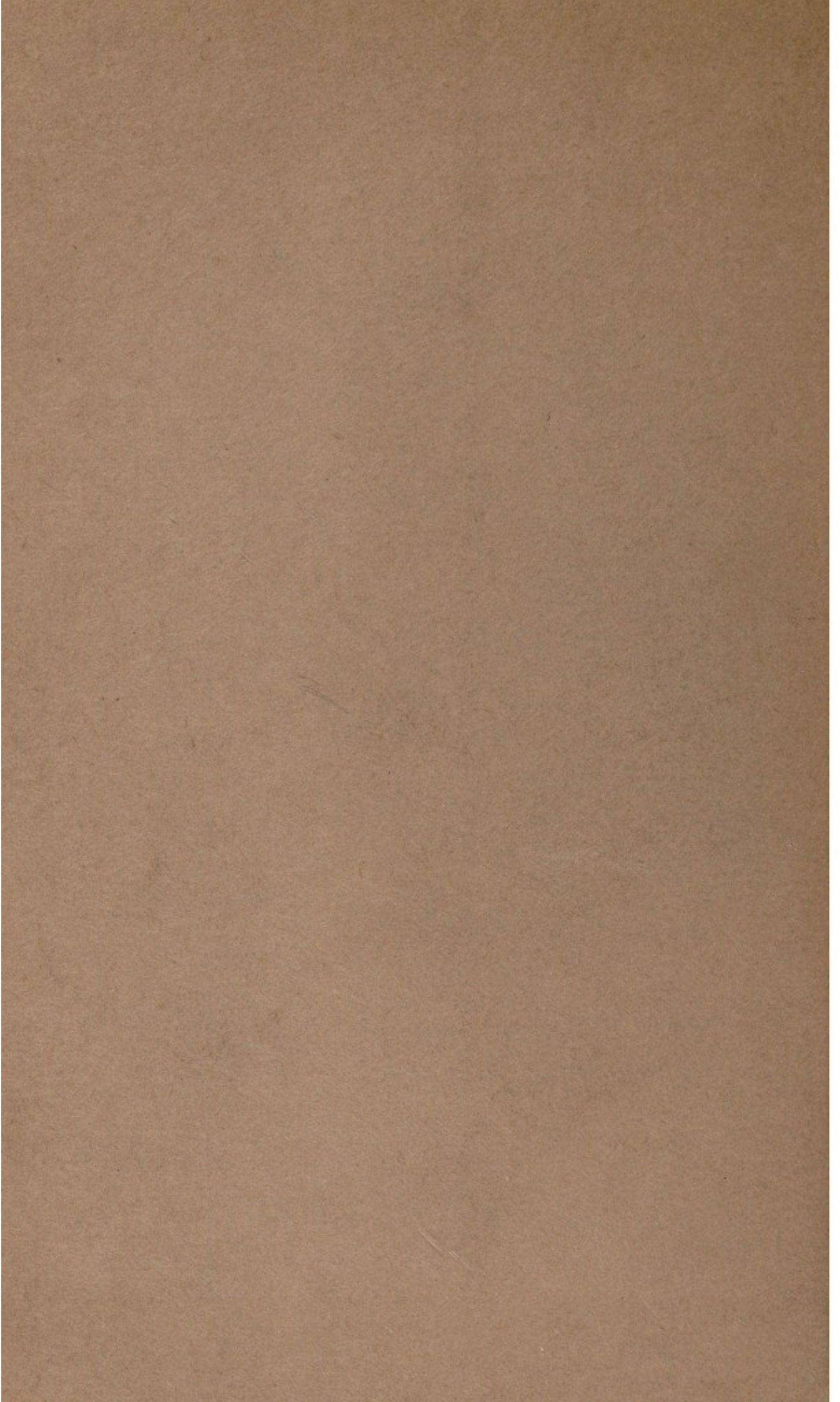
In conclusion, it is interesting to note that Stollus, the first British physician mentioned in medical history, whom Galen describes as "celebris," was also the originator of the Cinnabar Collyrium, a preparation of which the active ingredient was probably mercury bi-sulphide.



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THOMPSON, C.J.S.



THE STORY OF "HOLMLEIGH"



Bassano, Ltd.

AUXILIARY MILITARY HOSPITAL, HARROW-ON-THE-HILL

1914 - - 1919

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THE STORY OF
"HOLMLEIGH"
AUXILIARY MILITARY HOSPITAL,
HARROW-ON-THE-HILL

BY
THE COMMANDANT

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Staff and Patients at Holmleigh Auxiliary Military Hospital, Christmas, 1918.

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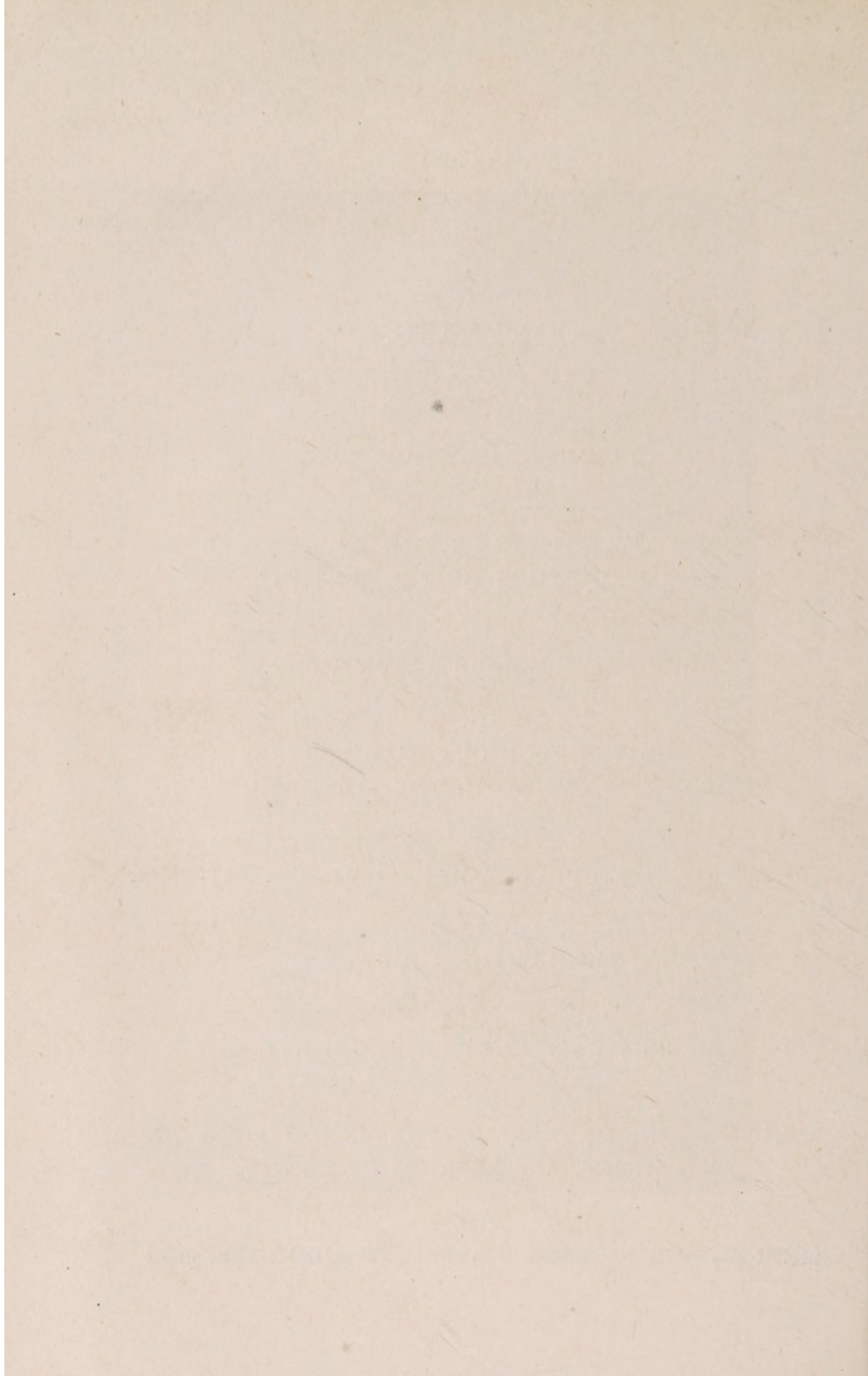
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THE CRIMSON CROSS OF HOPE.

WHEN every puddle upon every road
Gleams red through ooze and mud,
When every stretcher from its broken load
Darkens with drying blood,
When the horizon cracks with scarlet light
Above the reeking slope,
Their hands upraise upon a banner white
The crimson cross of hope.
Their hands have held the fluttering souls of men
And bidden the wings refold ;
Their hands have loosed the pulsing oxygen,
And driven the steel sea-cold.
With silver tube and slender barb they bend
To bid life live again,
Or make it end in peace, if it must end,
And dull the fang of pain.
Unswerving, though the heavens are rent apart,
They do these silent things
To strike the purple music of the heart
From its half-riven strings.
Man fights with man along the thunderous line
To change or keep its span ;
But where the white flag bears a crimson sign
Man fights with death . . . for man ;
There, where the fume and stain of death pervade,
They wage their endless war,
With all the god-like knowledge they have made
From all the things that are.
One aim is theirs . . . not for themselves, God knows,
For self is nothing now :
They raise their hands to tear the royal rose
From death's triumphant brow.
And theirs is the imperishable pride
That they have proven well
How Love in Wisdom's chariot can divide
The confluent seas of hell.

DOROTHY MARGARET STUART.

*By kind permission of the Editor of the
"Weekly Dispatch."*



THE STORY OF "HOLMLEIGH"

I.

THE RAISING OF THE V.A.D. AND THE FOUNDATION OF THE HOSPITAL.

WHEN the great war cloud, which had hovered over Europe in the Summer of 1914, burst on August 4th, and Great Britain, true to her traditions, declared war on Germany in defence of the famous "scrap of paper," no one foresaw the part that women would play in the great struggle.

The Voluntary Aid Detachments of the British Red Cross Society, originally formed to aid the Army Medical Service of the Territorial Forces in case of invasion, were little known or heard of by the public. The Red Cross Society had no organization in the County of Middlesex in 1914, and when the first attempt was made to raise and train a Detachment in Harrow, the advice of one in authority was to "Teach the women how to cook and to wash clothes and not to nurse," but ignoring this suggestion, the Red Cross banner was raised and a Women's Detachment with a personnel of twenty was formed at a drawing room meeting one evening, early in August, 1914. Courses of lectures in "First Aid" and "Home Nursing" were organized, all worked strenuously and in three months the members had gone through their drill, passed their examinations, obtained their certificates, and the first Harrow Women's Red Cross V.A.D. was officially recognized and registered by the War Office as London /168.

All eager and willing, the next thing was to find work to do, and this was soon forthcoming.

It was the time of the great retreat from Mons and Belgian wounded and refugees were flowing into London, when, in October, 1914, the Harrow V.A.D. Detachment was mobilized and called on active service, and allotted Charing Cross Station,

to render aid to the sick and wounded as they arrived by train. By permission of the South Eastern Railway officials a stall was established on the arrival platform. Each member contributed food of some kind, and from 10 a.m. to 10 p.m. the trains from Dover and Folkestone were met, and hundreds of wounded soldiers and famished women were given hot coffee and food and despatched to hospitals, or handed over to the Belgian Refugee representatives to find lodging in London. Many were the sad and pitiful stories poured into our ears and some of the scenes will ever remain in our memory.

On the afternoon of November 2nd, a party consisting of forty-five nuns and their Mother Superior, of the Augustine Order, from a convent at Ypres, came in by the Dover train. Many were quite exhausted and others in a starving condition. The Mother Superior, a very old lady, was almost collapsed and had had practically nothing to eat for forty-eight hours. She said that for several weeks they had been in the heart of the fighting zone and had nursed five hundred British soldiers in their convent, including "the Queen of England's brother," of which she was very proud. The nuns continually expressed their great admiration of the bravery of the British soldiers, and all exclaimed "even when suffering much, they never complained of pain." The good women were fervent in their gratitude to our Staff and pressed on them the little silver medalettes they carried.

Another day, the refugees were all women and children, weak and weary. They were fed and passed on to the Central Refugee Station. Among the Belgian soldiers there were many strange cases, some being in an exhausted condition, and others suffering from wounds and shock. One man, who but a few weeks previous had been a clown in a travelling circus, had been seriously wounded in the head and arm. He had been in a train in Belgium which had been blown up by dynamite, and was the only survivor out of thirty-six of his company.

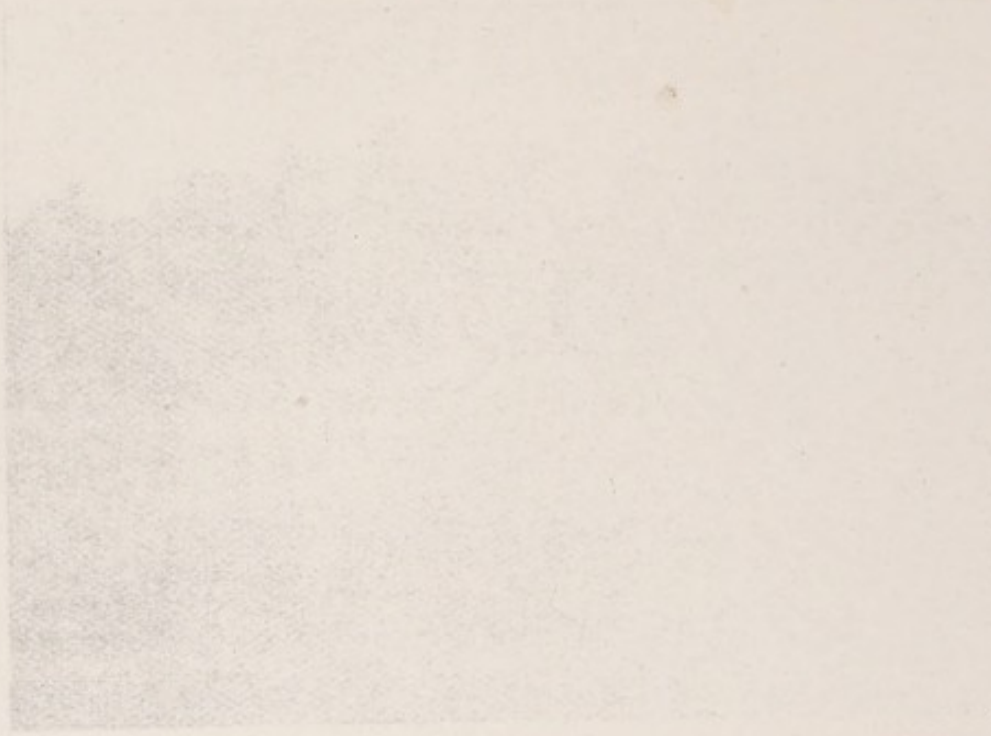
On the incoming trains being transferred from Charing Cross to Victoria Station, where already similar work was being done, the Commandant decided to found a Convalescent Home for British wounded soldiers in Harrow, where the energies of the Detachment might be utilized. A large room attached to a private house, called "Green Gable," Middle Road, Harrow, was offered by one of the members, which afforded accommo-



An Inspection of the V.A.D. in the Garden by Lieut.-Col. Valentine Mathews, 1915.



Wood-Carving.



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dition for six beds. It was equipped and as a small beginning at once offered to the War Office, but was refused twice. After persistent pressure and the promise of patients being obtained through Charing Cross Hospital, it was at length officially accepted and opened on December 15th, 1914, with six beds. It was among the first Auxiliary Hospitals under the auspices of the British Red Cross to be established and the first in Harrow to receive British wounded soldiers. The first six patients admitted were men of the "Contemptible Little Army" which held the German hordes at bay at Mons and Ypres. They were Pte. Davis, 1st King's Shropshires, suffering from shrapnel wounds in the head and arm; Pte. Griffin, Connaught Rangers, with aural concussion; Pte. Weaver, 3rd Worcesters, with a strained ankle; Sergeant Alexander, 60th Rifles, gunshot wound in the right arm; Lance-Cpl. Welch, 60th Rifles, gunshot wound in the right arm; and Pte. Britten, 1st Wilts, also with a gunshot wound in the right arm.

Here the work was carried on until March 31st, 1915, when the Commandant, desirous of enlarging the scope of the work, decided to transfer the hospital to larger premises. A suitable house was found in "Holmleigh," College Road, then occupied by Belgian refugees, but through the kindness of the local committee, and the secretary, Mr. Llywelyn Griffiths, it was vacated and by the kind permission of the owners, Mrs. Bird, Senr., and Mr. Alfred Bird, it was lent, rent free, for use as a hospital for our wounded men. The house, with its extensive garden, was excellently adapted for the purpose, and was officially inspected and passed by the War Office with beds for twenty patients on April 21st, 1915.

The V.A.D. entered into the work with enthusiasm. The building had to be cleaned, decorated, equipped, and all ready for patients within fourteen days. It was accomplished, however, and on May 5th, 1915, the beds were filled with wounded soldier patients passed on from Charing Cross Hospital.

The house, consisting of two floors, with spacious rooms, was arranged into four wards, named respectively, "Queen Alexandra," "King George," "Queen Mary," and "General French," each containing five beds.

In November, 1915, an offer of the loan of a billiard table was kindly made by Mrs. Cobb, of Wealdstone. It was gladly accepted, and the billiard room was opened by that lady on

November 26th, and since then has been an unending source of pleasure and amusement to the patients.

From its establishment, in December, 1914, for seven months the hospital was entirely dependent on voluntary aid, but we carried on, and it was not until June, 1915, when it was raised to the status of an Auxiliary Military Hospital, Class "A," that a Capitation Grant of 2s. per day was allowed by the War Office. This was to cover not only food, laundry, fuel, lighting, drugs and dressings, but the maintenance of hospital staff, salaries and upkeep of buildings, rates, &c. Needless to say, the cost of these things, even in 1915, came to nearly double the grant, which deficit was gladly provided. Of special comforts we were able to supply the patients, mention may be made of cigarettes, of which we distributed on an average 700 per week, easy boots, shoes and soft slippers, pants, vests and pyjamas, pipes, toothbrushes, sticks, crutches, and the free stamping of their correspondence. Thanks are due to Sir Thomas and Lady Pile for their generous gifts of tobacco and cigarettes from time to time.

In response to a call from the War Office for more beds, in April, 1917, the Commandant solved the difficulty of enlarging the hospital by erecting a large hut in the garden, together with a nurses' sitting room. The hut served as mess and recreation room with accommodation for forty to fifty men. All the living rooms in the house, with the exception of one for the resident sister, were converted into wards, thereby giving accommodation for an additional eleven beds, and an extra bathroom and lavatories were also added. Two new wards were equipped and opened, viz., "King Edward," with six beds for surgical cases on the ground floor, and the "Connaught" on the first floor.

Early in 1918, by re-arrangement, the hospital was again enlarged, four more beds being added, and accommodation provided for thirty-five patients in all.

On October 15th, 1917, the Committee of Charing Cross Hospital intimated that, owing to the limitation of their work for military patients, they wished to terminate their arrangement with "Holmleigh," and a letter was received by the Commandant from the Governors, "Thanking all concerned most heartily for the great assistance rendered at 'Holmleigh,' and for all that had been done during the past three years."

The Deputy Director of Medical Service for the London

Command then attached "Holmleigh" to Queen Alexandra's Military Hospital, Millbank, and from December 20th, 1917, all patients were received direct from that institution.

In looking back and reviewing our patients, through the perspective of years, one can visualise the gradual evolution of our great army. At the beginning there came the splendid men of the Old Army, then the finest body of troops in the world. Those who first crossed the seas in September, 1914. They were the tenacious fighters, the "Old Contemptibles," who held back the Germans in the retreat from Mons, and at the first great battle of Ypres. They took their wounds lightly and almost as a matter of course.

Then came the men of the "First Hundred Thousand," the men of Kitchener's Army; those who first came forward unselfishly and nobly as true volunteers. Often men of great intelligence, from all classes of the community, men from the Universities, the Public Schools, athletes and sportsmen, lawyers, stockbrokers and bank clerks. All bright and cheery under suffering, and as brave as their predecessors. Many of these were the Territorials who came to the rescue in 1915, and were flung into the fiery line and acquitted themselves like veterans.

Next came the "Derby Men," those who had given up wife and family, business or shop at the call of duty, and had left the counter, desk or workshop to join the ranks. All good fellows who have fought well and bravely. They built up the millions who have helped to hold the Empire together. The glorious spirit of the Old Army had settled on the New, and the men who came back wounded, in 1916, had the same cheeriness, heroism and indomitable courage as the men who fought and died in 1914.

Last, came the younger men, some mere boys of eighteen and younger, but all of the same brave spirit. Many of these were the untried lads who were rushed up to the front-line trenches, who fought like veterans and stemmed the German rush at Cambrai, and saved a break through at the junction of the British and French armies, in the spring of 1918.

We have had men from England, Ireland, Scotland and Wales, Canada, Australia, New Zealand and Newfoundland. Altogether, some two hundred regiments have been represented in our wards.

Often looking pale and worn when admitted, the fresh air

of Harrow soon gave the patients a good colour. The bright surroundings and plenty of amusement helped them to forget the horrors they had experienced at the front. A liberal diet of good food, in the cooking of which our experienced house-keeper, took a special pride, largely assisted the men to regain their physical strength. The wonderful cheerfulness displayed by our patients was one of the most remarkable features of our hospital life, and to hear them say, as many did, that while at "Holmleigh" they "had spent the happiest time of their lives" was, to us, the greatest tribute they could pay for the little we were privileged to do for them.

Truly it has been said, "It is idle to attempt to find words worthy of the men to whom we owe our very existence. Certainly, as long as courage and devotion are admired, so long will their fame endure." May it never be forgotten—especially by those who stayed at home.

II.

SUMMARY OF FOUR YEARS' WORK.

DECEMBER 5TH, 1914—DECEMBER 31ST, 1918.

FROM December 15th, 1914, to December 31st, 1915, one hundred and fifty-one patients had been treated in the hospital, eighty-four of whom were discharged fit for duty. The cases admitted consisted of 2 partial paralysis, 1 loss of speech, 4 with fractures of the skull, 56 with gunshot wounds, 9 with shell wounds, 7 with fractures of the femur, jaw, &c., 3 gassed and poisoned, 8 with trench feet and rheumatism, 3 with amputated limbs, 22 cases of disease, and 36 other cases.

During 1916, one hundred and fifty-five patients were treated, 118 of whom were discharged fit for duty, 12 invalided out, and 5 with amputated limbs transferred to Roehampton. 78 patients were admitted suffering from gunshot wounds, 15 with fractures of legs or arms, 1 case of paralysis, 1 gas poison, 16 with wounds due to explosions and other causes, and 44 suffering from disease. The average number of patients resident daily throughout the year was 18. The average



Langfer, 343, Finchley Road.

A corner of the "King George" Ward,

number of days each patient was resident was 31. The average total cost of each patient per day was 3s. 3d.

During 1917, two hundred and sixty-five patients were treated. Of these, 185 were cases of gunshot and other wounds, 2 gassed, and 78 cases of disease. 189 were discharged fit for duty, 15 invalided out, and the remainder transferred to Convalescent Camps or Command Depôts. The average residence of each patient was 26 days. The average number of patients resident daily was 26, and the average total cost of each patient per day was 3s. 2d.

In 1918, two hundred and ninety-four patients were treated, 196 discharged fit for duty. 188 were admitted with gunshot and other wounds, 20 with fractures of legs, arms, femurs, &c., 5 with dislocations, burns, &c., 15 gassed, 1 shell shock, 13 with trench feet and fever, and 52 cases of disease. Nine cases of amputation were transferred to Roehampton. The average residence of each patient was 27 days, and the average number of patients resident daily was 33, the average total cost of each patient per day being 3s. 5½d.

The hospital throughout has been remarkably free from infectious diseases. In 1917 there were two suspected cases of cerebro-spinal fever which, on bacteriological examination, happily proved negative, and in the spring of the same year a patient developed German measles. He was transferred to a hospital for infectious diseases within twelve hours and, after disinfection of the ward, no further cases occurred.

During the four years nearly a thousand patients, including many serious cases, have been treated, in- and out-door, and there have been no deaths. The balance sheets and financial statements have been published annually in the local press, and the final accounts of the hospital for the year 1918 will be issued shortly.

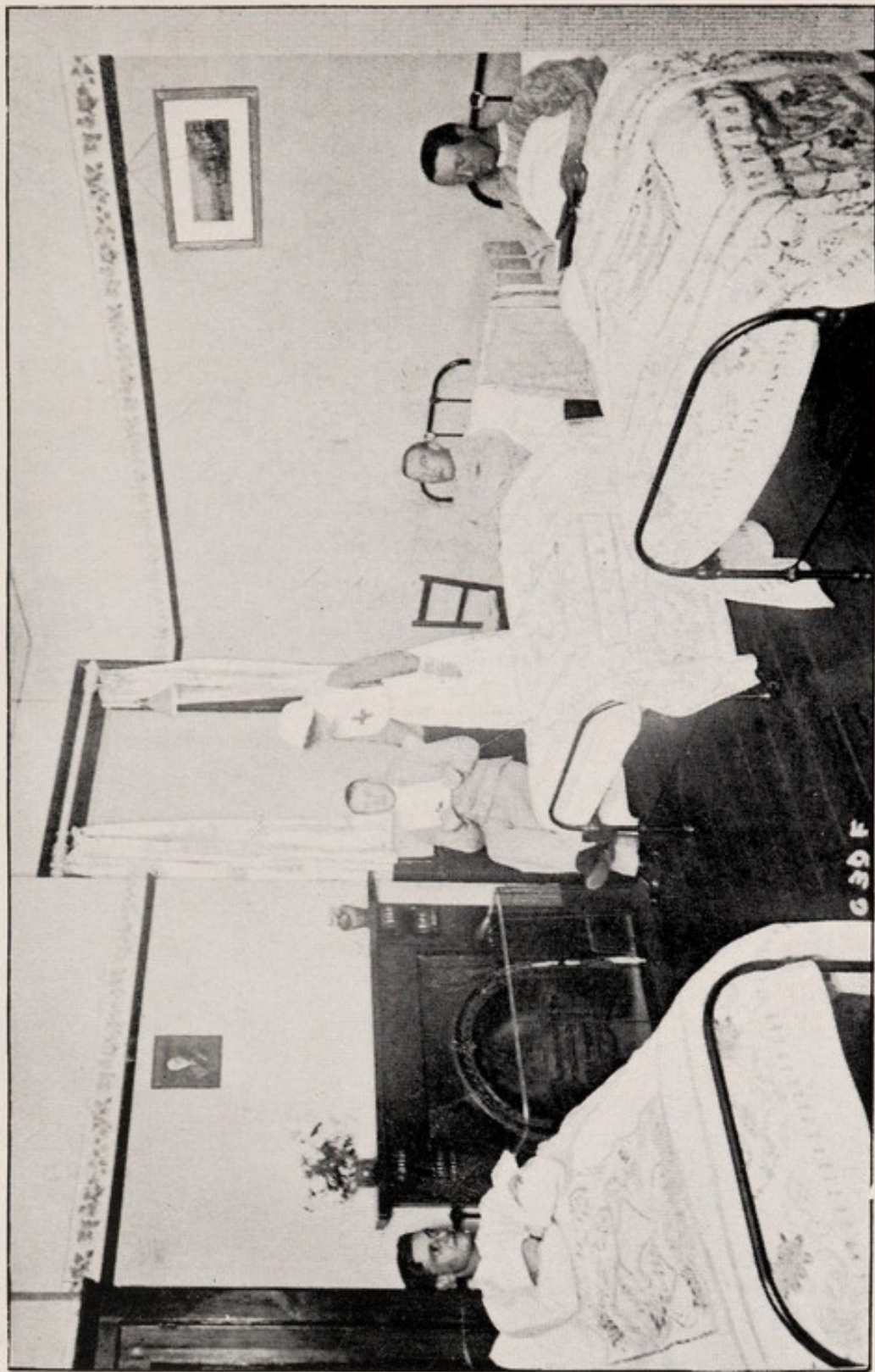
III.

LEAVES FROM OUR CASE BOOK.

SOME PATIENTS AND THEIR STORIES.

FEW of those on duty at the time will forget the coming of Pte. G., of the 2nd Leicesters, afterwards known as "Daddy." A little shrivelled-up man, paralysed on the left side, with a pathetic, dazed look in his almost sightless eyes, as he was carried to his bed. He could not articulate and was completely helpless. A short time previously he had been found lying unconscious by the roadside, somewhere in France, near the firing line, with a terrible wound in his head, which had fractured the skull, and for three weeks he had lain unconscious in a Base Hospital. For days he lay in bed at "Holmleigh," carefully watched and fed. He was unable to speak or give an account of himself, and the first word he uttered was "lovely." It was his sole reply to all questions. His memory had entirely gone, and he did not know he had been in France. He began to improve slowly and was carried out into the garden daily, where he would sit motionless and inert.

We found that he had a wife and child living in Northampton, and they were sent for in the hope of recalling his memory. Their first meeting was a most pathetic one. "Daddy" was sitting in the garden, his hands on his knees, and his eyes gazing vacantly into space, his customary attitude. His poor wife, scarcely able to keep back her tears, quietly spoke to him, but he only shook his head and did not know her. The little girl, about eight years old, shyly approached her father and without a word took hold of his hand. Presently he put his hand out and stroked her hair, and the ghost of a smile passed over his face. When asked if he knew who she was, he nodded his head. At their second visit he called the child by name, but it was some time before he recognized his wife. Then, gradually, he began to talk, and say a few words, much to her delight. When first taken out in a bath-chair, he imagined the dogs he saw were horses, and that the lamp-posts were churches. He made slow but steady progress until at last he was able to walk, and converse quite rationally. His sight gradually became normal, and



Langflier, 343, Finchley Road.

The "French" Ward.

trench when fifty yards from the enemy's front line. He had a terrible experience and lay unconscious through loss of blood in "No Man's Land" for four days, surrounded by heaps of dead. He was eventually picked up by an officer and brought in on the fifth day after being wounded, nearly dead from exposure and loss of blood. He made good progress, and was discharged fit for duty.

A fine type of a soldier of the old Regular Army was Company-Sergt.-Major B., of the 1st Batt. Grenadier Guards. He was admitted suffering from a wound in the left foot caused by shrapnel. He made a good recovery. On the day he was discharged from hospital, on behalf of his fellow patients, he left a record stating that "they had been treated in a magnificent way, with splendid food, and given unlimited privileges. Every one went out of their way to make them all happy. They were all sorry to leave 'Holmleigh,' which had been like a home to them all, and they felt they could never be so happy and well off anywhere else." When leaving, he handed the Commandant the following letter, signed by all his comrades:—

"We, the undermentioned military patients of Holmleigh Hospital, wish to offer a vote of thanks to the Commandant for the many kindnesses he has shown us and which have been fully appreciated by all."

(Signed) ————— March 25th, 1916.

B. was sent back to the Front in December, 1916, and on January 6th, 1917, was seriously wounded by a bomb dropped by an enemy aeroplane, and died three hours after reaching a dressing station. His Commanding Officer wrote the following eloquent testimony, which speaks for itself: "He was a splendid man and as brave as a lion. He was a gallant and splendid soldier, and greatly esteemed by all ranks. His last thought was of his duty."

Another interesting case was that of Pte. T., of the 1st Wales Borderers. A lad of 19, he went out with the B. E. F. on November 1st, 1914, and was first wounded at Festubert with a gunshot in the arm. He returned to the Front in August, 1915, and in the January following, whilst in the trenches, a high explosive shell dropped near him. He remembered no more until he recovered consciousness in a hospital in Calais three days afterwards. He was in a serious



Langfer, 343, Finchley Road.

The Toy-making Class.

C39 D

condition, his thigh being fractured, also the bones of both legs and the right arm. Curiously enough, although so many bones were broken, he had no wounds. He was in too serious a condition to be operated upon until March, 1917, when several pieces of bone were removed from his leg. He was unable to walk when admitted, but under careful treatment he recovered the use of his legs, and was discharged able to get about as usual.

Some of our patients seemed to be quite as proud of the number of operations they had experienced as the wounds they had received. Pte. P. boasted that "he had been cut into twenty times in France and at home." On the last occasion he is said to have signified that he had a request to make to the surgeon before the anæsthetic was administered, and on being asked what it was, he remarked, "Oh, it is nothing much; I just want to tell him that if he is not successful this time, and thinks he will have another try, don't sew me up, just put buttons on me, to save trouble."

Another remarkable case was that of Rifleman K., of the Rifle Brigade, who was admitted with trench-feet in a gangrenous condition, on December 30th, 1917. He had already lost four toes from the right foot and two from the left. Gangrene had spread up to the instep of the right foot, and he was unable to walk. After nearly two months' treatment the left foot healed, though it was feared amputation of the right would be necessary, but, under new treatment, the gangrene was again arrested and he made steady progress towards recovery. Before he was discharged he executed a dance at one of our concerts, to the horror of the Sister under whose care he had recovered and owed his limb.

In November, 1915, Company Sergt.-Major S., of the 12th West Yorks, was admitted, having received a bullet in the chest, which had not been extracted. When charging, close to his captain, in the advance at Loos, he said he felt as if he had been hit by "a clod of earth" in the chest. He did not remember feeling much pain, and carried on until he felt faint and dropped on the field. He remembered nothing more until he recovered consciousness in a dressing station, where his condition was pronounced serious, and he was sent to the base. When admitted to "Holmleigh" his wound had healed, and it was deemed advisable to have him X-rayed. The plate revealed the fact that the bullet was embedded in his liver.

He seemed to suffer no ill effects and made a good recovery, and was returned to duty for home service. Such are a few of the many cases that have passed through our wards with satisfactory results.

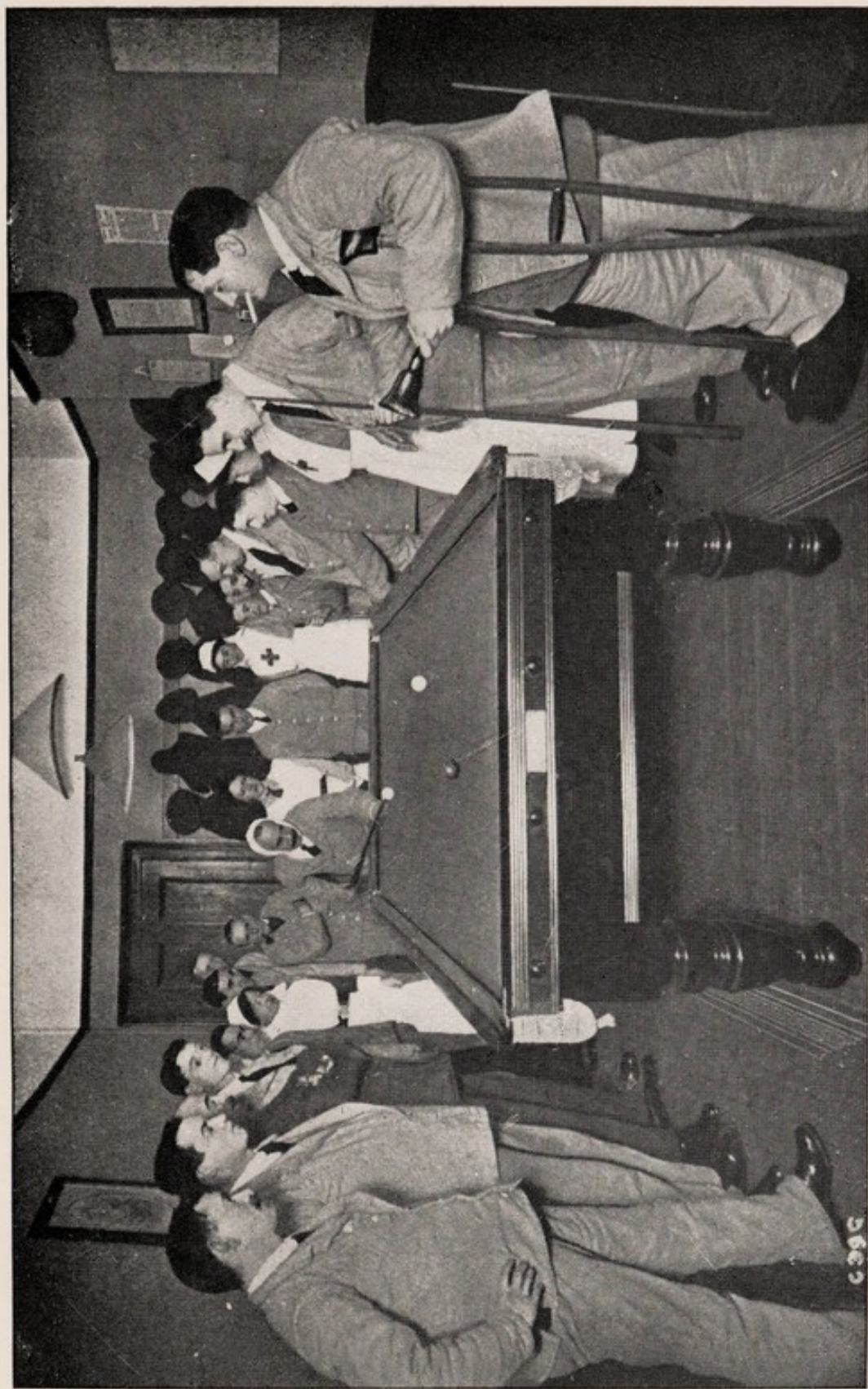
IV.

STORIES OF THE GREAT WAR, TOLD BY OUR PATIENTS.

MANY were the thrilling stories related by our patients of their experiences on the battlefield, and some of them are worthy of record. From the following personal narratives recorded by the men in their own words, one is able to trace a brief history of the Great War.

Pte. W., of the 3rd Worcesters, one of our first patients in 1914, crossed to France on August 13th of that year, and took part in the Retreat from Mons. He says: "I got into action on August 23rd, 1914, at Cambrai. We had the order to retire and marched through St. Quentin, Ham and Noyon to Crecy, where we started the advance on Sept. 8th. We took up a position eight miles from Soissons, in a thick wood on a hill. Here we were attacked by the Germans on the 19th Sept. and had heavy fighting, in which we lost about 300 men and five officers. Relieved by the French troops, we left for Belgium and got into position at La Bassée, and there fought the Germans for ten days. We then were hurried by London Motor Buses to a new position fifteen miles away, and engaged in the great battle of Nov. 7th-8th, where we lost over 500 men and all the officers but the C.O. and the Adjutant."

Sergt. A., of the 60th Rifles, who fought in the first Battle of Ypres on the 23rd October, 1914, says: "It was the hardest fighting I took part in. One night we were turning-in at our billets, when we had the order to Poperinghe. 'Fall in,' and marched about four miles. Here we fixed bayonets and marched towards the German lines. We came under heavy rifle fire about 11 p.m., and dug ourselves in till daybreak, and then advanced under fierce fire for 800 yards, and got it hot. We got close to their trenches just outside



Langier, 343, Finchley Road.

A close finish — a Billiard Handicap.



Poperinghe and then had to retire, as they were enfilading us. The 2nd Brigade, consisting of the 2nd Batt. 60th Rifles, 1st L.N. Lancs, 2nd Queens, and the Sussex Regiment, in reserve, then advanced, but still they drove us back. Then we had another try to carry out what we started to do in the morning, and by short rushes, got within eighty yards of the enemy. All the regiments got mixed up together, and there were only a few officers left. A major of the "Queens," a very brave man, then gave the order to charge and up we got, about 600 of us, and got to grips with the Germans. You should have seen them run. Those we didn't get with the bayonet, we captured. We took about 600 prisoners and the dead and wounded were very numerous, lying about like sheep."

Lance Corporal B., of the 1st Somerset Light Infantry, who was with the Fourth Division, encamped in August, 1914, at Harrow, first got in touch with the Germans at Le Cateau, on Aug. 24th, 1914, when his regiment was engaged in covering the retirement of three Battalions. From the 25th, he says :

**Battle of
the Marne.**

"We had rearguard actions all the way, until Sunday, Sept. 6th, when we received orders to advance and were engaged in the Battle of the Marne. We crossed the river on Thursday, Sept. 10th. We next came in touch with the Germans at Homdenhen on Oct. 13th, where they were trying to push their way to Calais. We steadily drove them back, until we reached Armentières. On Oct. 20th we marched to Ploegstreet and the following day attacked the village of St. Ives, which we took at the point of the bayonet, and took 120 prisoners."

Lance Corporal W., of the 60th Rifles, was another who formed part of the "Contemptible Little Army," and took part in the Retreat from Mons. He says: "We got into action on August 23rd, 1914, and crossed the canal at Mons, and then fought rearguard actions for the best part of three days, with terrible marching which greatly exhausted our men. We lost two lots of outposts with the Uhlans close on our heels. We had another fight outside St. Quentin, but still had to retire and passed thousands of exhausted refugees half starved, and in a terrible condition. We lost many men in retiring, and could not keep up with the columns. We stopped at last, and made an advance and on Sept. 30th, 1914, when we took part in the Battle of the Marne. Whilst crossing the pontoon built

by the Engineers, we lost many men from artillery fire. On Sept. 14th, we marched four miles and took up a position with two companies, in the dark, expecting to find a picket of about two hundred Germans, with two guns, instead of which, we were surprised to find ourselves in the middle of *two thousand*, and as soon as day dawned, they let drive into us from a hundred and fifty yards. We lost three hundred men. I received a bullet in the left arm, and got a worse wound later from a piece of shell. We lay in caves for two days, on account of the heavy German fire, but at midnight on the 16th we marched to a church two miles away, where we stayed until dinner-time, and were just out in time to see the church blown up. Here we got into Red Cross wagons and afterwards entrained for St. Nazaire, first stopping outside Paris, where I got my wounds dressed."

Pte. B., of the 1st Wilts. Regt., who was also in the Retreat from Mons, arrived in Belgium on Aug. 22nd, 1914, and went straight into action. "We got heavily shelled

**Action at
Cambrai.**

and held out from 2 p.m. to 8 p.m., when the fire became so hot we retired trenching and digging all night. We had a general order to hold the trenches until 11.30 a.m., and held them till the order came to retire. We fell back at length on Cambrai, and arrived there at 11.30 p.m., on Aug. 25th. We got into action again next day and at 5 a.m. nearly all my company were lost, as we went on the field one hundred and sixty strong, and only had twenty men left. We had Germans each side of us and were penned in an orchard, and had to charge our way out of it through a lane of fire, as they were only ten yards from us. We retired behind the town and went back towards St. Quentin and on to Crecy, and joined a division there."

Corporal R., of the Royal Engineers, who was also encamped at Harrow on August 18th, 1914, with the Fourth Division, was in the retreat from St. Quentin to the Marne, where he says, "Turning our backs on Paris we made a steady but determined advance. We were

**Bridging the
Marne.**

ordered to build a bridge across the river for the troops. It was warm work, as the Germans kept dropping shells very close. After finishing this bridge, we had to repair the steel one which the Germans had tried to destroy."

Pte G., of the Connaught Rangers, describes a furious

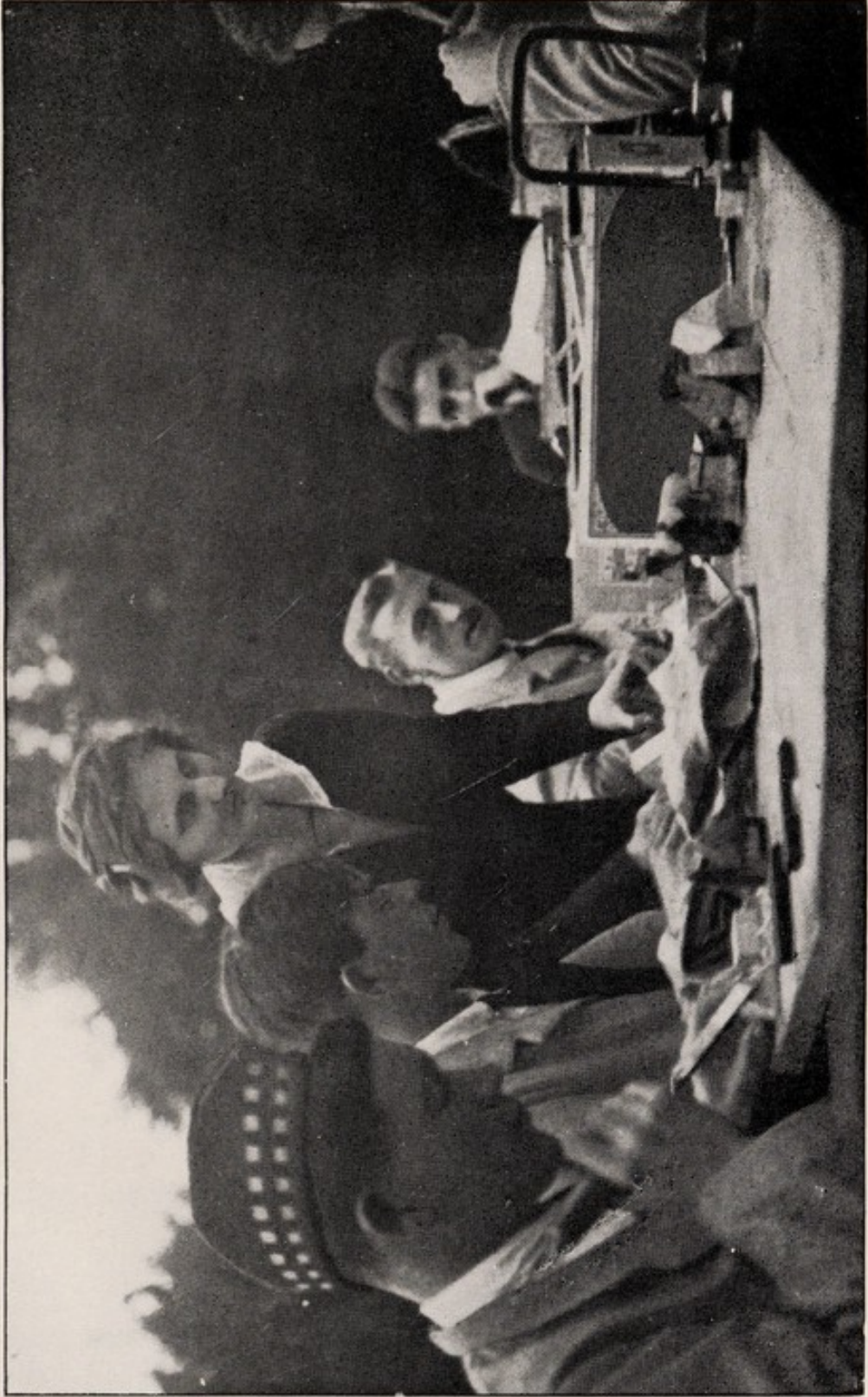
attack, in which he took part. "We were only eighty yards from the enemy lines, and under terrible artillery fire, "Black Marias" bursting everywhere. A German Taube would circle overhead and sail along the lines and trenches. Then it would drop a white light, the signal for the artillery to get range. Five minutes after that, they would be drilling holes every ten paces along our trenches with "Jack Johnsons," followed by repeated infantry attacks. One night we were being relieved by the French, and the trenches were overcrowded with troops. The Germans got to know of it, and opened a murderously heavy fire upon us. Suddenly an order was given to charge, and immediately every man sprang over the top of the trench and charged onwards. Half got entangled in the barbed wire, but we charged on somehow, until we got up to the enemy lines, and in the rush half my company were shot down. Wholesale slaughter then began again, and we all got mixed up. Orders were shouted everywhere, and the cries of the wounded and dying were awful. Then we got the order to retire, as the enemy were too strong and in force. We got back to our own trenches and kept on firing though terribly exhausted. An hour later we charged again, returning with heavy losses, but we were not going to lose ground. Our Major gave us great encouragement and we fought like demons until the Germans ceased fire for an hour. Then they let it go again, worse than ever. They had the range and it was like real hell. We charged them *seven times* during the night and at last drove them back six hundred yards, and occupied three hundred yards of their trenches. Here we held on until relieved by the French."

Rifleman S., of the Queen Victoria Rifles, one of the first Territorial Regiments to enter the firing line, tells us of his first experience in the trenches. "We halted in the rear of a farmstead and half our company were directed to the reserve trenches close by. Our other two platoons were then escorted by a guide across some more fields, and we had to creep at times in single file, along the hedges, and out of the moon-light. Here and there a horse or a cow lay dead, signs of a very heavy shell fire. Very cautiously we crept along across a field, up to what appeared to be a large hedge. We could plainly hear voices and a gunshot here and there quite close to us, and to our surprise we found ourselves on the very edge of the trenches. Catching the whispered words,

"For God's sake get in," we all hopped into what seemed a long ditch filled with straw. After receiving a few words of good advice from the occupants we were left on our own. Every now and then a German sniper would send a bullet whizzing overhead. The enemy were entrenched in a good position on rising ground some three hundred and fifty yards in front, and were clearly visible. Just as it was light, the German guns opened fire, a loud distant report, a low shrieking whistle, and then a deafening crash, and shrapnel fell by the hundred. This continued for a considerable time, and the whole earth shook, but we were not scared. Early in the afternoon the shells burst nearer to us, and all of a sudden our own artillery returned the fire, and it was the greatest relief to hear the German guns gradually silenced."

Sergt. H., of the Scots Guards, landed at Zeebrugge on October 7th, 1914. The first task of his Brigade was to cover the Retreat of the Belgian Army coming from Antwerp, which they carried out successfully. He says, "We first came in touch with the Germans at Ghent, and led them a dance across Belgium till we arrived on the left of the "Contemptible Little Army," coming up victoriously from the Marne and the Aisne. We turned on the enemy near Ypres. Our brigade, the 20th, was composed of the 1st Grenadiers, 2nd Border, 2nd Gordon Highlanders, and the 2nd Scots Guards. Several times they attacked us fiercely, but although they were ten to one, we stood firm, and never let them through. We withstood their onslaughts at Ypres for nineteen days, and then occupied trenches at Armentières, where I was wounded."

Pte. D., of the King's Scottish Light Infantry, who was in the great battle at Ypres on October 31st, tells us how his regiment lost 400 men. "The Germans kept on attacking us, but we drove them back till night came on, and then they swarmed over in hundreds towards our trenches. They got within fifty yards and entrenched themselves. Our company officer, a brave man, wanted to charge them, but we only had eight men left in the section and the Senior Major would not let him go. They started sniping, and a man on each side of me got his head blown off. I sat down to bite a biscuit, when a big piece of shell dropped at my feet and I thought my time had come. I moved farther up the



Toy-making in the Garden.

trench, and again the man next me was killed. At length, worn out, I went into a dug-out to get a sleep, when the trench fell in on me, but I got out unhurt, and then was wounded by a sniper at last."

Sapper P., of the Canadian Engineers, who took part in the second battle of Ypres on April 22nd, 1915, says, "The first indication we had that the Germans were busy, was a cloud of gas drifting over our billet at 4 p.m., followed by a perfect hail of shells of all kinds. No notice was taken, until over the hills came a disorderly mob that looked like Turcos, and then we sighted another lot of men closing in on our billet. We saw they were Germans, then our C.O. thought it was time to move, so after getting all the transport out, he calmly marched us out of the farmyard and a few minutes later the Germans marched in, on the other side. We made our way over a stretch of open ground, with bullets and machine-gun fire playing all round us, and reached a line of reserve trenches. There were 168 of us, officers and men. The order soon came, 'Engineers, shoot low, and shoot to kill.' We did, and held this position twenty-three hours, until the infantry came up, and made the renowned charge."

Company Sergt.-Major S., of the West Yorks Regiment, received his baptism of fire at Loos. He says, "We advanced along in the direction of Loos, until we came under rifle fire; still we crept nearer and nearer until midnight, and laid ourselves down for a sleep, practically under the enemy's nose, prior to attacking at daybreak. The morning dawned dull and glowing, with wounded crawling about as best they could, to keep from the murderous fire. The Company received orders to take part of a line in position, where we had to make short rushes to get it, and then dig ourselves in. It was here I got a bullet in the stomach."

Sergeant G., of the 22nd London Regiment, tells of stirring adventures on the night of September 26th, 1915, at the battle

**Battle of
Loos.**

of Loos: "On that night, we took three lines of German trenches, but it was with heavy loss.

We went over the top 1,000 strong, and when we came back there were only 113 of us left to answer the roll. On Xmas Day, 1915, we had the order to 'stand to!' We were only thirty yards from the enemy. They had blown up five of their mines, when I received orders to take my men with our Lewis gun, into the crater of one of them. We got

THE STORY OF "HOLMLEIGH"

there, after struggling through mud and water up to our waists, and dodging the shot and shells which were very heavy. When I got to my position, I kept up a rapid fire for three quarters of an hour, when the Germans exploded another mine almost beneath us, which buried five of my comrades and half of the gun. There were only myself and a private left. When we came round a bit, we set to and dug out our gun, while the shells were bursting about us. We then managed to get the gun into action again, and my pal and I held the crater for three and a half hours."

G. received his stripes as Sergeant for this gallant act whilst at "Holmleigh."

An incident in the Battle of the Somme is related by Pte. G., of the Machine-gun Corps, who says, "I shall never forget my first day on the Somme. To begin with, we had to set to and find a place to sleep. We dug down into the earth about four feet and then got branches of trees for head-cover and filled in with mud. Four of us were warned for gas guard, and it was about 12 p.m. when it came to my turn. As soon as I started, a shell came over and burst just behind an old trench or I should have been finished. Of course that fairly "put the wind up" me. A little later I saw a transport coming up with ammunition for the guns and ourselves, when another shell burst about fifty yards from the transport. The men seemed shaky, but the Sergeant-Major told them to go on at all costs and then rode off. He hadn't gone more than a hundred yards, when a shell came and burst right in the middle of them, and killed every man and mule. I couldn't describe the sight. The next day we went into the trenches and got up against the Prussians, who sent poison gas over us

Battle of the Somme.

that was something awful. We got word that it was coming over, then we were ordered to mount the gun. I was in charge of the firing, and I knew that the Boche never takes a machine-gunner prisoner, nor shows him any mercy. I saw them coming, and started firing about five hundred rounds a minute, mowing them down. As fast as I knocked them over, more came on, making straight for me. I knew I couldn't get away, and kept on with joy. I killed a few hundred of them, then the attack was repulsed with heavy loss. In a little while came the gallant Cameron Highlanders, rushing to the counter-attack. They 'went' for them and everywhere we were standing on German dead.



Goshawk

A Whist Party in the Hut.

"It was at Martinpuich, on September 15th, 1916, that the Tanks first came into action. You would have laughed if you could have seen them. The Germans were running and shouting "Mercy, Kamerad," but the Tanks don't know what mercy means, and they let them have it. We followed up, jumping from shell-hole to shell-hole, with the gun. We got to the German trenches, when one of my pals got excited, and in throwing a bomb, it fell and burst two yards from us, blowing his hand off and his stomach out, and wounding four of us. I got seven wounds which sent me down."

Pte. S., of the 1st Cameronians, a fine type of the Highlander, had served seven years with the Colours before war broke out. He re-enlisted in 1915, and was first wounded at the Battle of the Somme. He was sent back to France in the winter of 1916, and rushed up to the front line at Arras, where the Germans had made three attempts to break through. Here the Wiltshire Regiment had lost over seven hundred men. The Cameronians held a ridge about twenty-five yards from the German trenches, and dug themselves in. Next morning they were moved to another section of the line, and he says, "This is where I had the hottest time I shall ever have. Our bombers were sent into a German trench for over two hundred yards. The enemy shelled our position, putting our only two

Battle of Arras. Lewis guns out of action, and knocking some of our men out. There were only two bombers left, and myself, but we held the Germans back for an hour and a half till reinforcements came up. We threw our bombs so fast that the Germans must have thought there were a lot more of us, and when we were relieved we were utterly exhausted. It was a tight corner and we were nearly cut off twice. I got a severe wound in the knee, which knocked me out, and the three of us got the Military Medal."

Pte. W., of the 11th East Yorks Regiment, was in the attack at Oppy Wood, near Arras, on June 3rd, 1917. He says, "We soon found ourselves fighting face to face with the Boche, and they were taking our chaps prisoners very fast. I was lying low in a shell-hole between the German front line and the second, when I saw a German officer coming at me with his revolver, just going to shoot. I got in with my rifle first and shot him, and then tried to make my way back to our own lines. Before I had gone many yards I came across

two German Red Cross men. I knocked them over with my rifle and escaped, and struggling on, came upon four more German bombers in a stronghold. Being a bomber myself, I had just four left, and, coming up behind them unseen, I got the first one and then the other three, and so knocked the lot out. In crossing 'No Man's Land' I got a shot through my leg, but managed to get back to our lines."

Sergt. S., of the Machine-gun Corps, tells of a thrilling experience at Monchy-le-Preux. His company had been holding a trench for three weeks, and the relief had taken it over. He and the two gun teams had to remain with the new-comers for twenty-four hours. He was at the gun position in a section of trench ten yards long, when, at 4 p.m., he says, "Old Fritz put a salvo of 5 9's bang into the trench. The gun was blown to pieces and we were all buried, with the exception of one of my boys, who had his head and shoulders left free. He was able to clear himself and set to work at once to dig out the rest of us. The weight of the earth was crushing us. When it was eventually cleared away, I found the sergeant lying across me, dead, and his men were also killed. Myself and my boys got off with a shaking up. Whilst in front of Infantry Hill, I was firing my gun one night, when an enemy shell, which failed to explode, fell between the legs of my tripod. If it had exploded, there would not have been much of *me* left. Another curious incident happened one night, when we were going into the line on the Somme. The guide sent from the company to pilot us, belonging to the regiment we were relieving, lost his way, and actually led my men and gun-team right round *behind* one of Fritz's bombing posts. Fortunately they never heard us, nor did we know it ourselves until afterwards."

V.

SOME CURIOUS GIFTS.

DURING the past four years we have received some curious gifts from anonymous donors. One of these came in the form of a registered letter addressed to the Commandant, which contained a welcome surprise in the shape of twenty-five pounds in notes, without any indication of the name of the generous donor. A slip of paper enclosed asked for an

acknowledgment to be sent to a Poste Restante in London, which we were only too pleased to accompany with our hearty thanks.

Another series of curious gifts came from an individual unknown, whose representative called at the hospital one night, a few days after the Zeppelin raid, when one of the raiders had been brought down for the first time. He said, that a friend of his, a Galician Pole, had empowered him to give five pounds to a war charity for every Zeppelin brought down on British soil. This he divided with another hospital, and at once gave us a cheque for the amount. After each successive raid, when a Zeppelin was brought down, our friend regularly called and left the apportioned amount. We have no idea even now of the identity of the giver, but take this opportunity of thanking him.

During the time of the enlistment of men under the Derby scheme, the sum of 2s. 8d. was left at the door one night, wrapped in a piece of paper, being the recruiting fee received by the anonymous donor, after his attestation.

Gifts of money, or in kind, however small, were always welcome, and the offering of a box of matches brought by two ragged little urchins to the door one night, and the gift of 13s. from twenty-one little girls of the Wealdstone High St. Girls' School, who had resolved "not to buy or eat any sweets during Lent in 1917, but give the money instead for the benefit of the wounded soldiers," were as welcome as the largest amounts received.

We owe another unlooked-for donation to our funds to the air-raids. This was sent as a thank offering from London Jews who had taken refuge and were afforded shelter in Harrow, during the successive night raids made by the enemy aeroplanes in the Spring of 1918.

Perhaps the most gruesome gift received was a parcel containing two shrouds, which was handed in at the door one day. We are glad to say they were never required.

VI.

HOSPITAL RECREATIONS AND ENTERTAINMENTS.

It was our endeavour to make the life of the patients at "Holmleigh" as unlike the conventional life in a military hospital as possible, by providing every opportunity for recreation, and so to try and divert the men's thoughts from the horrors and hardships they had experienced at the Front. Music and amusements proved most important aids in restoring the health of the patients, and had a distinct remedial value. Besides our social evenings, whist drives, sing-songs and concerts, the instructional class in toy-making, so excellently carried on by a lady from the Peasant Arts' Guild, was greatly appreciated by the patients. The latter was, we believe, the first effort of the kind made to instruct the patients in an Auxiliary Hospital. Most of the men entered into the work heartily, and the toys made realised quite a good sum at our Exhibitions. At the Great Red Cross Fair, held at the Central Hall, Westminster, in February, 1917, fifteen of our patients had an exhibition of their work, and gave practical demonstrations for three days. The sale of their toys raised the sum of £15, which went to the British Red Cross Funds. Specimens were purchased by H.R.H. Princess Patricia of Connaught, and Lady Amptill, who was photographed with the men. They also took part in an exhibition of work done by wounded soldiers, held in New Bond Street, in July, 1917, when the toys shown were inspected and greatly admired by Her Majesty Queen Mary and Her Majesty Queen Alexandra, on the occasion of their visit. In wool-working on canvas and the making of belts embroidered with their regimental badges, the patients were kindly instructed by Miss Symonds, who inaugurated the work by an interesting lecture on military heraldry.

Concert parties of professionals and amateurs organized during the War, came and entertained the patients regularly each Saturday evening. The weekly concerts were eagerly looked forward to, and played a valuable part in cheering up the war-worn and shell-shock patients. Men wounded and depressed, recently back from the firing-line, with sad and tired faces, would laugh for the first time on concert nights.

In all, over two hundred and forty concerts have been given

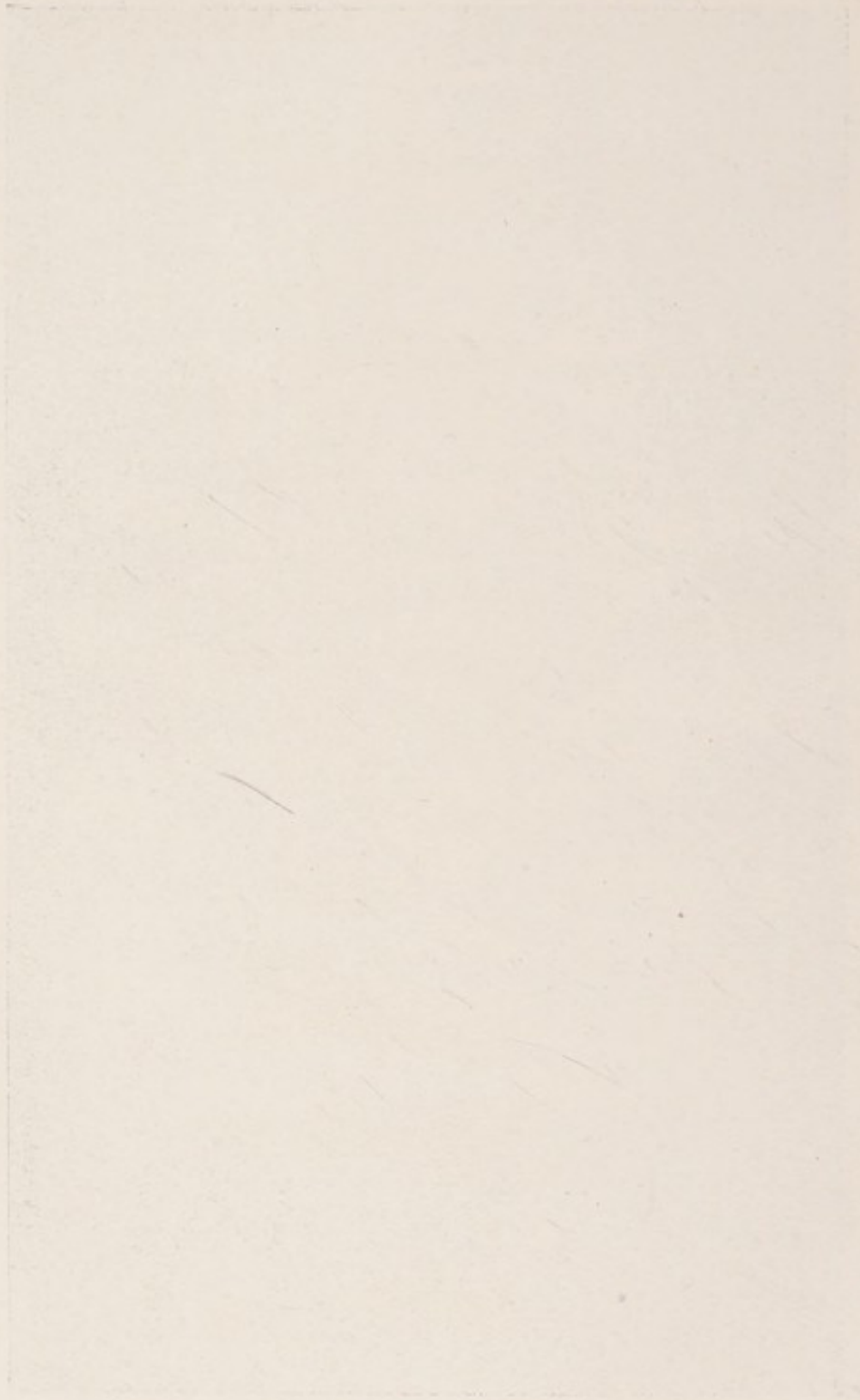


Kodak, Ltd

The "Whizz-bang" Concert Party.

THE UNIVERSITY OF CHICAGO

1913



since the hospital was established. To those who have thus kindly assisted, our grateful thanks are due. They include the "Union Jack Concert Party," organized by Miss Mott, Miss Winifred Coombes' Ladies' Orchestra, Miss Lena Ashwell's Concert Party, Mr. Goodman and friends, Mr. Deas, of the Polytechnic Lantern Society; the Three Arts Club; the Metropolitan War Brigade Concert Party, organized by Mr. Edgar; Mr. Arthur Small, Mrs. Dee, the Misses Sibley, Mr. Dear, Madame Ghita Corri, Miss Judith Wogan and Company, the Harrow Male Voice Choir, the Harrow Weald Concert Party (Mr. Groves), the "Evening News" Concert Party, the Wesleyan Church Choir Concerts organized by Mr. Nichols; Mr. Harry Read's party, and Mr. Lea's party from Wealdstone, all of whom paid repeated visits. We also wish to thank Mr. Llywelyn Griffiths, Miss Violet Burnell, Mr. Gronow, Rev. G. Parkinson, Miss Bulloch, Miss Waite and the pupils of the Girls' Bridge Schools at Wealdstone (who contributed largely by their entertainments and did most useful work in mending); the Kodak Recreation Club, the Wealdstone Women's Co-Operative Society and the Girls' Club, Miss Stiles, Miss Woodbridge, and Lieut. Robinson, all of whom organized concerts or entertainments on our behalf. Thanks are also due to Miss Steele and her "Wolf Cubs," who helped in the garden; Miss Gayford and the Staff and Pupils of the Girls' High School, who sent regular contributions to our funds and entertained the patients; Mr. and Mrs. Lee, Col. Tupman for his many kindnesses and support; the Herga Lawn Tennis Club, Miss Grundel's pupils, Mrs. Philp and the pupils of the "Oaks" School, Miss Ruth Tongue, who organized several entertainments, and all who entertained our patients at various times.

One of the most gratifying and interesting of our musical entertainments was that given by the party which Pte. Bailey, one of our patients, organized among his comrades in the hospital, in 1918. An accomplished musician and conductor himself, he trained eight of the patients within a fortnight, and, under the name of the "Whizz Bangs," the party gave two excellent entertainments in Harrow and Wealdstone, which delighted their audiences. The concerts resulted in the sum of £50 being added to the hospital funds.

We should also like to thank those who have kindly lent their motor cars and carriages to the hospital for driving the

patients out, and to Mr. Vincent Howells we are specially indebted for placing his car exclusively at the disposal of the hospital during the past twelve months.

VII.

OFFICERS AND MEMBERS OF WOMEN'S V.A.D.,
LONDON /168, ON THE STAFF DEC. 31, 1918,
AND PERIODS OF SERVICE.

	Service.	
	Years.	Months.
Mrs. E. M. Thompson, Matron and Quartermaster	4	... 3
Miss C. F. Thompson, Assistant Quartermaster ...	4	... 3
Mrs. E. Davies, Nursing Member...	3	... 11
Miss M. Ward	3	... 6
Miss C. Barber	3	... 0
Miss R. Laidlow	2	... 9
Mrs. A. Phillips	2	... 7
Mrs. S. Newson	2	... 6
Mrs. E. Wolfsky	2	... 3
Miss G. Baldwin	2	... 0
Miss G. Brothers	2	... 0
Miss W. Miles	1	... 9
Miss Mold	1	... 8
Miss R. Currie	1	... 8
Mrs. R. Pearce	1	... 8
Miss W. Barber	1	... 8
Miss M. Gordon	1	... 8
Miss D. Ward	1	... 1
Mrs. D. Vickary	1	... 0
Mrs. Ekins	0	... 11
	{and Acting Qtr.-}	
	{Master 5 months}	
Mrs. C. Hughes	0	... 10
Miss V. Young	0	... 5

Our V.A.D. members have worked with a spirit of self sacrifice worthy of the highest praise, and have rendered most valuable service. Many have passed through our ranks since 1914. Some have had to retire, broken in health through the stress of work and others owing to removal and other causes.

Thanks are due to all, past as well as present members, who have given help in the good work of tending the brave men, whom they have considered it a privilege to care for when sick and wounded.

VIII.

MEDICAL OFFICERS.

WE wish to render grateful thanks to the Medical Officers Dr. L. W. Sambon, Mr. McLeod Yearsley, F.R.C.S. (Consultants), Capt. J. Bensley Beatty, R.A.M.C., and Dr. Godkin Downes, who have had the medical charge of the patients.

Also to the Dental Surgeons, Lieut. H. Sharp, R.A.M.C., and Dr. E. Fox; to Mr. Coldwell, who has given excellent service as radiographer; to Mrs. Tracy, who acted as trained nurse and lecturer to the detachment and who gave devoted voluntary service as sister-in-charge to the hospital in 1915; and to the masseurs and masseuses, Mr. F. Marriott, Miss Tunarley, Miss Dorothy d'Eyncourt, and Miss H. Townshend, who gave voluntary service and rendered valuable assistance.

ADMINISTRATION.

CORDIAL thanks are due to Mr. F. T. Twyford, who has filled the post of Honorary Treasurer with great ability since 1915, and rendered excellent service. Hearty thanks are also due to Mr. Arthur Small, who from April 1917 has given whole-hearted service to the hospital as Honorary Secretary, and during the last six months has acted as Assistant Commandant and been in charge of the Food Rationing arrangements.

We also desire to express our thanks to the chaplains, viz.: the Revds. A. P. Jaggard, M.A. (Church of England), E. D. de Russett, M.A. (Baptist), W. Salmon and A. Gordon James (Wesleyan), and W. Quaife (Roman Catholic), for their attention to the spiritual welfare of the patients.

In conclusion we should like again to express our personal gratitude to Mr. Alfred Bird and Mrs. Bird, Senior, for so kindly lending the house, "Holmleigh," free of rent, as a hospital for wounded soldiers during the period of the War.

C. J. S. THOMPSON,
Commandant and Officer in Charge.

"We should also thank the women, our trained and untrained nurses, whose tenderness and care for the wounded have earned thanks from the lips of hundreds of thousands of poor men, whose lives have been spared much suffering through their tender ministrations. We all owe them a debt of gratitude."

Extract from the PRIME MINISTER'S SPEECH THANKING THE ARMY IN THE HOUSE OF COMMONS, October 29th, 1917.





XVIIth International Congress of Medicine
London: 1913



History of Medicine



Terra Sigillata, a Famous Medicament of Ancient Times

BY

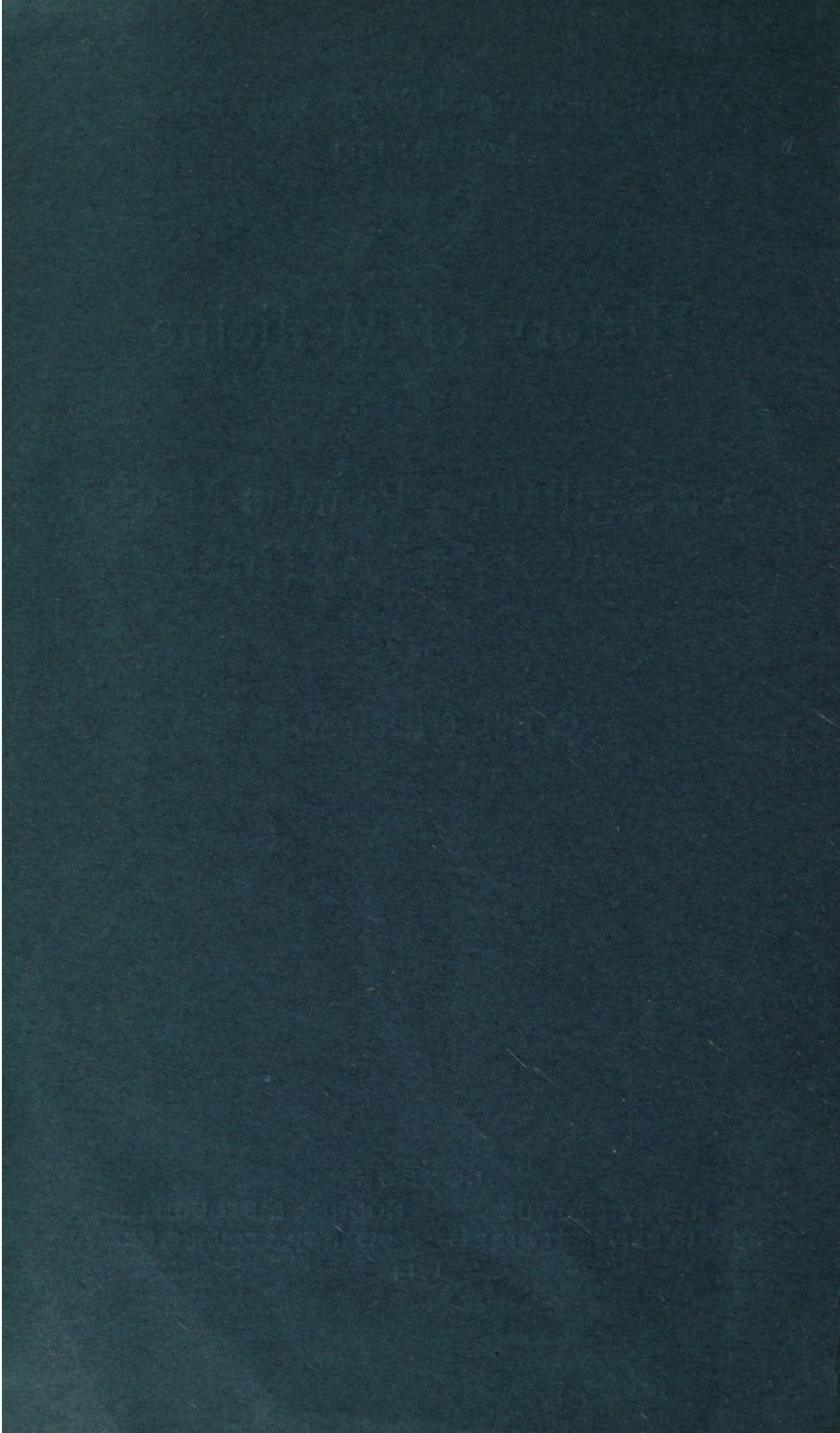
C. J. S. THOMPSON

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[Tuesday Afternoon, August 12]

SECTION XXIII
HISTORY OF MEDICINE

INDEPENDENT PAPER

TERRA SIGILLATA, A FAMOUS MEDICAMENT OF
ANCIENT TIMES

By C. J. S. THOMPSON

AMONG the medicaments famous in ancient times, but now almost forgotten, Terra Sigillata, or the sacred Sealed Earth from the Island of Lemnos, held an important place. It is especially interesting as it forms a direct link with Greek medicine, and survived until the middle of the nineteenth century. From about 100 B.C. until the end of the eighteenth century it enjoyed a great reputation, and was renowned throughout Europe for its remarkable properties. There is no record of its discoverer, but that it was in use in medicine before the time of Dioscorides, 40 B.C., is evident from the allusion to it in his work on *Materia Medica*. 'Lemnian earth,' he states, 'is found in certain caves of the Island of Lemnos in some marshy land. The best quality is here selected and then mixed with goats' blood. The inhabitants of the Island of Lemnos make the earth into lozenges, which they seal with the impression of a goat and call them goats' seals (Fig. 1). It is an antidote against deadly poisons. If it be taken before the poison, it promotes vomiting and expels it. Against stings and bites of all poisonous animals it is also efficacious, and is beneficial in the treatment of dysentery.'



FIG. 1.

Pliny alludes to this medicament about A.D. 100, and remarks on the high esteem in which it was held. He says, 'It comes after cinnabar in importance. Both the earth and the island on which it is found were well known in antiquity. As a medicine it is much esteemed. If rubbed under the eyes it moderates pain and watering from the same, and prevents the flow from the lachrymal ducts. In cases of hæmorrhage it should

be administered in vinegar. It is used against complaints of the spleen and kidneys, copious menstruation, also against poisons, and wounds caused by serpents.'

Galen, A.D. 131-201, appears to have been greatly interested in this medicament and its mysterious origin, and records in his work on the *Virtues of Simples* that he visited the Isle of Lemnos on two occasions in order to discover the true Lemnian earth, and to learn how it was prepared on the spot. From what he states, even in those early days, Terra Sigillata had achieved a wide reputation and a high commercial value, and attempts were made to substitute for it other earths that were similar in appearance. In his time the Greeks stamped or sealed the earth with a representation of Diana, one of the goddesses associated with healing, and the seal was regarded as sacred. He describes the true Lemnian earth as that which does not stain the hands when touched, as 'rubrica.' 'This earth,' he states, 'comes from Lemnos, the island otherwise called Stalimene, and is found close to a town called Hephestias on the top of a red-stained hill, barren of plants and which has the appearance of having been burnt. Three kinds of it are used—the first, that which is called sacred and which nobody but the priestess may touch; the second, that which might really be called "rubrica" and which is often used by smiths and carpenters; and the third, which has cleansing properties and is used in removing stains from clothes and linen. Having read in Dioscorides and other authors that Lemnian earth was mixed with goats' blood, and that out of the mass that resulted the priestess formed the lozenges called Lemnii, I now ardently desired to see how the earth was mixed and to know the properties of the parts. I was pleased to sail to Lemnos and see the quantity of blood used in that earth. The hill from which the earth is taken has a burnt appearance, not only in colour but also because nothing whatever grows upon it. It was on this hill that during my stay a priestess came one day, and, having spread some barley and corn upon the ground, and having carried out a few other ceremonies customary in that country, she loaded a cart full of that earth. She carried it into the town and began preparing in the open air those well-famed Lemnian seals.' The earth was first treated with water, stirred, and then allowed to settle to free it from impurities. The supernatant liquid was then decanted, and the earth deposited was removed, freed from stones, and dried into a soft mass which was afterwards cut into tablets and stamped with the sacred seal of Diana. The priestess then placed the tablets in the shade, where they were allowed to remain until all moisture had evaporated and they had become hard and dry.

'I thought it right,' continues Galen, 'to inquire whether anyone recollected that earth ever being mixed with goats' blood. But this question was received with derision. I was given a book written in ancient times by one of that country, in which all the virtues and uses of the Lemnian earth are given. I was pleased to experiment with them

and took away with me 20,000 of these seals. The person who gave me the book, and who was one of the most important men of the island, used the medicament for many purposes, such as old ulcers which were slow in healing, and against bites of snakes and other animals. He advised me to administer the earth after and not before poisons. He stated that he had experimented with Terra Sigillata mixed with juniper as an emetic. I have used this in cases where people have been suspected of having eaten cantharides and sea hare, and as soon as they had taken the potion composed of Lemnian earth they vomited everything, so that they escaped the consequences of these poisons although they had eaten of both. I do not know whether the potion made of juniper and Terra Sigillata has the same effects against deadly poisons, but that Hephastian affirmed it for a certainty, so much so that he said it cured those bitten by mad dogs, if taken with watered wine, and if applied externally to the wounded part with some very strong vinegar. He used it also for bites of all kinds of animals, and applied it to the affected part on a leaf, which has the faculty of resisting putrefaction. We have tried it with success for malignant ulcers and plagues hard to cure. Thus when the ulcers are soft the Lemnian earth must be mixed with very strong vinegar and then applied.'

Galen describes the difference between Lemnian earth and Armenian bole, and, referring to the latter, states: 'During the spread of a very severe and cruel plague some earth of very cleansing properties was brought to me. It came from Armenia, and was called by the person who gave it me *stone*, and not earth. It crumbles up as lime does, and, like the latter, contains no sand.'

In the Syriac Book of Medicines, recently translated by Dr. Budge, which was probably written about the twelfth century, Terra Sigillata is included as an ingredient in several of the recipes.

Bartholomæus Anglicus, in a MS. written in the thirteenth century, refers to 'A serten veyne of the erthe called Terra Sigillata, which is singularly cold and drie. And Dioscorides calleth it Terra Saracenicā and argentea, and is somedeale white, well smellynge and clere. The chief virtue thereof byndeth and stauncheth. And powder thereof tempred with the whyte of an egge stauncheth bledynge at the nose. And helpeth ayenst swellinge of the fete and ayenst the gowte, if it be layed in a playstre thereto, as it is sayde in Lapidario.'

So great was the demand for the famous Terra Sigillata of Lemnos from the thirteenth to the fourteenth century that many other earths, for which similar properties were claimed, were exploited and recommended in many of the books on medicine of that period. Almost every country in Europe strove to find within its boundaries a source of supply of so valuable and profitable a commodity. Some of these rival medicaments acquired a considerable reputation, one of the most celebrated being Terra Sigillata Strigoniensis, or Strigian earth, which was found in Silesia and for which remarkable properties were claimed.

It was yellow in colour, and when made into tablets was impressed with a seal representing three mountains (Fig. 2). It was also known as *Axungia Solis*, as it was supposed to contain particles of gold, being obtained from a pit in a disused gold mine. The properties of Strigian earth are described in a curious little work by Johannes Montanus, printed in 1585, in which



FIG 2.

he records various tests which were made of its powers first on animals, and afterwards on a man who had been made to swallow a considerable quantity of corrosive sublimate. The account of the latter test is so interesting that it is perhaps worth quoting in detail. It reads as follows in the quaint language of the time :—

'We Wolfgangus Earle of Hohenloe, Lorde of Langenburg, &c. Do openlie make knowen unto all men by these my Letters Testimoniall, that there came lately before me at Langenburg, my welbeloved friende Andreas Betholdus of Oschatz, and declared unto mee that he had a most excellent kinde of Terra Sigillata, which was not alonely of great force against sundrie diseases : but also a most undoubted remedy against all manner of venemous poisons, as had beene proved by sundrie witnesses upon a great number of dogges, which made me also desirous to see the triall of it. It happened at the same time, that one called Wendel Thumblardt was by our Lieuetenant of Langenburg for certaine felonies imprisoned, who being examined by our Justices, confessed himself guilty of a great number of robberies : And therefore brought to the barre was condemned to bee hanged. Being yet detained in prison, and coming to his eare that there was such a medicine, so soveraigne against sundrie sicknesses, and the most deadly poisons, has made humble request as well by his parents, as by other his friends, of which there were present no small number, desiring for the mercie of God, and respect of his poor life, that being thus condemned, hee might have given unto him the most deadly poison that might be devised, whereby a perfit triall might bee had of the worthines of this medicinable earth. And in this respect, not onely for this pittifull request of his : but also for the commoditie and benefite of all Christendome (if so be the medicine proove answerable to the report), pardoning the offender, we graunted his life upon that condition. Therefore the day of the date of these presents, in the presence of our selfe, and our welbeloved Cosin the Countie George Friderick of Hohenloe, and Lord in Langenburg, and in the presence of all our Nobilitie and Commons, the said patient received a dram and a half of Mercurie Sublimate, mingled with Conserve of Roses, and immediately after it he drank a dram of the Terra Sigillata in olde wine. And albeit the poison did in the judgement of our learned Phisition George Pistor, Doctor in Phisicke, and John Lutzen our Apothecarie, who were both by him all the while, extremely torment and vexed him : yet in the end the medicine prevailing overcame it, whereby the poore wretch was delivered, and being restored to his health was committed to his parents. Whereas

therefore the foresaid Andrew Berthold, hath humbly required to have our Letters Testimoniall for his farther credite, wee have thought good for the furtherance and advancement of the truth, to graunt him these our Letters, signed with our seale Manuell. Given at Langenburg the 25. of Januarie, in the yeare of our Lord. 1581.'

Agricola has a reference to the tablets of Lemnian earth brought from Constantinople in 1530, which he describes as being of a yellowish colour and stamped with Turkish characters. 'The Turks,' he says, 'held it to be the only remedy for plague, using it as the Arabs, used Armenian bole.'



FIG. 3.

Another variety of Terra Sigillata emanated from Malta. This was a white earth of a chalky nature which was made into large, thin disks of various shapes bearing the impress of St. Paul and the serpent, as it was considered particularly efficacious in cases of snake-bite (Fig. 3). Among other earths of a similar nature, mention should be made of Terra Samia from the Island of Samos; Terra Sicula, from Sicily; Terra



FIG. 4.

Portugallica, found in Portugal, which bore the impress of a rose; Terra Chia and Terra Cymolia, which were both white earths and considered of great value; and Terra Lignicensis, which was impressed with an eagle (Fig. 7). The latter was also called Axungia Lunae, as it was excavated in the neighbourhood of a silver mine and was supposed to contain a small proportion of that metal. Earths for which similar properties were claimed were also found in Bohemia, in Griffenstein, Velden, Blois and Laubach (Fig. 6). An account of the latter has been left by Geilfus.

In Italy, Terra Sigillata was prepared in several districts and known as Sessana, Toccarese, Oreana and Florentina, the latter being stamped with the arms of the Medici family (Fig. 4). They were all famous as antidotes against poison, and consequently in great demand in Italy during the fifteenth and sixteenth centuries.

An earth excavated in the vicinity of Jerusalem, called Terra Sigillata Hierosolymitanæ, was also highly esteemed. It was white and either bore the impress of a crucifix, the symbol of the Jesuit fathers, a figure of the Madonna, or the head of Christ. Valentin states that he possessed two specimens of these tablets among his rarities, one of which bore the impress of a crucifix and many crosses and was known as 'Mary's milk.' This earth was found in a cave near Bethlehem in which the Virgin Mary was supposed to have hidden with her child, and these tablets were recommended to promote lacteal secretion (Fig. 5).



FIG. 5.

A Terra Sigillata was prepared also in England, and, according to Berlu, there were two varieties, a red and a white, but he gives no description of the impress or seal. It is little wonder that Wirtzung, writing in 1598 on the subject, says: 'Of more than twentie things be these Trociskes made. Wherefore we do leave them to the apothecaries. They be very much used, for most they be forcible against spitting of blood if the same be given with the water of Knotgrasse. They be also good against the bleeding at the nose if the same be annoynted on the forehead, likewise for the bleeding of the pyles.'

Although so many recognised varieties of Terra Sigillata were known and used in the sixteenth century, a large number of false earths were also sold, and Thevet, writing in 1554, states: 'The Jews adulterate it considerably when they sell it to people who have no knowledge of it.'

About the year 1553, Pierre Belon, following the example of Galen, paid a visit to the Isle of Lemnos with the express object of obtaining information as to the collection of the famous sacred earth. He states that the hill from which it was taken was in the neighbourhood of Kotchino. Here on the hillside he found two fountains, of which the

one on the right side of the ascent was perennial, while that on the left dried up in summer. No trees grew upon it except a carob, an elder and a willow, which overhung the perennial spring. The earth, he found, was dug from the upper part of the hill, and the ceremony took place on one day of the year only, namely on the sixth day of August, in the presence of the Turkish governor of the island and a large concourse of people. It commenced with a Mass which was said by the Greek priests and monks in a little chapel at the foot of the hill, and on the conclusion of this they mounted the declivity, and the soil leading to the particular vein of earth was removed. The entrance was so deep that from fifty to sixty men were required to clear it. When the true medicinal earth was reached the monks filled a number of sacks with it and handed it to the Turkish authorities, after which the soil which had been removed was again replaced. The greater part of the earth was dispatched to the Sultan at Constantinople, but some was sold to merchants on the spot, while those who took part in the digging were allowed to carry off a small quantity for their own private use. In no case, however, was anyone



FIG. 6.

allowed to sell it until it had been sealed. Belon collected eighteen different kinds of tablets, many of which, he states, bore different impressions. This difference he attributed to the fact that each lord of the Island of Lemnos was said to have a distinct seal. In addition, there was no lack of counterfeiters, who falsified the seal so well that they made it resemble the original. According to the Greeks and Turks of his time, the most ancient seal was about the size of the thumb and consisted of four letters (Fig. 8). He describes the earth as being made into small cakes of various shades and colours, the prevailing tone being a dull red. Some were soft and fatty, others were gritty when chewed and slightly bitter to the taste. He mentions one variety which was red in colour but mottled with spots of white earth, also a counterfeit which was coated with Armenian bole and sealed with two letters entwined. Another kind of seal he found in two shops only in Constantinople: this earth was sold for a higher price than the others and possessed an aromatic smell.

Instructed by the Austrian ambassador, Stefano Albacario, a Spanish physician of the sixteenth century, journeyed to Lemnos to investigate the famous earth, and his account of its collection corresponds with that given by Belon.

The fame of Terra Sigillata appears to have reached its height towards the end of the sixteenth century, when it is recorded that it was in such great request as an antidote to plague, dysentery and other disorders

that ambassadors, on returning from Constantinople to their native countries, were accustomed to take supplies of it with them to present to distinguished men.

In the early part of the seventeenth century the Island of Lemnos fell into the hands of the Venetians, but was regained for the Turks in 1657 by Mohammed Kiuprili, who regarded it as a victory of such importance that he sent a dispatch to Adrianople to inform the Sultan that he had 'won back the island where the sealed earth was found.'

An interesting account of Terra Sigillata was written in the seventeenth century by Pomet, who, in his *History of Drugs*, states: 'The earth most esteemed is in little reddish cakes, the least sandy and the most astringent you can get. It is much used in medicine because of its astringent quality. The Lemnian earth is fatty, clayey, dry, soft and friable, yellow, white or reddish, and astringent to the taste. Choose your sealed earth that is soft to the touch and which will cleave to the tongue. The Turks, who are the present masters of it, mix it with other earths of the



FIG. 7.



FIG. 8.

same nature and, having kneaded them together with water, make them into little round cakes which they seal with the Grand Signor's seal to make them pay duty.'

Charas, another French writer and author of the *Royal Pharmacopœia*, referring to sealed earths in 1694, says: 'All these earths are fattish and astringent, and are composed more or less of the same substances and have the same taste. The true Lemnian earth is red, which probably accounts for the legend of the mixture of goats' blood.'

Charas claims to have secured a specimen of the true Lemnian Terra Sigillata from which he was able to judge of its properties. He states: 'I have, however, been at a loss in finding any natural smell in the Lemnian Terra Sigillata or in any other, and I do not think it ever existed, unless it had been artificially added by washing it in some aromatic waters.'

Valentin, writing a few years later on the sealed earths of Germany, remarks: 'They are of a fatty, heavy and clayey nature, and are generally shaped into roundish disks, which have an earthy smell, and are red, yellow, brown, or white. Of all the earths Terra Lemnia is the best, and is so highly appreciated that it is considered equivalent to gold.' In his time, about 1704, the tablets were stamped with the Turkish emblem—a half moon with three stars or other Turkish characters. The Sultan considered it of so much importance that they should not be taken out of the country that it was almost impossible to obtain them,

excepting through a consul to whom they were sometimes given. He describes a Terra Sigillata Turcica and a Terra Sigillata Arabica, both of which were impressed with Turkish characters and pinkish, grey or white in colour.

Of the commercial value of Terra Sigillata, the earliest record I have been able to find is that given in a list of drugs in *The Family Physician*, by Gideon Harvey, printed in London in 1678, where the price of Terra Sigillata is given as 1s. 4d. per ounce. In a price-list of the State Apothecaries of Basel, printed in 1701, Terra Sigillata Silicia is quoted at 2 florins 6 pfennig per ounce, and Terra Sigillata Turcica at 3 florins 4 pfennig per ounce. In another price-list of medicines sold by the apothecaries of Florence, dated 1761, Terra Lemnia is quoted at 5 lire per ounce.

Having considered the early history of this interesting medicament, some account of the extraordinary properties attributed to it may be mentioned. By the Greeks, in ancient times, it appears to have been chiefly used as a remedy for the bites and stings of venomous animals, pain and watering of the eyes, hæmorrhage, dysentery, diseases of the spleen and kidneys, and also as an antidote against deadly poisons. By some writers it is recommended in cases of spotted fever, and it was applied externally to promote the healing and prevent the putrefaction of wounds. By others it was frequently prescribed for scabies, gonorrhœa and dysentery.

Terra Sigillata has often been confused with Armenian bole, but there is ample evidence from the time of Galen down to that of Belon that they were two distinct earths, and that the latter was only used as an adulterant of the former.

Terra Sigillata entered into the composition of many important preparations, and was one of the ingredients in the famous treacle of Andromachus. It also formed part of many other preparations, especially the class known as 'alexipharmic powders,' which were largely used and prescribed for fevers, small-pox and pestilential diseases in the sixteenth and seventeenth centuries. Hungary powder, a famous preparation used in dysentery, contained Lemnian earth, syrup of quinces, and plantain water. An electuary was also made from Terra Sigillata in conjunction with syrup of bearberries and conserve of roses. It entered into the composition of a magisterium, and an oil for application to the eyes which was included in many pharmacopœias. It was included in the first edition of the *Pharmacopœia of the Royal College of Physicians of London*, printed in 1618, among the ingredients in the treacle of Andromachus, and throughout the seventeenth and eighteenth centuries appears in most of the official books on medicine in Europe. As late as 1833 it was included in the *Pharmacopœia Universalis* of Jourdan as Terra Sigillata, Terra Lemnia, or Lemnian Bole, and is described as being met with in round, cylindrical, or flat cakes, of a pale rose-colour, and bearing the stamp of some seal. It was also official in the pharmacopœias of Spain, Brunswick, Geneva and Wurtemberg. Probably its last appearance in any important work on pharmacy is in Grey's *Supplement to the Pharmacopœia*, 1848. He

states: 'Terra Lemnia, Terra Sigillata, Lemnian Earth, or Sealed Earth, is a kind of bole originally brought from the Island of Lemnos, and said to have been obtained from a hill where no plant grew. The Turks, who were formerly the principal dealers in it, made it into little flat, circular cakes, which were stamped with the impression of a seal, and the name Terra Sigillata, Sealed Earth, is applied to it in this state.'

Since the middle of the nineteenth century this once famous remedy has dropped out of use in medicine, and is now practically forgotten.

In 1890, Tozer made a pilgrimage to the 'Isle of the Sacred Earth'. He gives us an interesting account of his visit to the site of origin of the ancient medicament. On arriving at the place where it is obtained, near Kotchino, he found the ground everywhere covered with turf, but otherwise devoid of vegetation. He states: 'The cavity from which the "sacred earth" is taken is an insignificant hole about 50 feet in circumference and 10 feet deep, the bottom of which is now entirely filled up with dry stalks of thistles. The "sacred earth" is found at a depth of 3 feet below this'. In the neighbourhood there is, however, another spot which seems to have been excavated, and it is believed that the vein extends for some distance below the soil. The earth, however, is not the same as that which Galen and Belon describe, for while they speak of it as red in colour, the specimens shown to me resembled ordinary clay. Either the original vein has been exhausted or they no longer dig deep enough to reach it. As in Belon's time, it can only be dug on the 6th day of August, and unless this takes place before sunrise all its efficacy is said to be lost. It is also confidently believed in the island that when the ground is opened, the sacred earth wells up of its own accord, but when I questioned a local authority he replied much in the same way as Galen's auditors did to his inquiries about the admixture of goat's blood in the drug.'

The account of the customs observed on the occasion, which continued in full force until five or six years ago, was as follows:—

'On the appointed morning the Governor or his representative proceeded to the spot accompanied by the Mohammedan "khodjas" and the Christian priests, both of whom took part in the ceremony; the former of these offered a lamb as a sacrifice (kourban), of the flesh of which they afterwards partook, while fish was provided for the Christians, who were prohibited from eating meat at that season, owing to its falling in the fast of fourteen days which precedes the festival of the Virgin. According to tradition, sometimes two or three thousand people were present, and as much as seven mules' load of the earth was carried away to be sent to Constantinople. It was then made into pieces of the size of tablets of soap and was stamped with the Government seal. The locality I have mentioned is evidently the same which Belon visited, and probably corresponds to that described by Galen. The resemblances between the ancient and modern customs and beliefs are also very striking. The

sacred character attributed to the earth and the religious auspices under which it was removed, the offerings made on the occasion, the guarantee of genuineness provided by the seal, and the confidence which was placed in its efficacy as a medicine, are features common to the earlier and the later accounts and seem to point to an unbroken tradition. To these one more may be added, which is not the least curious I have mentioned, that the ancient authorities agree in regarding it as an antidote to poison. At the present day small bowls are made on the spot of this material, and are bought by Turks, who believe that a vessel made of this clay neutralises the effect of any poison that is put into it. I purchased several of these from the potter, and each of them is stamped in five places with the Government seal, which bears in Arabic characters the same inscription which Belon mentions as being used in his day, *tinimaktoum*, *i.e.* sealed earth. This seal, he informed me, was obtained for him from Constantinople twenty years before by an exiled Pasha, who desired that a number of these bowls might be made for him.

'Notwithstanding the long duration of this time-worn belief, it is evident from the neglect into which it has lately fallen that ere long it will be a thing of the past. For several years the Turkish governor has ceased to attend, and, following his example, first the "khodjas" and then the priests absented themselves, and no lamb is now sacrificed. Last year only twelve persons were present. Though the tablets were to be bought in chemists' shops in Kastro at the time of Conze's visit to the island in 1885, I inquired in vain for them, and neither the existing Government nor any persons of the younger generation have heard of this remedy. In the eastern parts of Lemnos, however, it is still in use for fevers and some other disorders, for the women possess nuts of it which they string like the beads of a rosary. These they grate in cases of illness and take a teaspoonful of the powder in water. Not long ago the proprietor of the hillside applied for leave to plough over the spot and sow it with corn, and though for a time this was not allowed by the Government, yet, when the annual celebration has come to an end, the prohibition will safely be ignored, and from that time forward the locality itself will be forgotten.'

The last investigator to visit the site of the famous earth was Hasluck, in 1909. He states he was unable to obtain specimens of it in the capital of the island, but at the pottery below the site he bought bowls of an ill-levigated clay bearing the old inscription *tinimaktoum*. 'The monopoly of the pottery and seal, formerly hereditary in a Turkish family, has lost even this link with the past, and the once priceless antidotal bowls have come down to the very moderate figure of a halfpenny each.'

The importance attached to this remedy in ancient times, and the high esteem in which it was held as a remedy for nearly 2,000 years, led me to the present investigation in the endeavour to ascertain if the remarkable properties attributed to it were real or fictitious.

Some years ago I was fortunate enough to obtain a small sample of the Lemnian Earth of the sixteenth century. On analysis its composition was determined and found to be as follows:—

Silicates	37·23 per cent.
Ferric oxide	4·08 „
Aluminium oxide	13·51 „
Calcium oxide	22·90 „
Magnesia and alkali oxides	1·50 „
Water and carbon dioxide	17·72 „
Moisture as determined by heating at 130°	3·06 „

In 100 parts

From this it may be judged that the properties of this slightly astringent and absorbent earth have been considerably overestimated, and this no doubt accounts for its disappearance from the pharmacopœias of the present day. We must, therefore, conclude that its virtues, like those of many other ancient remedies, were chiefly due to the mystery surrounding its origin and the superstitions connected with its source.



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RULES OF HEALTH

PREScribed FOR AN ENGLISH QUEEN IN THE
FOURTEENTH CENTURY.

By

C. J. S. THOMPSON, M.B.E.

WELLCOME HISTORICAL MEDICAL MUSEUM.

LONDON. 1921.

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RULES OF HEALTH
PRESCRIBED FOR AN ENGLISH QUEEN IN THE
XIV. CENTURY.

By

C. J. S. THOMPSON, M.B.E.

Curator of the Wellcome Historical Medical Museum.

—o—

When examining a volume of ancient manuscripts now in the Wellcome Historical Medical Museum, which consists of several medical treatises of the XIV. Century, two leaves were discovered bound with them, written in script of the same period, containing matter of considerable historical interest. They record certain 'Rules of Health' drawn up for Isabella, Queen of England and wife of King Edward II.

Isabella, daughter of Phillip IV. King of France, married King Edward in 1309, and her brother, who became Louis X., succeeded to the throne five years later. This compilation sent by him to Queen Isabella was probably written about 1315.

From the opening paragraph it would appear that King Louis had but little faith in English leechcraft, and, anxious for the well-being of his sister who had gone to live in a foreign country, he had the excellent compilation made, in which was embodied the combined wisdom of the most learned French and other physicians of the time.

The text is as follows :

Here begynneth a compilation of philosophers that was sent to Dame Isabelle, Quene of Engelande, be prayere of ye King of france hir brother. Who so will kepe it sal never neden leche crafte.

These are good for ye brayn. To smelle ye savor of musk and ye savor of camamille. To drynke wyn mesurably (moderately). To eten (eat) sauge (sage) and notemuge (nutmeg). To kemb (comb) ofte thin(e) hed. Ofte whaschyng (washing) of handes and fe(e)t. Measurabel (moderate) wakyng and slepyng. To here swe(e)tly noyse, as harpyng, lutyng synggyng (singing). To ete mustard and pep(per). To smelle reed roses & to ete letuary (electuary or conserve) made with ye reed rose.

These are evel for ye brayn. Alle maide braynnes.^a Gloteny. Drunkechip (drunkenness), late soper (supper). To slepe sone aft' me(a)te, Eyr (air) yt is corrupte. Hevines (violence) and Anger To hille (cover) thin(e) he(a)d to(o) hote. To(o) myche costyf. To ete (eat) to(o) myche hete (hot) or to(o) myche colde. Milke, chese, nootes (nuts). and to ete (eat) or (before) thu have hunger. Bathinge after me(a)te. Myche wakyng (waking). Porret (spring onions), garlek, onyons. Overgre(a)t noyse. To smell white roses. Mekyl steryng (moving) of thin(e) he(a)d.

These are good for ye syte. Rede rose. Ruwe (rue) verveyn (vervain) fenel, celidoyn (celandine), enfrase (eyebright), eysel (vinegar). To put do(w)n thin(e) eyne open in clere water. To looken often on greene color and black color. Measurabel (moderate) slepe. Ofte whaschyng of ho(a)ndes & feet. Ye stomak weel defied.^b Ofte

^a Probably made-up or cooked brains.

^b Able to digest.

kemynge (combing) of ye he(a)d. Lokynge often in a meror (mirror) or in the water.*

These are evel for ye syte. Pouder (dust), garlek, onyons, leek, hunger, wakyng (waking), wynde, hoot eyre (hot air), gloteny. Drunkenchep (drunkenness), milke, chese, long lokynge on a bryte (bright) thing, as weel whyte thinge as red thinge. To slepe sone after me(a)te. To mekil slepe, to mekil wakyng (waking). To mekil letying blood (bleeding). Smoke. Wortes of cole (colewort), mustard and other as porret (spring onions) letcheri. To slepe shod. Fire agens (against) ye eye. Breed (bread) yt is evel bakyn. Wepynge (weeping), lokynge (looking) myche on bo(o)kes. And onder (over) mekil garsynge (cupping).

These are good for ye brest. Honey, suker (sugar), butter with a litel salt, licorise, dates. To soupe rere (raw) hegges (eggs). And isop (hyssop) quo soever (howsoever) yt (it) be oosed (used).

These are evel for ye brest. Mustard, mekyl liggyng (lying) on ye brest. Pep(per), anger. Alle fried m(e)ate. Alle ro(a)sted me(a)te, letchery, mekyl wakyng (waking), mekil thirst, mekil drynkkyng. Raw frute, mekil cryng. Stody (study), hevines (violence), Smoke of incense. Hold chese. Over hote eyre (air) Over cold eyre. Alle sour thinges. Drye thinges. Alle cold thinges.

These are (good) for ye heart. Saf(f)ron, borage, ioye (joy), lawynge (going to law), musk. clowes (cloves), ganegale (galingale), notemuge (nutmeg), rede rose, violet, acory, (sweet flag), maces, camfor (camphor), and all clene and good wyn.

* In connection with this it is interesting to note that in the Anglo-Saxon Leech-book, of Bald (X Century) it is stated: "For mistiness of eyes many men, lest their eyes should suffer the disease, look into cold water, and then are able to see far."

These are bad for (ye heart.) Pesn (peas) benes (beans), leek, garlek, onyons, hevynes (violence). Anger, drede (dread), sorwe (sorrow), besines (business), sorwe (sorrow), to(o) mekil love, longe sittynge by ye fyr (fire), to(o) mickle travayle, to drynken cold water, evel tydyngs, evel smel.

These are good for ye stomak. Mynte, rose, comyn (cummin), suker (sugar), sauge (sage), worm(wo)od, calamynte (calamus), every monthe to spewe ones (once), hunger, every day stondynge (standing) after mete and soft walkynge (little walking) after mete. Every cold thing and sour, ganyngale (galangal), notemuge (nutmeg), vinegar, pep(p)er and ye morwe (morning) slepe.

These are bad for ye stomak. Alle swete thinges, for why, thei swellen, notes (nuts), old chese, mekyl oyle and mekyl honey, mary (marrow) of bones yt is not weel soden. To eten (eat) or (before) thou have hunger. To ete many manner of metes at a sittynge. To drynke havynge no thirst, hevines (violence), drede (dread), besines (business). Al fryed thinges, bathynge anon (soon) after mete, to(o) mekel spewynge. To ete qwhan (when) thou art over hot of fever or of travayle. All mylk of bestes is bad save of ye gote.

Rules of Health and Diet drawn up by learned physicians became popular in Europe after the publication of the "Regimen Sanitatis Salernitanum," which is said to have been composed at Salerno for Robert of Normandy, the son of William the Conqueror, at the end of the eleventh century.

This famous medical work in verse, compiled by the physicians of the school of Salerno, became a popular compendium for those who were not learned in medicine generally, from the eleventh to the seventeenth century, and its copies were multiplied in manuscript by various commentators for nearly four centuries before the invention of printing. It was first printed in Latin at Montpellier in 1480, and afterwards translated into many languages and attained over two hundred editions.

As a popular work on dietetics and health it probably achieved its aim in bringing people to realize the value of moderation in living, eating and drinking, and in avoidance of excess, as the best means of preserving health and prolonging life.

Many of these old rules of health have survived to the present day in the form of wise sayings and maxims, which have been handed down for centuries. Emanating originally from the lips of philosophers and wise men, they embody the crystallised experience and collective wisdom of past ages,

The following may be instanced as examples of health maxims that have come down to us from ancient times:

“ Rise early in the morn and straight remember,
With cold water washe your hands and eyes,
In gentle fashion stretching every member
And to refresh your brayne when as you rise.”

“ Three things preserve the sight: grass, glass and fountains.”

“ Dry feet, warme head, bring safe to bed.”

“ Sleep without supping and wake without owinge.”

The compilation sent to Queen Isabella contains certain principles of sound common sense, and at first sight seems to bear some resemblance to the “ Regimen Sanitatis.” From a careful comparison, however, with the text of the latter, the only resemblance appears to be in the similarity of some of the drugs and herbs mentioned.

Thus with reference to things “ hurtfull for syte,” the Regimen Sanitatis states:

“ Now shall you see what hurtfull is for syte:

Leekes, onyons, garlicke, mustard seed, fire and light;
Smoak, Bruises, Dust, Pepper to powder brought—”

which is somewhat like the recommendations in the French compilation. Rue, which is recommended as “ good for ye syte ” in our text, is referred to in the Regimen Sanitatis as follows:

“ Rue is a noble herbe, to give it right,
To chew it fasting it will purge the sight.”

Mustard also, which is mentioned among the things as “ good for ye brayne,” is referred to as follows in the Regimen Sanitatis:

“The seede of mustarde is the smallest graine
And yet the force thereof is very great ;
It hath a present power to purge the brain.”

It is thus apparent that the rules drawn up for Queen Isabella are not identical with those of the Regimen Sanitatis of the School of Salerno and similar compositions. One may, therefore, reasonably conclude, that it was an original compilation drawn up by various French physicians and philosophers of the period, embodying the best health precepts and knowledge of their time.

La dentisterie historique
au musée d'histoire médicale "Wellcome"
à Londres

Par G.-J.-S. THOMPSON, M. B. E.

Tirage à part de *La Semaine Dentaire*
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1921

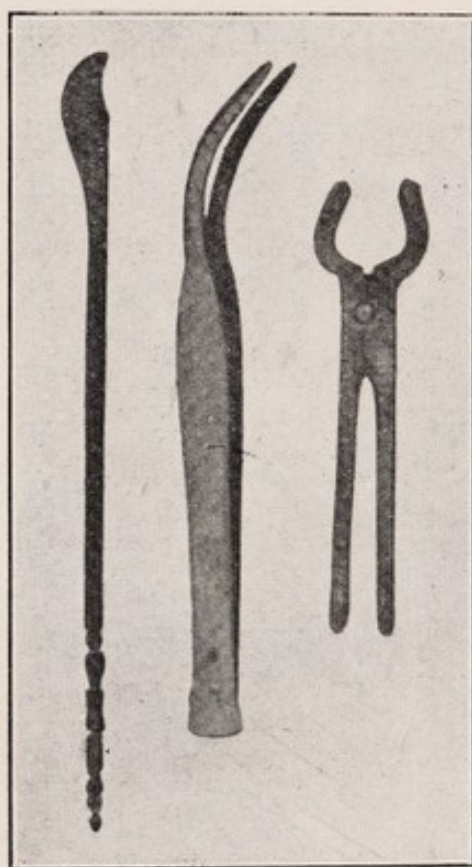
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La dentisterie historique au musée d'histoire médicale "Wellcome" à Londres⁽¹⁾

Par C.-J.-S. THOMPSON, M. B. E.

Le dentiste qui s'intéresse à l'histoire de son art trouvera au Musée d'Histoire Médicale «Wellcome» (2), de Londres, bien des choses dignes d'attention. Instruments, prothèse



Instruments dentaires gréco-romains.

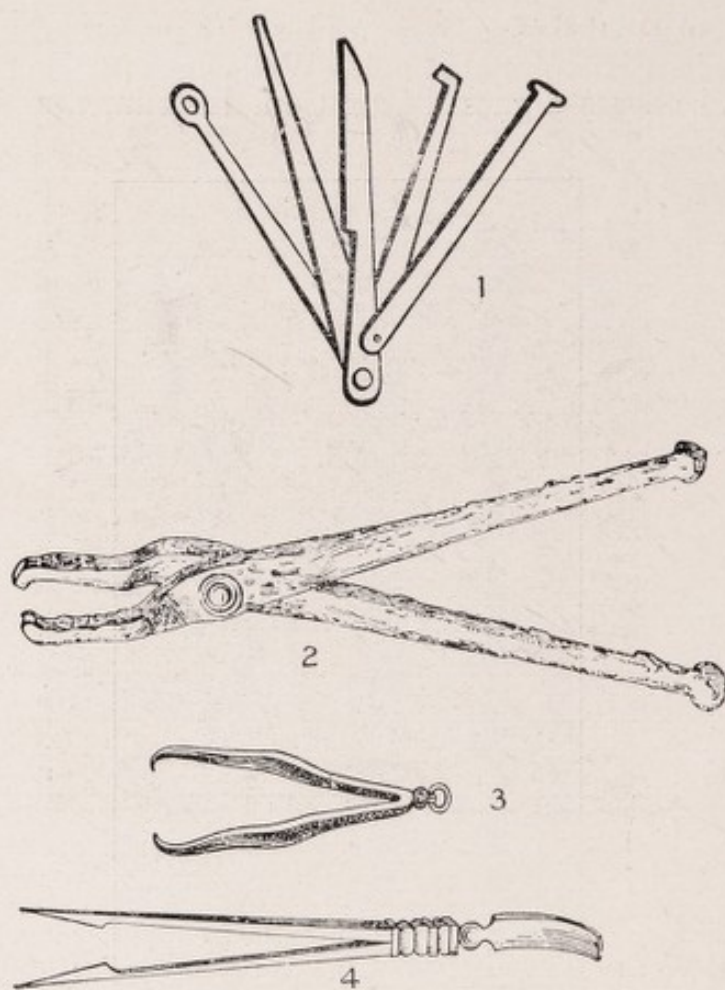
dentaire, hygiène, s'y trouvent illustrés par un grand nombre d'objets, de peintures et de sculptures, depuis l'antiquité jusqu'à nos jours.

(1) Nous devons cet article à l'obligeance de M. C.-J.-S. Thompson, M. B. E., Conservateur du Musée d'Histoire Médicale « Wellcome », à Londres, que nous sommes heureux de remercier ici pour sa courtoisie et le prêt gracieux des documents qui ont servi à établir les illustrations. *(All Rights reserved).*

(2) A Londres, 54, A. Wigmore Street

Parmi les instruments employés aux temps anciens, figure un davier de bronze de l'époque gréco-romaine, avec mors pointus qui servait probablement à l'extraction des chicots.

L'évolution du davier dentaire est représentée d'abord par un dessin qui montre comment, au Japon, les dentistes indigènes arrachaient les dents avec le pouce, aidé d'un



Instruments dentaires romains.

1. Nécessaire de toilette comprenant un cure-dents.
2. Davier romain.
3. Instrument dentaire romain.
4. Précelles (décrites par Cels).

autre doigt. Viennent ensuite des instruments se rapprochant de plus en plus du davier moderne. La collection renferme des modèles de daviers antiques grecs et romains et divers instruments primitifs employés pendant le Moyen Age. Parmi ceux-ci se trouvent quelques spécimens curieux d'instruments connus sous le nom de « pélicans » et de « cagnoli », ceux-ci usités en Italie.

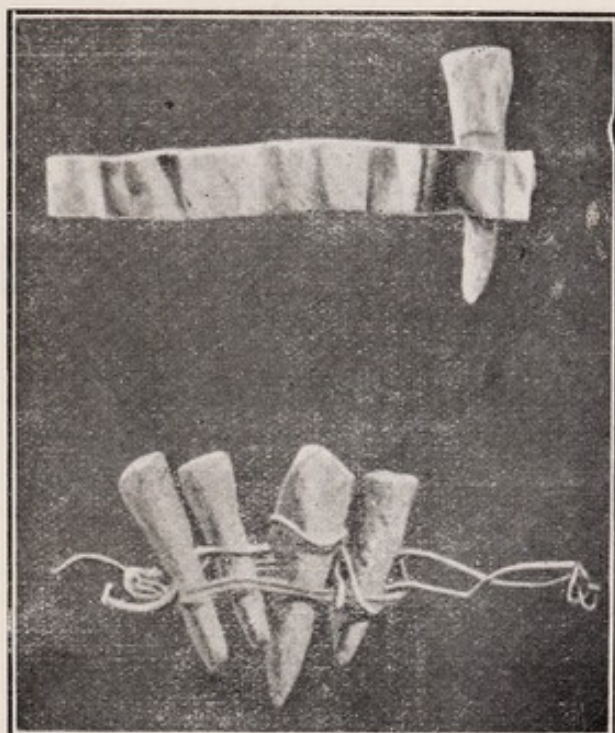
Parmi les types anciens, on voit un intéressant « davier »

découvert dans un monastère d'Ecosse et décrit par Peter Lowe dans son livre de chirurgie en 1596.

Le début du 18^e siècle vit l'avènement de la clé ou levier, dont on voit de nombreux et curieux spécimens.

A la fin du 17^e siècle et au commencement du 18^e siècle, vinrent en usage d'autres types bizarres de daviers, par exemple un ancien pélican avec crochet détachable et un pélican avec levier ajustable.

Un autre instrument curieux destiné aux extractions



Pièces prothétiques grecques.

consiste en une corde à boyaux formant nœud coulant que l'on serrait fortement autour de la dent et que l'on actionnait ensuite au moyen d'un levier à ressort.

Depuis le début du 18^e siècle, les types de clés dentaires présentaient une grande variété, depuis celles que l'on faisait en fer dans la forme véritable d'une clé, jusqu'à celles pourvues de poignées en ivoire, en os, en buis, en ébène et en métal.

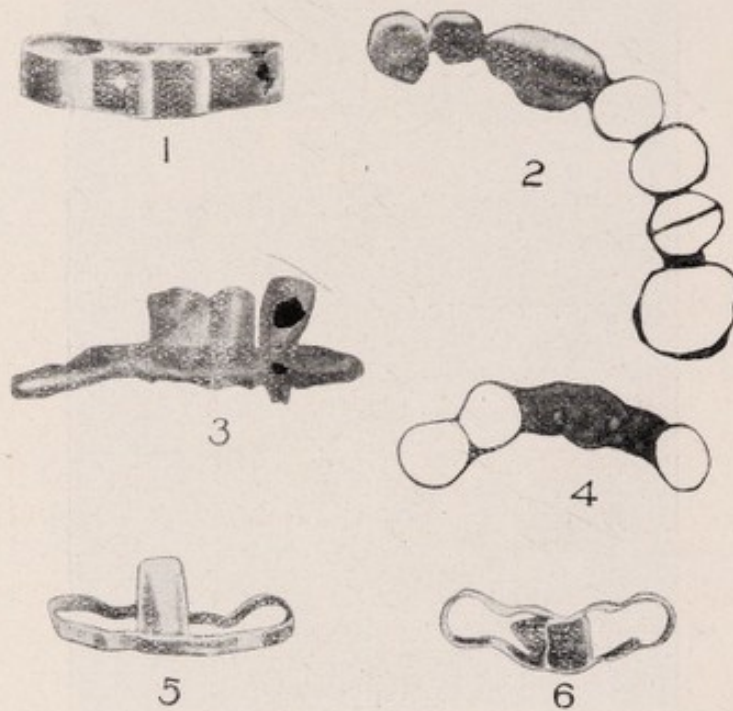
Dans les belles collections d'instruments, il faut remarquer un assortiment complet d'instruments en or fabriqués par Everard, en 1860, pour le Docteur O'Meara, chirurgien-dentiste d'Abdur Rhaman, l'Emir de l'Afghanistan, à Caboul, en 1880.

Citons parmi les instruments rares et anciens, un appareil

anglais de 1530 environ, décrit comme davier dans le livre *Rerum Medicarum*, d'Octavius Horatianus. Il est intéressant de noter que cet outil fut découvert à la suite de fouilles faites en 1884 à Londres, Throgmorton Street. Un autre stylet ancien, datant du 18^e siècle, est combiné avec un levier ; un autre porte une lame recourbée et une poignée d'ivoire.

Le musée possède une collection très complète d'éleveurs, remontant au 16^e siècle.

Un coffre en marquetterie contient un assortiment d'ins-

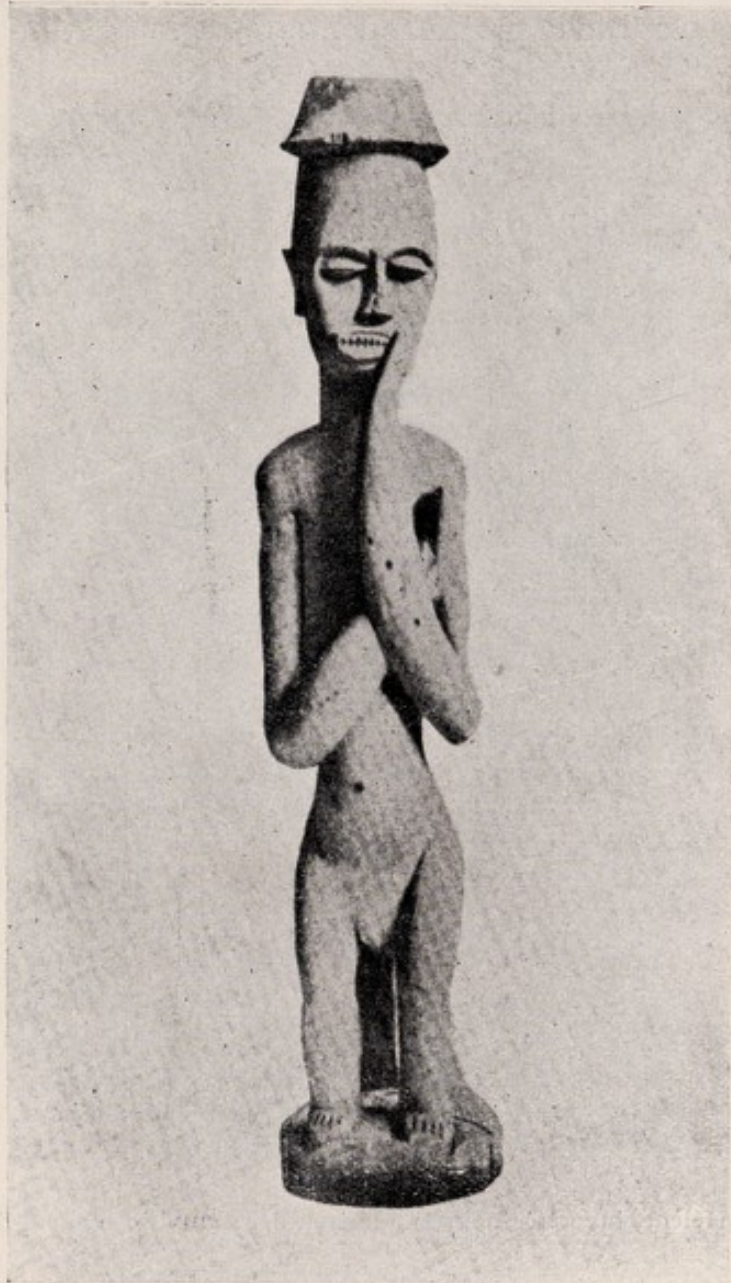


Pièces prothétiques étrusques.

truments dentaires d'une façon et d'un fini merveilleux. Cette trousse date du début du 18^e siècle ; les manches des instruments sont en nacre, les montures en argent et en or et portent le monogramme « P. V. » ; ce sont des daviers, des clés, un miroir, des grattoirs, des ciseaux à émail, des excavateurs, des fouloirs, des polissoirs et une vis à racine. Ils sont l'œuvre de Moreira de Brest. On suppose qu'ils faisaient partie de l'*armamentarium* d'un célèbre dentiste de la cour. Ne serait-il pas intéressant qu'un de nos lecteurs réussit à identifier le dentiste pour qui cette trousse fut faite ?

La prothèse dentaire est représentée graphiquement par le modèle d'un dentier étrusque en or, découvert à Corneto Parquinio ; il était fait pour porter trois dents artificielles, dont l'une manque, tandis que les incisives centrales sont

taillées dans une seule dent de bœuf sculptée et sillonnée, de manière à lui donner l'aspect de deux dents. On suppose que ce travail remonte à 1.000 ans avant notre ère.



Le mal de dents.
Statuette en bois (peuplades du Niger).

On voit aussi des modèles de dents artificielles de l'Égypte ancienne, unies par un fil d'or et datant de 700 ans avant J.-C. environ ; plusieurs pièces prothétiques grecques,

étrusques et romaines, donnant des exemples de bridges et de couronnes en or.

On trouve encore une série complète de spécimens montrant les différentes phases de la taille de dentiers dans un bloc d'ivoire et l'on peut suivre chronologiquement le développement de la prothèse dentaire, depuis l'ivoire sculpté



Sainte Hélène, invoquée pour la guérison des maux de cœur et des dents.

jusqu'aux plaques d'ivoire avec les dents rivées, aux plaques métalliques avec les dents fixées par le même procédé, les premières pièces en caoutchouc et en métal avec les premières dents minérales. On aussi exposé des exemplaires des premières dents en porcelaine faites en France.

L'hygiène dentaire est présentée dans un casier qui montre l'évolution de la brosse à dent. Ici des spécimens indiquent les méthodes des Grecs pour nettoyer les dents

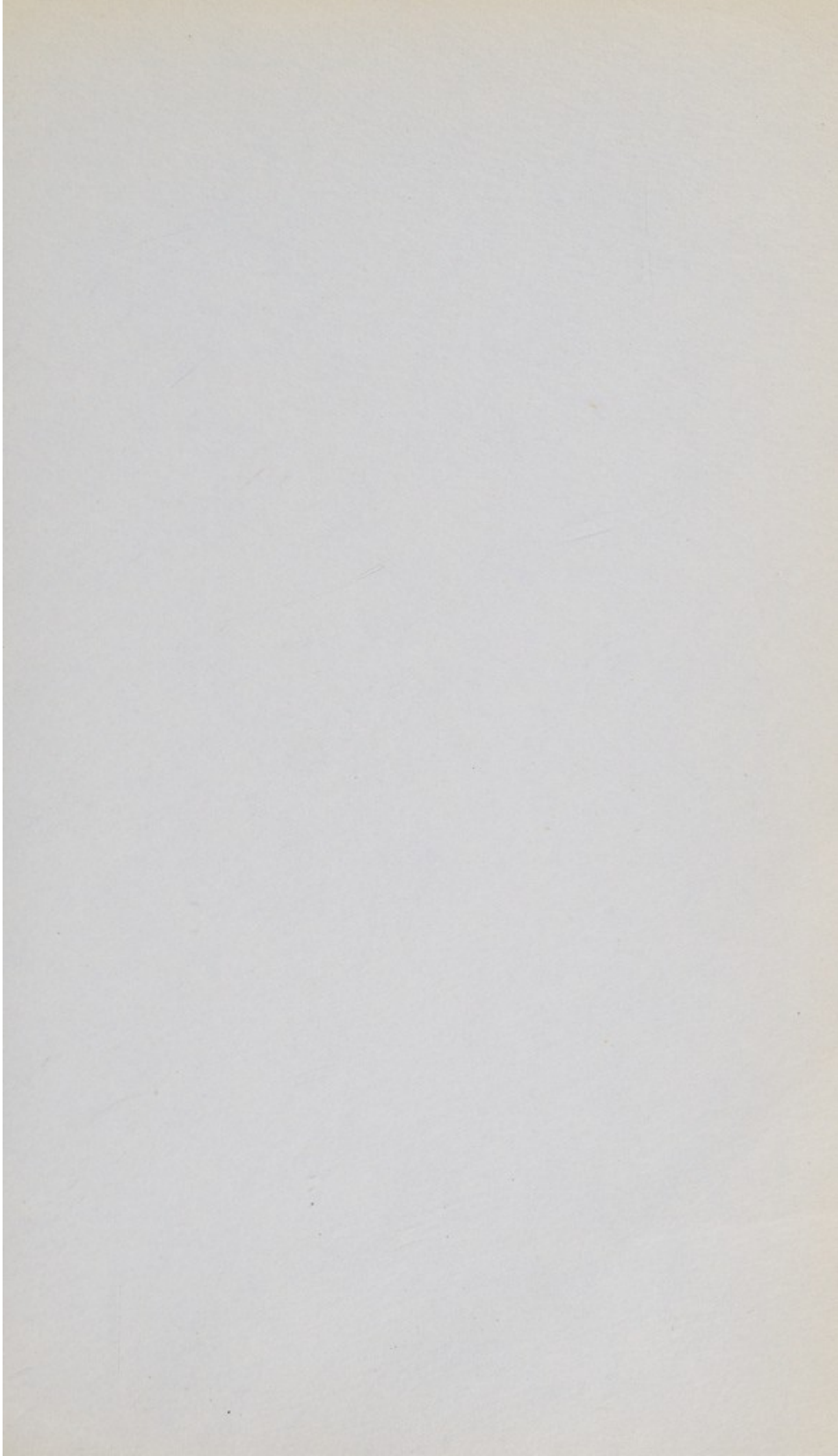
avec un morceau de laine ; là, le cure-dents usité en Orient, les brosses à dents en poils de cheval employées au 17^e siècle, l'éponge sur monture ; enfin, la brosse en soies de porc, inventée à la fin du 18^e siècle. Une relique historique intéressante consiste en une brosse à dents avec manche en vermeil qui appartient à Napoléon I^{er} et porte son chiffre et ses armes.

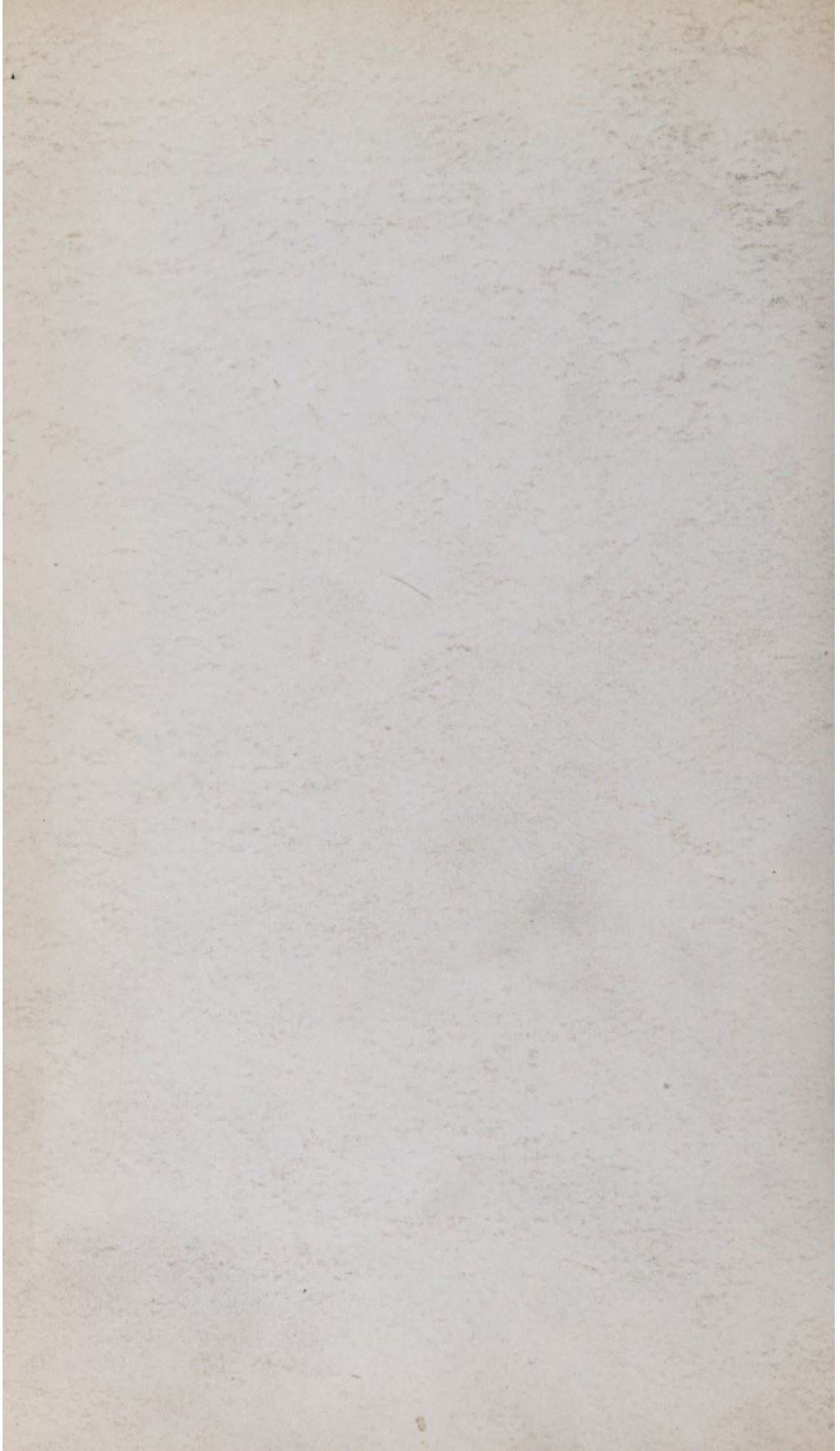
On trouvera encore une très riche collection des petits objets de toilette dentaire si répandue en France, dans la première partie du 19^e siècle.

La carte d'un dentiste du 18^e siècle est intéressante, non seulement par la valeur artistique de sa belle gravure, mais à cause du titre donné au praticien dentaire de cette époque. On lit « *Peter HEMET*, opérateur pour les dents, Great Maddox Street, près de Hanover Square. »

Le musée abonde en peintures à l'huile, en aquarelles, en estampes et dessins illustrant la pratique de l'art dentaire.

Mentionnons seulement plusieurs belles reproductions d'anciens manuscrits de Sainte Apolline, des tableaux des écoles hollandaise et italienne, représentant l'extraction des dents par les chirurgiens-barbiers et les charlatans, sujet favori des artistes des 17^e et 18^e siècles. Des caricatures, des estampes humoristiques et des gravures intéressantes forment une section importante de cette grande collection, qui illustre si bien l'histoire de l'art dentaire.





Greco-Roman Votive Offerings for Health

in the

Wellcome Historical Medical Museum

BY
C. J. S. THOMPSON, M.B.E.,
Curator.



Reprinted from "HEALTH," March, 1922.

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Greco-Roman Votive Offerings for Health in the Wellcome Historical Medical Museum

THE custom of making votive offerings, which dates back to a period of great antiquity, probably had its origin in the varied offerings made to the dead by the ancient Egyptians and early Greeks, who placed in their tombs miniature weapons, models of utensils and other objects which had belonged to the deceased, with the idea that they might require them in the "unknown" to which they had departed.

At a later period votive offerings assumed a more varied form, and included lands, money, statuary, sculptured stone tablets and models, made in metal, marble or clay of various parts or organs of the human body, animals, fruit and other things liable to decay.

These offerings were made for various reasons, as for instance, after victory in war, success in games, safe deliverance from accident, danger or calamity, and for recovery from disease. Sometimes they were promised beforehand to the deity supplicated, and at others were offered as a thank-offering after deliverance from the danger. At times an offering was made to a special deity as an inducement to grant some favour.

Most of the Greek temples dedicated to the gods of healing were buildings of great beauty and magnificence, and the interiors were richly decorated with sculptures and mosaics. In the outer court were placed or hung the votive tablets in marble, stone, wood or clay. Sometimes they took the form of a painting depicting the healing of the

afflicted donor, at others portraits of the divinities or their givers. The votive offerings were also suspended from the walls or ceiling or scattered round the sides of the deities, each of them telling the same tale of human suffering and the charity of the divinity.

The chief Greek temples erected to Asklepios were at Epidauros and Athens. There is an interesting tradition connected with Asklepieion at Athens. It is said to have been founded by the Epidaurian priest-physicians, who sent out one of the sacred snakes from the sanctuary and where the reptile settled the temple was built. This appears, indeed, to have been a custom when the site of a new shrine was to be found. It is repeated in the legend of the Temple of Aesculapius on the Tiberine Island at Rome. According to Pausanias, the snake was supposed to embody the healing god himself, and he describes how Aesculapius came to Sicyon in the form of a snake in a car drawn by a pair of mules.

The Temple of Asklepios, at Athens, was built at the close of the fifth century, and stood in a grove of trees. Attached to it was the court or abaton where the patients slept when they came to supplicate the healing deity. Here, as already stated, they placed their offerings to the god, but the more precious were deposited within the temple. Inside the building was the statue of Asklepios himself, the sacred couch with tripods for incense and tables for offerings. The

statues of the deities were often of the most beautiful description. That of Asklepios in the Temple of Epidaurus was of heroic size and wrought in ivory and fine gold. The god was represented with staff and golden serpent, seated on a marble throne, with a background of exquisite mosaics in gold and colour. Besides the temples there were many minor shrines which were located on the sites of healing or medicinal springs, to which those suffering from disease flocked in the hope of a cure either by drinking or bathing in the waters. It was customary for the person when relieved of his sufferings to throw a thank-offering into the water before leaving, or hang a gift on the side of the shrine, near the statue of the god to whose beneficence the cure was supposed to be due. Sometimes surgical instruments were offered by patients probably as a votive offering for a successful operation. A case of this kind is recorded by Erostratus, who offered to Apollo in the Delphus a forceps of lead to show how little he approved of the extraction of teeth when they were not loose enough to be pulled out with the fingers !

The Greek or Roman votive gifts presented as thank-offerings for recovery from sickness may be roughly classified as follows :

1. Those in the model of the deity who was believed to have healed the sufferer.
2. A model of the individual afflicted or some limb, organ or portion of his body that had been affected with disease.
3. A tablet in relief representing the act of healing.

The collection in the Historical Medical Museum is very large and numbers nearly 500 specimens. Their age varies from fifth century B.C. to the second century A.D. They were chiefly excavated at the Temple of Aesculapius on the Tiberine Island near Rome, and on the site of a Temple of Maternity in Capua.

The earlier Greek offerings include a stone votive tablet in relief representing two plaits of tails of formally plaited hair. This, accor-

ding to an inscription upon it, is dedicated by Philombroses and Aphthonetos, sons of Deinomachos, to Poseidon. Representations of the hair were apparently offered for other purposes beside that of health. These were probably offered by youths on reaching the age of puberty and were found in a temple at Thessaly.

Another Greek relief in stone found at Pnyx, near Athens, represents an eye which is dedicated to Zeus the " Most High " supplicating that deity for relief from eye disease. An interesting Greek votive offering is a terra cotta model of the lungs, heart, liver, spleen and other internal organs which are tinted in their natural colours. An offering probably for rheumatism is represented in a stone relief of a left leg which bears an inscription of dedication to Asklepios and Hygeia by Tyche. This was found at a shrine of Asklepios on the Island of Melos, and another in stone found in Cyrene also of Greek origin represents the human right ear, probably offered for deafness.

In the collection at the Historical Medical Museum there are many interesting specimens belonging to the class first mentioned. These consist of small statuettes representing Asklepios, the chief Greek deity of medicine, Hygeia, his daughter, the goddess of health, and Telesphorus, the little deity in a cloak and pointed cap associated with convalescence. To these were added later in Roman times several minor deities associated with health and maternity.

The second class is by far the largest and is the most interesting from a medical point of view. Practically all the limbs, parts and organs of the human body are represented in these Roman clay models, many being of a pathological character and some of considerable size. One represents the torso of a woman, nearly life size, from the head to the thighs without arms. In the chest is an ovoid opening showing the internal organs, very crudely modelled, which were thought to be the source of her disease. Another large

specimen represents the trunk of a male, which was found at Isola Farnese in Italy. It has an opening between the lower extremity of the sternum and umbilicus, showing thoracic and abdominal viscera conventionally disposed. This shows traces of having been painted in colour and no doubt originally formed a very important gift.

The prevalence of eye diseases among the Romans may be inferred from the large number of models of the eye that have been discovered near the temples and sacred shrines. Deafness also must have been very common, as shown by the large number of models of the ear which have been excavated from time to time. Hands, legs, arms and breasts are also very numerous. One that calls for special notice in the collection is the representation of a life-sized hand, the fingers of which clasp in the palm an ointment pot, from which it would appear that the donor had suffered from some skin disease and had been healed by the application of the contents of the box. It is thought that this offering was probably specially modelled for the purpose.

In shrines dedicated to Amphiaraus a large number of votive offerings have been found representing the female organs, breasts, nipples, uteri and pudenda being frequently met with. Offerings connected with domestic life have also been excavated, including models representing babies wrapped in swaddling clothes, which apparently were frequently given as thank-offerings by anxious mothers when their infants had recovered from sickness. Other figures represent women with the hands clasped to the breasts, supplicating for lactation. A curious votive offering in bronze represents a scalp of neatly plaited hair, which was discovered some years ago in the Temple of Minerva, near Rome. It is supposed to have been offered to Minerva Medica after the recovery of the loss of hair probably after sickness. In connection with this there is also a model in clay of the female

head with patches of hair missing on the scalp, showing that the owner was suffering from alopecia areata. This was found on the Quirinal, together with other votive offerings in Rome. A female bust, well modelled in terra cotta, was found near Capua, and is interesting as showing a form of suspensory bandage for the mammæ called by the Greeks "anamakaliston."

Among other models in the collection, mention should be made of a tongue, a set of teeth, a larynx, the large intestine, ovaries and a well-modelled specimen showing the floor of the throat and the trachea.

Of offerings comprised in the third class, there are numerous specimens to be seen in the museum in the form of statuettes of adults and children, representing obesity, dropsy, rickets and other diseases. Some are disclosing the parts of the body diseased, so as to attract the attention of the deity to their infirmity, and figures of parturient women are represented sitting in a kind of obstetrical chair or stool. A votive plaque represents Asklepios reclining on a couch drinking from a rhyton; Hygeia, his daughter, who is seated, is holding a vessel in her left hand, while near the couch is a representation of the patient and two attendants, one of whom is carrying a basket on his head, presumably with an offering to the deity for recovery. Another plaque modelled in clay represents a patient at a healing spring and shows how the patients came to the sacred shrine. On the left stands the local nymph with right hand outstretched towards the source, while on the right is the figure of Hercules with the lion's skin over his head.

Another special class of votive offerings consists of miniature vessels modelled in red and black clay of various shapes, excavated in the neighbourhood of the temples. They take the form of cups, goblets, bowls, and other vessels used for drinking water at the spring. Other curious models are those of children riding on the backs of pigs, which were probably offered to the goddess Carna,

to whom the pig was sacred and to whom weakly children were brought to be healed.

Models of animals, including cows, horses, pigs, rabbits, sheep, also oxen, birds and pigeons are found among the debris near the temples, probably presented as thank-offerings. In connection with this it is interesting to note that the ox was regarded as a sacred offering to Asklepios, and the cow to the goddess Diana.

Among the fruits, of which models have been found of the Roman period dating from 200 to 300 A.D., are representations of apples, plums, pears, peas, oranges and tomatoes.

An interesting group modelled with some skill represents an old nurse of the "Sairy Gamp" type carrying an attenuated infant on her left arm and dragging with the right an older child walking by her side.

A Roman votive offering given by women for an easy delivery was the Nixi, a figure of the goddess of parturition in a kneeling attitude representing the position usually adopted by Roman women in the first stage of labour.

Some curious ex-votos of the Roman period of pathological interest excavated in Syria are included in the collection. One represents a woman with a hydrocephalus head and deformed arms, and another an emaciated youth apparently suffering from tubercular disease. There is also a model in terra cotta of a man pitted all over the body and limbs, and another of a monstrosity without legs and one breast.

It is curious how the custom of making gifts for recovery from disease to propitiate certain deities supposed to preside over the affliction has continued throughout the Middle Ages down to the present day. Shrines, healing springs and wells said to possess healing properties have been sought by sufferers in search of relief to place gifts of money or in kind at the healing shrine.

In the Abbey of St. Antoine in the Sologne in France during the Middle Ages thousands suffering from gangrenous ergotism (then

called *Mal Ardent*) visited the relics of St. Anthony, the patron saint of that disease. Those who declared they were cured would leave their crutches or even limbs that had dropped off from gangrene, as offerings to be hung in the church.

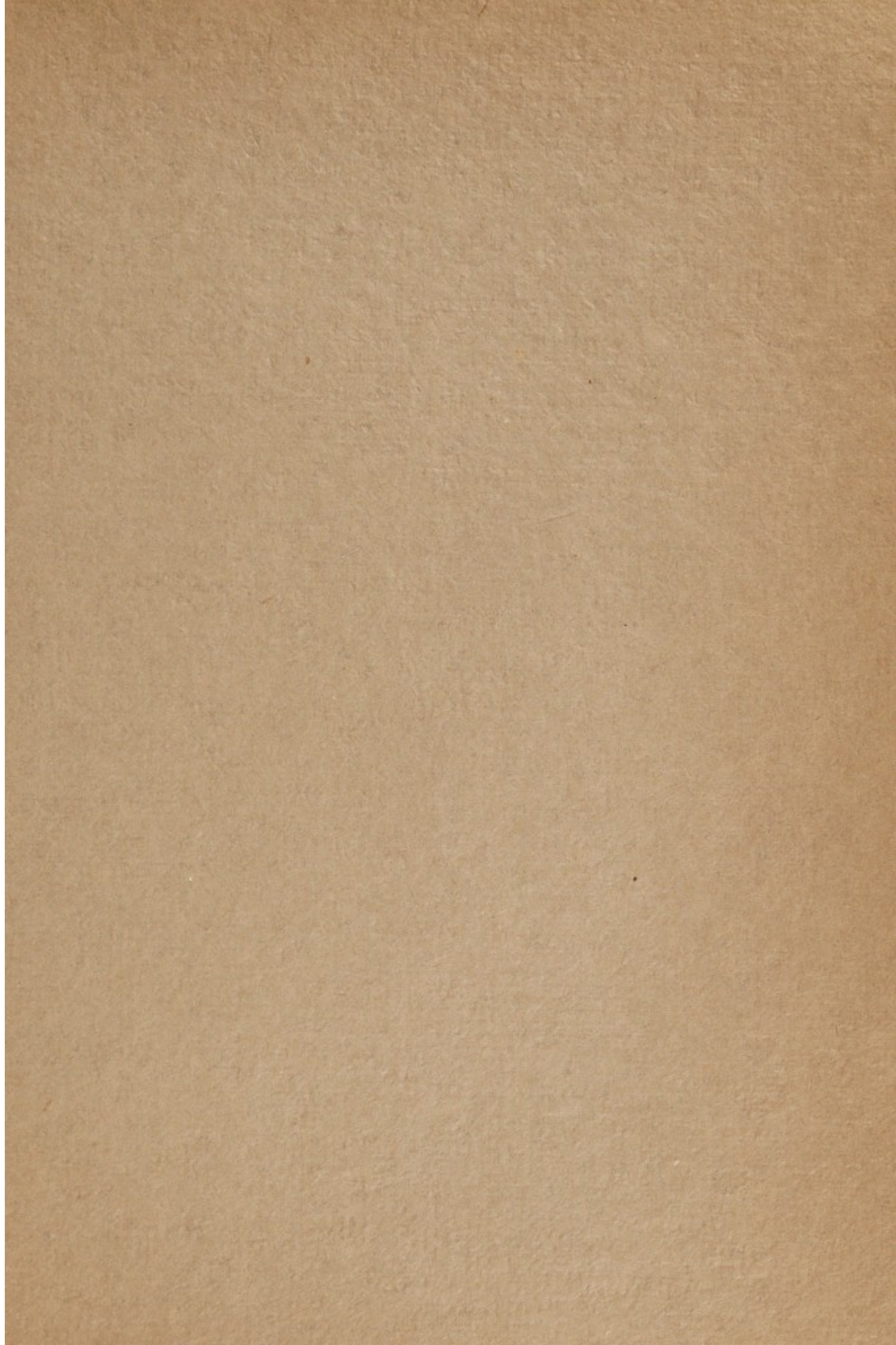
In Turkey, votive offerings of silver and other metal, representing the eyes, hands, heads, feet and complete figures of the human body are still offered in the Greek churches on recovery from sickness. Similar votive offerings are used in Peru, Spain, Italy, Belgium and the Canary Islands. In Portugal, where smallpox is still common, votive offerings of various parts of the body modelled in wax, spotted in colour to indicate the pustules, are still sold and found hanging in the churches.

In Great Britain, St. Winifred's Well in Flintshire is still renowned as a shrine of healing where those who have benefited from its powers often leave crutches and other appliances behind them as votive gifts. At St. Helen's Holy Well, near Tadcaster in Yorkshire, it is still customary for the patient to attach a piece of white rag to the twig from a bush and leave it at the well as a thank-offering.

At the Holy Well of St. Mangholds in the Isle of Man a similar custom prevails, and a piece of blue or other ribbon is tied to the rushes growing round the well on the first visit, as it is believed when the material rots, the sufferer will be cured.

In Italy in the churches containing relics of saints who are believed to have special protection over certain diseases and bodily ailments, offerings are still made of models or pictures of the afflicted person or of the parts affected by disease and are suspended near the altar or figure of the saint.

Many interesting specimens of modern votive offerings gathered from all parts of the world are included in the collection at the Wellcome Historical Medical Museum, which illustrate the survival of this ancient custom down to modern times.





ASSYRIAN MEDICAL TEXTS

BY

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Assyrian Medical Texts.

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THE following translations are from the Assyrian cuneiform tablets from Kouyunjik published in my *Assyrian Medical Texts* (Milford, Oxford University Press, 1923). Transliterations in type have not been included, chiefly because of the difficulty of printing them. I propose to discuss the texts generally, after the translations have been concluded.¹

¹ It will be seen that many of the vegetable drugs have been translated without comment, and for these the reader is referred to my *Assyrian Herbal* (Luzac & Co.), shortly to be published. I must here record my thanks to Professor S. Langdon for the ever-ready way in which he has put his library, as well as his notes for his forthcoming Sumerian Dictionary, at my disposal.

The abbreviations used herein are: *ADD.*, Johns, *Assyrian Deeds and Documents*; *AH.*, my *Assyrian Herbal*; *AJSL.*, *American Journal of Semitic Languages*; *AM.*, my *Assyrian Medical Texts*; *ASKT.*, Haupt, *Assyr.-Sumer. Keilschrifttexte*; *Br.*, Brünnow, *List of Cuneiform Ideographs*; *BSGW.*, *Berichte ü. d. Verh. d. kgl. Sächs. Gesellsch. d. Wissenschaften*; *CT.*, *Cuneiform Texts from Babylonian Tablets*; *Del.*, *HWB.*, Delitzsch, *Handwörterbuch*; *Diosc.*, Dioscorides, ed. Sprengel; *E.*, Ebeling, in *Archiv für Geschichte der Medizin*; *EB.*, *Encyclopædia Britannica*, 11th ed.; *Holma*, Holma, *Körperteile*; *Hrozný*, *Getr.*, Hrozný, *Das Getreide im alten Babylonien*; *IB.*, Ibn Beithar, in Leclerc, *Notices des Manuscrits*, xxiii, xxv, xxvi; *KAR.*, Ebeling, *Keilschrifttexte aus Assur, Religiösen Inhalts*; *KB.*, Schrader, *Keilinschriftliche Bibliothek*; *Kü.*, Küchler, *Beitr. z. K. d. Assyr.-Bab. Medizin* (I = K. 191, II = K. 71b, III = K. 61); *MA.*, Muss-Arnolt, *Assyrian Dictionary*; *OLZ.*, *Orientalistische Literaturzeitung*; *P.*, Squire, *Companion to the British Pharmacopœia*, 18th ed., 1908; *PBE.*, *Babylonian Expedition of Pennsylvania*; *PC.*, *Penny Cyclopædia*; *Pliny*, Pliny, *Natural History* (ed. Bostock); *PSBA.*, *Proceedings of the Society of Biblical Archaeology*; *R.*, Rawlinson, *Cuneiform Inscriptions of Western Asia*; *RA.*, *Revue d'Assyriologie*; *SAI.*, Meissner, *Seltene Assyrische Ideogramme*; *SM.*, Budge, *Syriac Book of Medicines*; *ZA.*, *Zeitschrift für Assyriologie*; *ZK.*, *Zeitschrift für Keilschriftforschung*.

Numbers, such as 21, 1, 1, or *AM.* 21, 1, 1, refer to page and tablet-number and line in *AM.*

An asterisk * affixed to a drug means that there is a very slight doubt about the exact species, or, a slight variability possible, owing to there being a closely allied and almost interchangeable candidate for the same drug-name; **, some doubt about the identification, but good reason for it; a query (?), when there is real and justifiable doubt.

TRANSLATIONS.

A. DISEASES OF THE HEAD.

No. 1.¹ *AM.* 1, 2 (K. 6684), *top broken.*

1. . . . thou shalt anoint his . . . , and . . .

2. . . . does not press² . . .

3. . . . [in ?] . . . , [which] hath not . . . (?), thou shalt wash him, and lice shall not come nigh.

4. . . . in cedar-oil thou shalt mix, anoint.

5. . . . ([a drug] full of sweet . . . , *murru* (= myrrh) is its name) . . . [in his nostrils ?] for his cleansing he shall blow, and it shall restore him.

7. . . . thou shalt bray³ . . . *urtú*-plant, put it in oil, anoint, (and) the lice cannot exist.

8.⁴ [If a man]'s [head] is full of scabies and itch,⁵ thou shalt bray sulphur,⁶ mix it in cedar-oil, anoint him.

¹ The catch-line at the end of K. 163 (see *AM.* 1, 1), "If a man's head hurt him, his tongue prick him," shows that K. 163 precedes *AM.* 21, 2.

² Cf. 94, 9, 3 . . . *tu-kap-par tak-pir-ta i-sa-an-niḫ-šum-[ma]*.

³ RAT = *ta-pa*, or more correctly *ta-zak* (so E. xiii, 6, ingeniously, taking PA = ZAK from ID.PA = *a-za-ag*, Delitzsch, *Sum. Gloss.*, 15). As he says, the sense "pound" is found in *mazuktu* "mortar".

⁴ Duplicate of *KAR.* 202, 11.

⁵ *Ikkitu* and *rišutu*. The similarity of *SM.* i, 554, a Syriac receipt ܠܫܚܘܬܐ ܕܪܝܫܐ ܕܢܫܐ "for the scabies and lice (or itch) in the head", is most marked. *Ikkitu* thus = Syr. ܠܫܚܘܬܐ "scabies", and *rišutu* Syr. ܕܢܫܐ "lice (or itch)". (Cf. also 21, 1, 1, [. . . *u*] *naš u rišutum* . . . , and 26, 1, 6, 17; 30, 1, 5, 9.) The verb of the former occurs as *ukkak* (74, 1, 32, 34, q.v.); *iraššišumma* occurs 1, 2, 10 "if scab takes a man's head, it tickles him". Cf. also 74, 1, 32, 34, where a form of eczema breaks out on the leg, and *iraššišumma ukkak*. It is thus certain that this verb is referable to Syr. ܪܫܘܬܐ = *rāšu*, although by its form it might be *rašū*.

⁶ *KI.A.* ID or *kibir* ID (*nāri*). Miss A. M. Lunn, B.Sc., made the correct suggestion to me that this is "sulphur". This tallies with the use of a remedy for scabies and itch in the head, sulphur being thus prescribed in *P.* 1178. It is therefore obvious that *kibir* ID or *kibir nāri* "bank of the river" (becoming *kibrītu* in *AM.* 33, 1, 35, 36), was taken over into Arabic as

ܕܩܝܪܝܬ, and Hebrew קִבְרִית "certainly foreign word" (Briggs-Driver, *Dict.*). The Tigris

has several sulphur springs near it, and there are sulphur mines eight miles from Mosul (Ainsworth, *Assyria*, 258), and doubtless the Assyrians collected it from deposits on the river banks.

In *AM.* the use is constantly external (for *šiggati*, 32, 5, 5; soles of the feet, 75, 1, iv, 25; eyes, 19, 6, 13, etc.), and in fumigations (33, 1, 9; 51, 4, 6; 91, 1 r. 1; 99, 3, 5, etc.). For saliva (31, 4, 17): Quantity prescribed, one shekel (53, 1, 6). Both "white" and "black" sulphur are quoted (2, 1, 15).

9. [If ditto], thou shalt heat [sulphu]r (and) let (it) cool¹ in the oil of his head ; thou shalt heat *idra*² of salt (and) let (it) cool in the oil of his head.

10. [If a man]'s [head] gets a scab,³ it tickles him, and on his removing

¹ *Tukaṣṣa*, Kū. 104. Cf. also "three times a day *li tukaṣṣa* (thou shalt cool dough" (8, 1, 9; cf. 11, 2, 46); [*ina ta*]mgubi *tukaṣṣa* (11, 2, 22); *ina* A. GEŠTIN.NA *tuballal kaḳḳad-su tukaṣṣa* (65, 5, 8); *ina tinuri tešikkir tušelamma tukaṣṣa* "in an oven thou shalt bake, take out, let cool" (43, 5, 10; 56, 5 r. 4); cf. the alternative ŠÉ (Br. 3060; 56, 1, 9; 64, 1, 19) *ina marḥaši taraḥaṣ(aṣ) tušelamma tukaṣṣa* "in a bath thou shalt wash, take out, let cool" (98, 3, 15). Cf. also 6, 1, 5; 21, 6, 8; 40, 1, 58; 42, 2, 5; 49, 6 r. 8; 61, 7, 6, 7; 84, 1, 3. Especially notice "heat these 21 plants in the man's urine and beer in an oven, take them out and *enuma* EN.TE.NA *ba-aḥ-ru-us-su* . . . *enuma rupšé^v tukaṣṣa*" (98, 3, 4). (Cf. 57, 10, 7.)

This brings us to *baḥru*. E. (xiii, 10) is probably right in suggesting that *ḥu* = *baḥ*. He quotes *ba-aḥ-ru-su* (K. 2418, 12, my *AM.* 77, 1) and *ḥu-ru-su* (K. 8049, r. i, 23, my *AM.* 41, 1), etc.; *ba-aḥ-ra* (37, 3, 3) and *ḥu-ra*, K. 10625, 4 (51, 4, 4). But I think he is wrong in translating it "cold".

Consider the passage from 98, 3, 4 above: "and as its *baḥrāti* grow(s) cold [thou shalt . . . and] when thou hast cooled off the *rupšé*," etc. Obviously "cool" or "cold" is not correct.

Consider, then, also, *ba-aḥ-ru-su ina su tediri* (77, 1, 12) "spread its *baḥrāti* on a skin"; *ba-aḥ-ru-us-su ina ku te-s[ir]* "enclose its *baḥrāti* in a cloth" (73, 1, 10); *baḥ-ru-su ana ku-su tašapak(ak)* "pour its *baḥrāti* by his anus" (41, 1, iv, 23). We are thus dealing with

a tangible substance which can hardly be considered equivalent to Arab. بخر "to steam".

But E. was on the right track with "cold" (although incorrect), in *baḥ-ru(ra) ikkal baḥ-ru(ra) išatti* (16, 4, 12; 27, 10, 5; 53, 10, 6), *šikara dišpa baḥra tušašti-šu* "beer (and) honey *baḥra* thou shalt give him to drink" (80, 1, 15); *baḥ-ra ikkal u išatti* "he shall eat and drink *baḥra*" (34, 1, 4); *baḥ-ra ikkalu^v baḥ-ra išattu^v baḥ-ra ina muḥ-ḥi-šu te-ḳi* . . . "he shall eat *baḥra*, he shall drink *baḥra*, *baḥra* to his skull thou shalt apply" (51, 4, 4). In every case the reference is to preceding drugs.

Clearly it is not "cold", but "warm" or "hot", just as appears in *ummare baḥrāti ša ina gurari bašl[u]* "hot pots heated in *gurari*" (IV R. 58, 41, b, Del. *HWB.* 170). *Baḥru(s)su*, parallel to *rupšé*, may then perhaps mean "its hot (parts)", i.e. while it is still hot, the

connection with Arab. بخر "to steam" then being obvious. *Rupšé* (akin to *rupuštu*, some form of regurgitation in the mouth) will be Heb. *repheš* "mire", i.e. dregs, sediment.

Baḥru is used as an adjective to certain drugs: "*ina mē kašī šikruti baḥrute nu patan išatti*" "he shall drink in water of roses baked, hot, without a meal" (80, 1, 11).

Baḥāru is used as a verb (*tubaḥar*, 4, 6, 3; 14, 4, 5; 20, 1, 6; 65, 5, 10; 76, 2, 4; 84, 4, iv, 11; *lubahir*, 80, 7, 9), where the meaning "heat" suits excellently.

Although, therefore, the root must be connected with Arab. بخر "to steam" of a pot, the meaning cannot be exactly "steam", "vapour", nor does "distillation" fit it. "Steaming hot" must be correct, as it could hardly be used otherwise in poultices.

² *Idra*. This word is the base of *idranu*, a form of salt. See the text in Pinches, *PSBA.* 1909, 64. Salt was used for itch-scabs (Pliny, xxxi, 45).

³ *Samanu*, presumably "scab" from the description (cf. ll. 13, 17), is a disease of the head (MA. 766). "*Samanam* = "a drug for *samanu*" (41, 3, 6; cf. *CT.* xiv, 41, Rm. 362, 6, *šammu sa-ma-ni zi arat-zu ina šamni* . . . "a drug to keep away *samanu*, its juice in oil . . .").

it it ceases (?), not increasing (?),¹ seed of *arnoglosson* . . . , dust (?) of *diki* (?) (of) caper, dust of sesame, dust of *millet, dried doves' dung from a palm of the mountains . . . in hot² attar of roses thou shalt knead, press³ on his head, let cool, bind on.

13. . . . If a man's head gets a scab, [thou shalt anoint (?)] him with dust from a limestone threshold of a house in [oil ?]. When therein **balsam . . . ,⁴ seed of *arnoglosson*, dust of sesame which the base (root) . . . , bitumen (?), uš⁵ of *millet, doves' dung, *hašabti*, *erú*-stone, seed of *as*-plant, these nine drugs thou shalt bray together [and] anoint [his head] in "blood" of cedar; these drugs apply⁶ thereto, bind on, and he will recover.

The word occurs in *samanam ša igari* "scab of the house-wall" (65, 5, 21; rub and anoint, for *guraštu*, (scabies, itch), 17, 1, ii, 4; cf. 7, 3, 3), like the "leprosy" of Lev. xiv, 34.

Mr. N. V. Sidgwick, F.R.S., suggests to me that this "scab of the house-wall", used externally for itch, is the efflorescence which appears on stable-walls, etc., which may be calcium nitrate or potassium nitrate. The latter, Pliny says (xxxii, 46), is found in Media, called *halmyrax*, used externally in ointment. A synonym is possibly *tábat* EME. *šal-tim*, which I think must be the nitrous efflorescence on the desert.

¹ Difficult. GAL.BI *zir* *lišan kalbi* occurs again, l. 14. Is it the same in both? There is no room for *'arganu* here; but the character following *i-na-aḥ* may belong to this latter group. Cf. SAI. 1483, 1489.

² Cf. *mē kasī im-mu-ti* (Langdon, PBE. xxxi, 67, 10).

³ ŠAR. Besides the ordinary uses of "bind" there are several other uses of this ideogram in AM.: (1, a) Br. 4333, *šarāhu*, from the complements *aḥ*, *iḥ*. It is used of *libbi*^{vi}, ŠAR^{vi} (50, 4, 13), ŠAR.ŠAR (40, 5, 9), ŠAR.ŠAR . . . (44, 7, 2), ŠAR^{vi}-*ḥu* (22, 2, 4; 42, 2, 1; 49, 3, 4; 57, 3 r. 1), ŠAR.ŠAR-*ḥu* (21, 2, 6); of *riš libbi* (43, 6, 3, cf. *u-šar-[riḥ]*, 87, 1, 8); cf. *enuma NA riš libbi-šu* BIL *libbi-šu* ŠAR.ŠAR (39, 1, 4), *enuma NA ši-ri-iḥ-ti libbi iši-ma* (ib. 40), and BIL *ši-ri-iḥ-tu ša lib énáⁱⁱ-šu* (10, 1, iii, 3); *ana ši-ri-iḥ-ti* BIL *libbi zi-ḥi* (39, 1, 34). On the other hand,

libbi^{vi}-šu in-nap-pa-ḥu (52, 9, 4). The Arab. صرخ "be inflamed" is the meaning here;

innappahu, lit. "be blown", i.e. "kindled". (1, b) But ŠAR-*aḥ* undoubtedly means "thou shalt blow" in AM.; it refers to an operation of blowing drugs into eyes (12, 2, 3; 92, 8, 1), ears (36, 1, 7, 8, 13, 16, r. 5; 38, 1, 4, 7), penis (61, 1, 4), urinary organs (59, 1, 22, 23).

(2) = *Zarābu* "to compress", "press on" drugs (of head, eyes, etc.); ŠAR-*ab* (4, 1, 6; 5, 1, 15, 19; 8, 1, 9; 12, 11, 2; 65, 5, 9, etc.); *ina pu-ti* GAB ŠAR-*ab* (5, 5, 8); cf. *riš libbi-šu u-za-rab-šu* (48, 2, 1); *u-za-rab-šu* (45, 6, 5).

(3) = *Ḳatāru*, from variants; "to fumigate," . . . *uznáⁱⁱ-šu tu-ḳat-tar* (34, 2, 2); *ina* BIL *uznáⁱⁱ-šu* ŠAR (35, 1, 5, 7, duplicate of 33, 1, 28, *ina* BIL *uznáⁱⁱ-šu tu-ḳat-tar* (and ŠAR in the line following); *ina* BIL ŠAR-*šu* (64, 1, 20, 28; 80, 6, 6).

⁴ Does the GAL.BI (see note 1 above) belong to this clause? "When the **balsam swells (?)" "When it increases in the balsam (?)" Doubtful.

⁵ Uš is apparently the correct reading.

⁶ MAR, read *eká* on the following grounds: *eká* occurs as *te-ki* (10, 3, 18, 19, 20, 22; eyes, 12, 8, 10); [^{tab}A]Z. HAR *ina himeti* RAT *te-ki* (eyes, 9, 1, 10); *ina lipi* GIR. PAD. DU. GID. DA RAT *te-ik-ki* (eyes, 14, 1, 4); . . . *dišpi himeti* RAT *enáⁱⁱ-šu te-ik-ki* (18, 9, 9); *te-te-ni-ik-ki* (eyes, 9, 1, 6); *te-te-ni-ik-ki* (18, 6, 3); KU-*šu te-te-ni-ik-ki* (anus, 101, 3, 9); *te-ki-it énáⁱⁱ-šu ša ḳat edimmi* (16, 3, 4). *Eká* = *lapātu* "touch", and *saḥáru* "surround" (MA. 89); *lupputu* is used for rubbing (see my *Devils*, ii, 79, 177). From the above quotations we see that it was used in conjunction with curd, marrow, or honey, and of the eyes or anus. An examination of the eye-texts shows the extreme probability of its varying with MAR, and as, moreover, SAI. 4122 shows . . . MAR = *eká*, the equivalence is certain.

17. [If a man's head] gets [scab], the hay (?)¹ which is on the water, the dust of a pig-stye, pigs' dung, saffron (?) . . . , powder² of thorn sprouting on his building, half a root of . . . , almond-[oil], juice of tamarisk, juice of *vitex agnus castus*, flour of *gu-gal*, flour of *gu-du*, flour of roast corn . . .

20. [If a man's head] gets [scab?], the hay (?) which is on the water . . .

No. 2. *AM.* 1, 3 (K. 8346), *top broken*.

2. . . . to his head . . .

3. [If] there is . . . in the body of a man, . . . [soot?] of an oven thereon thou shalt bind³ . . .

5. . . . white *ditto*-stone, black *ditto*-stone thou shalt bray, mix in curd, anoint his skull . . .

6. . . . thou shalt take its blood, anoint his skull; thou shalt bray *tašmé* of the house-wall . . .

7. . . . thou shalt recite the charm E.NU.ŠUB⁴ *kinib kinib kinib šuh kinib* . . .

8. [If a man's . . .] throbbing (?) . . . takes, thou shalt bray fir-gum, roses, and salt together, in water his head [wash] . . .

9. . . . in *kurunnu*-beer thou shalt wash, set it under the stars; in the morning . . . , he shall eat and recover: flax thou shalt reduce, bray, in oil and beer anoint, the under part (?) of thorns . . .

11. . . . and rose-perfume thou shalt bind: seed of fennel in oil thou shalt bray, his head [anoint]. . . : . . . thou shalt bind: *lolium* in beer let him drink, thou shalt put gum of *galbanum in his mouth, with water

¹ If *alapú* = **alapú*, it may be hay (*AH.* § 10, BY). But the lack of the determinative is curious; *alapá* (again without determinative) is used 17, 1, 2. See *AH.* § 10, c.

² KU.KU = "powder"? It is used of *tašAZ.HAR* (arsenic, 19, 6, 12); of *tašAŠ.GE.GE* (19, 1, 6); of KA.AM.SI (ivory, 40, 5, 6); of trees (the powdered, dry bark, e.g. *telammaku*, 5, 5, 7; 40, 5, 6; *ku*, 5, 5, 6; *kal marhi*, 5, 5, 7).

³ *Taşaru(m)* (the form *taşaru* occurring 75, 1, 26, 27, 28) would appear to be from Heb. צור "bind", "swathe", in spite of its form. Its use is almost the same as *šamádu*; "four days *taşaru*" (75, 1, 26); "seven days *taşarum*" (44, 1, iv, 6); various drugs *tašak šamni tapašáš tašarum* (61, 7, 1); *tašak ana pani šur tašarum* (39, 1, 5; cf. 72, 2, 12); *tabašal tašarum* (41, 1, iv, 6); also 26, 2, 7; 42, 3, 12; 75, 1, iv, 21; probably 27, 5 r. 6.

⁴ E.NU.ŠUB, constantly, as is well known, heading incantations. See Langdon, *PBE.* xxxi, 70, translating it "house not purified", and further *Journ. Soc. Or. Res.*, v, 2, p. 81. Cf. 65, 5, 23

of dates . . . : . . . [without] a meal let him drink: oil and beer he shall drink (in quantity) and in (?) $\frac{1}{2}$ *ka* of beer-lees, $\frac{1}{2}$ *ka* of . . . [from ab]ove downwards thou shalt massage,¹ bind on for ten days. Licorice-root, . . . , fennel in oil thou shalt bray, his head and all his members [thou shalt bind] . . .

16. [If a man]'s jaws burn, his head ditto (?) his face . . . him . . .

No. 3. *AM.* 1, 4 (K. 2615), *top broken.*

2. . . . [in] pressed [grap]es thou shalt knead, on a . . . skin spread . . .

3. . . . *lycium*, right horn of an ox, [left ?] horn of a . . . (?) . . . , *cannabis*, seven drugs . . . and thou shalt bind on his temples.

6-20 (*right half of lines containing a Sumerian incantation*).

21. [Charm against] the Hand of a Ghost.

22. [Ritual for this: a . . . thread] thou shalt spin, thou shalt pierce (and)² thread thereon seven male *šá*-stones³ . . . , *crataegus azarolus* (?), in seven folds thou shalt fold it, seven and seven [knots thou shalt tie]; when thou tiest it thou shalt recite the charm, the folds . . .

No. 4. *AM.* 2, 1 (K. 2491 + 8356), *obverse, top broken.*⁴

1. Ritual for this (?): *hallutaná* (?) of a GIR.ŠAL (?) . . . [therein thou shalt put *hipítí*]. The charm seven times thou shalt recite: in a cloth (?) thou shalt bray (?) . . . [seven knots thou shalt tie; while thou tiest] recite the charm, on his temples [thou shalt bind and he shall recover].

4. If a man's head contain water, the upper part foetor . . . [thou shalt set a . . . , and it will remove his water].

5. If a man's forehead⁵ contain water . . . [thou shalt bind for seven days]; on the eighth day his forehead three times thou shalt . . . [bind].

¹ *Tu-maš-še* (?), or *tu-maš-šad* (?).

² KAK = *zakāpu*, Br. 5270; cf. *zikpu* point of a dagger.

³ *taišá*. Langdon, *PBE.* xxxi, 63, 7, thinks it is "coral" comparing Ninurta Epic, *ASKT.* 81, 23, but doubtful. It occurs in *AM.* 102, 1, 22; 104, 1, 9.

⁴ If my suggestion that this is duplicate of *CT.* xxiii, 37, 2 ff., and 24, 20 ff., be right, this is one of the series *Enuma na muhhu-su išá'a ukal*, and obv. and rev. must be transposed.

⁵ *Apputtu*, pointed out by Holma (18) = Syr. *appúthá* "forehead", used antithetically to *zibbatu* "tail", *ZA.* xvi, 174, 11.

7. If a man's head contain liquid¹ . . . [thou shalt put].

8. If a man's head smells unpleasantly,² [*mušgaru*-stone, DAG.GAZ-stone, cinnabar, *marḥaši*-stone] KA.MI-stone, *hulalu*-stone, AN.ZA.[KAN]-stone [AMAŠ.PA.E-stone] these [eight "stones"] in a scarlet thread and a white thread thou shalt spin [on his temples bind, and he shall recover].

11. If a man's head . . . , fir-gum, [pine-gum, *suadu*, box (?), **ferula communis*] . . . *juniperus oxycedrus*, *artemisia*,³ **ba[lsam, **sagapenum in ditto (??) thou shalt mix (and bind on)].

13. [If ditto] . . . in the suet of the kidney of a male sheep which has not been put in salt . . . [thou shalt bray in cedar-oil, spread on a skin, bind on his head].

14. [If ditto] . . . *galbanum, turmeric . . .

15. . . . head, white and black sulphur, *liquidambar male and female, *muzu*, . . . salicornia-alkali (?) . . . , human excrement,⁴ these drugs together [thou shalt mix and apply to] his temples.

18. . . . head, *hyoscyamus*, sulphur, turmeric, . . . thou shalt crush, in "blood" of cedar thou shalt mix, on the fire [heat and apply].

20. [If a man]'s [head] . . . is sick, thou shalt bray *šašumtu*, *murdudû*, . . . MU.UN.ŠIR (?) together, knead in rose-water, press on his head [bind, and for three days not take off].

22. [If a man's] . . . gives trouble, thou shalt mix⁵ fir-gum, pine-gum, *hyoscyamus*, myrrh, gum of *galbanum . . . ox- . . . , spread (them) on a skin, press on, [bind on for three days].

¹ *Šeha*, Syr. *š'há* liquefactus est.

² *Ittenibaššum*[ma] from *ba'ašû*, not to be confused with "If a man's stomach *it-te-nit-ba-aš-šum*" (Kü. i, i, 19).

³ There are two *siḥu*, one "white pine" (for which *šihū* is the more correct form), the other⁴ or "*siḥu*, *Artemisia* (AH. § 10, BA).

⁴ *Gulgul*, common with *ameluti* in these texts. I thought at first that it was Heb. גִּלְגֻּל "skull", but obviously it is far more probably a collateral with Heb. גִּלְגַּל "dung". Cf. CT. xxiii, 36, 58 [*gul-g*]ul-li-šû it-tar-du enuma(ma) gul-gul-la-šû te-sir KIL.A ša gul-gul-li-šû . . . In SM. ii, 662, human excrement is used to smear on eyes.

⁵ But cf. KAR. 202, ii, 43.

25. . . . right and left three each . . .

*Reverse, top broken.*¹

3. . . . [thou shalt pound (and) str]ain, in rose-water knead, [press, bind on, and not take off for three days ?].

4. . . . in beer-lees thou shalt boil, knead, [press, bind on, and ditto ?].

5. . . . their sweetness (?) thou shalt remove, in [mountain-honey, verdigris (?) of gold thou shalt bray, apply ?].

6. . . . thou shalt pound (and) strain, in rose-water knead, press, [bind on and not take off for three days ?].

7. . . . thou shalt pound (and) strain, in rose-water knead, press, [bind on and not take off for three days ?].

8. Thou shalt bray cantharides (?) ² in honey, [apply ?].

9. $\frac{1}{3}$ *ka* juice of *ma-[er]iš-ma-ra* ³-plant thou shalt pound (and) strain, in rose-water [knead, press, bind on and not take off for three days ?].

10. Calcined lime in almond-oil thou shalt knead, press [bind on and not take off for three days ?].

11. *LA nigula* which has a *kibšam* (?), in oil (and) [copper]-dust ⁴ [thou shalt bray, apply ?].

¹ Is this a duplicate of *CT.* xxiii, 24, 20-25, 35 ?

² *šAM ša ib-ḫu*, in *AM.* about 30 times. *Kū.* iii, i, 24, "šAM ša ib-ḫu ušI to drink, in a series of single drugs, each followed by ušI, to be drunk for bile. Drunk alone as ecbolic in labour (67, 1, 16); is gloss to "KUR.KUR, *hyoscyamus* (19, 5, 3); once written *ša ib šAM ḫu* (57, 5, 13). Quantities, 2 *bur* (49, 6 r. 2); 1 shekel (6, 3, 7; 8, 1, 27; 13, 7, 4, 5); 3 shekels (9, 1, 16); 5 shekels (11, 2, 20). Used externally constantly with others, for eyes (8, 1, 19, 27, 30; 9, 1, 13, 16; 13, 7, 4, 5; 16, 1, 8, 23, 26; 17, 6, 5); wash head (64, 1, 37, with *storax, "Akkadian salt," **ammi . . .); for *kiširti* of lungs (49, 6 r. 2); apply anus (57, 5, 13, with mandrake only). Sayce (*ZK.* ii, 207) pointed out the word *ib-ḫu* as a worm in *VR.* 27, 24 (= *CT.* xiv, 8, r. 24), so that there is great probability of it meaning a drug from some lower order of animals. The question arises, can it be Cantharides? The properties of the Cantharis beetle, sometimes confused with *buprestis* (*Diosc.* ii, 145, 146), have long been known; but it is a very powerful drug, and it may be too strong for the identification necessary. At the same time, although a powerful vesicant, it is given internally with caution, as a diuretic and aphrodisiac; and its effect on the renal region produces abortion, which may explain *šAM ša ibḫu* as an ecbolic (*P.* 317; *EB.* v, 213). In *SM.* ii, 100, note especially that the juice of beetles is prescribed as *kohl* for eyes.

³ A most pungent plant; see *AH.* *sub voce.*

⁴ Cf. *CT.* xxiii, 26, 3.

12. *Juniperus excelsa* (and) *lolium* thou shalt pound (and) strain, in lees of *kurunnu*-beer [thou shalt knead, press, bind on and not take off for three days ?].

13. Mustard (and) *barhuš* thou shalt pound (and) strain, in lees of *kurunnu*-beer [thou shalt knead, press, bind on and ditto ?].

14. Pine-gum, fir-gum, *galbanum, *lolium*, salicornia-alkali [thou shalt bray, apply ?].

15. Copper-dust [in . . . thou shalt bray, knead, press, bind on and not take off for three days ?].

16. . . . *lolium*, $\frac{1}{3}$ *ka* of *usa*-beer . . . [thou shalt knead, press, bind on and not take off for three days ?].

No. 5. *AM.* 2, 3 (K. 13502), *top broken*.

2. . . . sulphur, *nigella* . . .

3. . . . thou shalt bray soot (= sal ammoniac)¹ . . .

¹ *IM.KAL.* It is better to discuss the longer group *IM.KAL.GUG* first. *IM.KAL.*, meaning literally "strong wind", must signify "vapour" or something vaporized. *GUG* = *sántu*, *sádu*, most noticeable in *takGUG*, i.e. a red stone.

Now one of the most obvious "red stones" is the cinnabar, which gives vermilion paint. It must be different from *takAN.GUG.ME*, following "gold, silver, copper", perhaps cornelian used in decorating the palace (Sennacherib, King, *CT.* xxvi, 23, 14).

But the "vapour of cinnabar" is mercury, well known to the ancients (*IB.* No. 1143 says mercury came from Azerbaijan). Cf. Pliny (xxxiii, 37 ff.), who says that minium (our cinnabar, according to Bostock), which is found in silver mines, comes from Carmania. He describes the method of obtaining hydrargyros from the "inferior" minium, either by pounding minium and vinegar, or else by putting minium into flat earthen pans covered with a lid, and then enclosed in an iron seething-pot, well luted with potter's clay. A fire is then lighted under the pans, and the flame kept continually burning by the aid of bellows; which done, the steam that is found adhering to the lid is carefully removed, being like silver in colour, and similar to water in its fluidity. He notes that minium is a poison.

Now *IM.KAL.GUG* is used: (a) in fumigating ears (33, 1, 31; 34, 5, 7; 35, 1, 7; 38, 2 r. 10) (cinnabar is used in application to ears in *SM.* ii, 114, 115); (b) brayed and applied, [eyes] (11, 2, 12) (cinnabar is used for eyes in *SM.* ii, 98); (c) as ecboic in difficult labour, to be brayed and drunk in beer (67, 1, iv, 22). We may, therefore, see "mercury" in *IM.KAL.GUG* with reasonable probability.

Sántu, *sádu*, the name for the "red stone", may have an echo in the Syr. *šdná*, Fers.

šádnah, Arab. شاذنة haematites (Lane, *Dict. sub voce*), and still more probably in *σάνδουξ* "a bright red colour" (with -ξ termination, like so many words *ὀρόκοναξ*, *στύραξ*, etc.). Leclerc's note to *IB.* No. 1132 gives *sandyx* = minium.

What, then, is *IM.KAL* in our present text? Obviously it cannot be "vapour", since it is brayed. On my asking Mr. N. V. Sidgwick for his opinion about it, on the analogy of

4. If a man's head [has] an itching¹ . . . ** ammi, *lolium*, . . . [in oil of] cedar thou shalt anoint.

No. 6. *AM.* 3, 2 (K. 2416 + 9224 + D.T. 215, with the addition of + K. 16402, pl. 46), *obverse, top broken*.

1. (+ K. 16402, ii, 1-3) [Ritu]al (?) for this. Her *mušadu*² in . . . Her *mušadu* thou shalt roll, into . . . thou shalt put; the charm seven times thou shalt recite . . . *šapilti* (?) of the *mušadu* . . . : a thread thou shalt spin, seven and seven knots [thou shalt tie: as thou tiest thou shalt recite the charm].

3. (+ K. 16402, ii, 4-6) (*Sumerian charm and formula*). Recite the charm.

6. Incantation: When the hair of a woman grows weak.³

"mercury" above, and suggesting that it might be some form of solidified vapour, he instanced the ancient method of obtaining sal ammoniac from the soot of camels' dung. The common fuel of Mesopotamia is, as is well known to anyone who has been there, dried cow-dung, or camel-dung; wood fuel is scarce and difficult to obtain on the flats. The soot in Egypt is carefully collected and sold to the sal ammoniac makers (*EB.* xxiv, 59).

IM.KAL = *aklu* (*SAI.* 6309), IM.KAL(AG).GA = *aštu, išikku, dannu, sušikku* (*SAI.* 6311-6314). It is used in *AM.* alone for head here; and (to be drunk), 26, 4, 7, duplicate of 64, 1, 11.

IM.KAL.LA (Kü. iii, iii, 13), brayed alone and drunk in cedar-oil and beer (cf. 27, 2, 16; 36, 1 r. 2), must be the "soot of LA" rather than IM.KAL with a complement.

¹ *Kuraru.* *CT.* xiv, 36, 81-2-4, 267, obv. 12 ff., is a list of drugs (the names now lost) called "*ša-mi ku-ra-ri ZI (= nasaḫi)*" and "*ša-mi ku-ra-aš-ti ZI*" "for taking away *kuraru, kuraštu*" (the same words, cf. *Urartu, Uraštu*). The treatment for *kuraru* of the head is to shave the head, anoint with fish oil (NI.KIL), etc. (5, 5, 10), the particular point to notice being that urine (ammonia) is to be plentifully used. Another long treatment is given in 65, 5, 9, washing the head being part. In 65, 5, 20 *samanam ša igari* (probably saltpetre) is applied (see p. 3, n. 3); and in 17, 1, ii, 1-6, among the drugs given for "when a man is full of *guraštu*" are fennel, ***ricinus*, sumach, *samanam ša igari*, and *storax. In the same text ammonia (2, 3, 3) and sulphur (l. 2) at once indicate an itch; so also "if his body is full of itch". "Baldness" is practically an impossibility, therefore; besides, it would hardly be good Assyrian to talk about "removing" baldness.

The text is similar to *KAR.* 202, i, 49, *Enuma NA kaḫḫadu ku-ra-ra . . . -šu TUK ultu (?) GIG . . . řábtu uḫulu řarnanu šamranu ninu saḫ-li-e řinat (?) imeri (?) A (?) GEŠTIN.NA DAN.GA (A ?). GEŠTIN BIL.LAL tar-bak tařamid(id), etc.*

² *Mušadu.* Cf. 43, 1, ii, 3: "if ditto, *ubani-ka mušadi NIGIN diřpi SUD . . .*, i.e. thou shalt wind a *mušadu* on thy finger, sprinkle honey . . ." *KAR.* 202, ii, 24, duplicate of l. 7: "if ditto, *mušadi-šu TI-ki*. It is perhaps "hair-ribbon", "fillet".

DUM.KID, as in DUM.KID.ŠE = *ša řapilti řa ře-im*. It occurs alone, DUM.KID *ina išati tuřaḫḫar(ar)*, 95, 2, iii, 6, and again 99, 3 r. 5.

³ *Iřaḫḫuḫ*, Syr. 𐤀𐤁𐤁 "grows thin, weak". Cf. *KAR.* 202, ii, 27 (cf. *CT.* xxiii, 32, 8) "when a man *ud-da-at išu řarat kaḫḫadi-šu iřaḫḫuḫ*"; 95, 3, 17; *iřaḫḫuḫ*, 30, 12, 1. Cf. also *CT.* xxiii, 34, 22; 35, 48. Jastrow (*Trans. Coll. Phys. Philad.*, 1913, 379) "bent down", not recognizing that it refers to the hair (his text being *řarat takab kaḫḫadi*).

7. (Duplicate of KAR. 202, ii, 24.) Ritual for this: thou shalt take her *mušadu*, plait¹ a cord,² *urtê*³ [of ?] a palm of the north⁴ thou shalt spin; hair⁵ of a white horse with (?) seven and seven knots thou shalt tie, in her hair thou shalt bind; the charm seven times thou shalt recite . . . for three days the back of her neck will hurt her; until her hair stops⁶ thou shalt not take (it) off.

10. (ll. 10–12 charm.)

13. . . . by the seven times knotting may she be holy, . . . may she be pure! Let evil tongue be absent from her!

15. [Incantation]: to preserve⁷ the hair of a woman's head.

16. Spin [a thread . . .], a PA-stone of its seven colours, *ianiba*-stone, a meteorite,⁸ stone (?) of (?) Gutium,⁹ copper, bronze . . . [thereon thou shalt thread]: seven and seven knots thou shalt tie: as thou tiest (them) thou shalt recite the charm; [bind them on her hair] and the falling¹⁰ hair shall be stopped.

(Rest mutilated.)

¹ *Taşapar*, Arab. *صفر*. Cf. 16, 5, ii, 6; 25, 6, ii, 10; 28, 3, 7; 35, 1, 12; 90, 2 r. 5.

² KU (= *lubuštu*) *man-tu*. Ebeling's text is correct (KAR. 202, ii); I misread *man* as *kur*, owing to some clay in the sign. Perhaps Syr. *𐤀𐤍𐤏* hair, or a cord.

³ *Urtê*, probably *urťá*, the plant, which is spelt without the determinative also on 94, 2, ii, 16.

⁴ Ebeling's text, KAR. 202, ii, 24, has no KU before *gišimmari*, and šr before *iltanu*. The "palm of the north" does not bear fruit and is, of course, far less valuable than those which grow south of Tuz Khurmati. The fibres of the palm used for rope-making are taken from the integument which covers the tree between the boughs (Rhind, *Vegetable Kingdom*, 255).

⁵ *Zappi* must be the Syr. *zappé* "hair"; 33, 1, 18; 38, 2 r. 2; of *imersisi buhalitu* "stallion" (as in the duplicate for our passage, KAR. 202, ii), 99, 3 r. 9. Especially "zappu of an ass of the right, zappu of an ass of the left, [zappu] of a *imerbakkarrú*, zappu of a white pig" (Myhrman, ZA. xvi, 177). *Zab-bi šahí*, 5, 3, ii, 8.

⁶ For DU.DU-za of the hair, cf. CT. xxiii, 28, 26.

⁷ *Kali*, like *ikkalla*, l. 19, "keep, retain." Cf. CT. xxiii, 35, 39, and for the grammatical construction, CT. xiv, 36 *passim*.

⁸ *takziķtu*, Syr. *𐤀𐤍𐤏* fulmen.

⁹ *Gutitu*, cf. Br. 11148.

¹⁰ CT. xxiii, 34, 31 and 35, 39 have *šartu DU-tu*.

AM. 4, 1 (K. 2416), reverse, top broken.

(To turn grey hair black.)

3. . . . gall of a black ox (*v.* gall of a snake), gall of a scorpion, gall of a pig, *punpul[la]* . . . , *suadu*, thou shalt reduce, bray; these five drugs in equal parts [thou shalt mix], . . . [which have been] buried (?) take up and together mix¹; in the oil of a cypress of the cemetery . . . press on his [head], seven days anoint, and the grey hair [will turn black].

7. (Cf. 5, 1, 5.) If a man's head in his youth is full of grey hairs, to darken the grey hair² . . . into oil thou shalt put until they die³ . . . bray, in oil of the cypress of a cemetery thou shalt mix, anoint . . . one hundred days thou shalt anoint . . . , the charm seven times thou shalt recite . . . , thou shalt pound, therein refined oil . . . [under] the stars thou shalt set it, (on) his head press it, bind on for seven days and he shall recover.

14. (Cf. 5, 1, 13.) [If a man's head] . . . [thou shalt take] the head of a black raven,⁴ the head of a stork⁵ . . . these [drugs] thou shalt mix in oil, anoint his head . . . , . . . of his urine (?) thou shalt take, pine-gum . . . together thou shalt bray, in almond-oil thou shalt mix, put . . . and his hair shall grow.

19. (Three lines of charm, mutilated.)

22. [Incantation: When] the hair of the head is not healthy.

23. . . . in *alappanu*-beer thou shalt put, heat in an oven, wash his head . . . leek-seed, *kiłkil*-seed⁶ together thou shalt bray . . . , mix, anoint him, and there shall be no grey hair.

26. . . . *nigella*, *hyoscyamus*, seed of poppy . . . [*bišsur*?]-*atani*, these six drugs thou shalt dry, bray, . . . on her skull . . .

¹ *Tuḥasa*, Arab. حاس "mix", but it must be in a peculiar way. "The leaf of *solanum tuḥasa*" (15, 6, 5); "garlic (?) *tuḥasa*, and pour into his ears" (36, 1, 11); "the leaf of tamarisk *tuḥasa*" (9, 1, 32). Cf. 14, 3, 7 and 25, 6, ii, 13, where it varies with *RAT*.

² *Ana šarti pišiti šullumu*, like "ša-mi dāmi parasi(*si*)" "drug for stopping blood" (*CT*. xiv, 36, 79-7-8, 22, 3), etc.

³ Are we to supply here "bees", as in *SM*. ii, 691?

⁴ Not "locust"; the "black" is enough to determine this. "The fat of a black raven" is used for the same purpose in *SM*. ii, 691. For these drugs for hair cf. *CT*. xxiii, 35, 38.

⁵ *RAK.RAK.HU* must be the *raḳ-raḳ-ku* = *la-ka-la-ka* of *CT*. xiv, 6 r. 8.

⁶ Possibly cassia, but more probably another plant having a black seed; see *AH*. § 10 AG.

No. 7 (*AM.* 3, 3, K. 10323 is a duplicate of IV R. 56, ii, 21 ff., the *Labartu*-series).

No. 8. *AM.* 3, 5 (K. 6224), *obverse, top broken.*

2. . . . with cedar-[oil] thou shalt anoint, the milk of poppies thou shalt reduce . . .

3. [If . . .] fire, thou shalt put . . . to his head. If [ditto] . . .

4. [If . . .] thou shalt mix [sulph]ur and . . . and anoint. If ditto, thou shalt mix sulphur in mountain-honey [and anoint].

5. . . . thou shalt bray **bellis*, anoint in oil. If ditto, thou shalt bray ***ricinus*, mix in fat, anoint. If ditto, thou shalt bray *PI.PI*-fennel, in oil anoint.

6. . . . thou shalt beat up fennel in cows' milk or cows' urine, wash his head (therewith), reduce *barhuš*, bray (it), press it on his head, anoint with oil . . .

7. . . . poppy (?), opium-stick, thou shalt reduce, bray, press on his head, anoint with oil, bind on, (or), apply, bind on.

8. . . . thou shalt bray, mix in cedar-oil, and hair will grow.

9. . . . thou shalt bray, anoint his head, bray *gu-gal* flour, *gu-du* flour, chamomile, (and) knead them in rose-water, bind on : with ***ricinus* (and) alkali in hot water wash his head.

No. 9. *AM.* 3, 6 (K. 10549), mutilated, Col. ii, 4, "When the hair of the head is white," and 7, "That grey hairs should not be." For *tetemir* cf. *tetimmir*, 11, 2, 31.

No. 10. *AM.* 3, 7 (K. 4083). Cf. K. 6087 (61, 8).

No. 11. *AM.* 4, 3 (S. 88), catchline ". . . on his bed with him".

No. 12. *AM.* 4, 2 (K. 9173), *top broken.*

2. . . . on his mouth thou shalt pour¹ . . .

3. . . . fennel-seed, lupin, **calendula*, . . . in the morning his head thou shalt wash [therewith, and he shall recover].

5. . . . poppy, dried roses in cedar-oil [thou shalt mix, and apply].

¹ Is there a parallel in *SM.* ii, 691, to prevent hair becoming grey "take the gall of a swallow, and pour two drops on the right side of his mouth, and one on the left"?

6. . . . in fire,¹ to his head [thou shalt put].
-
7. . . . thou shalt mix, cool, in cedar-oil (*v.* in curd) [thou shalt anoint].
-
8. . . . his head thou shalt wash, opium-stick . . .
-
9. . . . thrown away . . . (?) and his head . . . a frog² in curd thou shalt mix, anoint, [and he shall recover].
-
11. . . . [in] strong wine thou shalt mix, his head [bind].
-

No. 13. *AM.* 4, 6 (K. 8160), *top broken.*

1. . . . hair of a *muh-tul-bi*,³ . . . , *ulap kibti*,⁴ . . .
-
2. . . . fir-gum, sumach, *liquidambar, kelp (?) . . . thou shalt heat and in a bandage on his temples thou shalt bind (them) [and he shall recover].
-
4. . . . **meerschaum,⁵ sulphur, kelp (?), *muza*-stone together [thou shalt bray, in] cedar-oil mix, in scarlet wool enclose, bind on his temples.
-


¹ Cf. *AM.* 3, 5, 3.

² NE.ZA.ZA must mean "frog". Without an adjective, 12, 2, 5; 30, 8, 8, 9; 30, 13, 7, 8; 36, 1, 4, 16; "yellow" 8, 1, 13 (its gall); 37, 10, 6; 87, 1, 2; 88, 2, 16; 94, 3 r. 4; 103, 1, 6. Cf. *SM.* ii, 663, for eyes, the blood of a yellow frog; 703, the same drug prevents hair growing. The tidal pools round Basrah are full of young frogs growing from tadpoles in mid-June. Cf. *KAR.* 204, 15, *Enuma* ditto, NE.ZA.ZA *ša lib takēri nāri i-ba-* . . . See Jastrow, *PRSM.* vii, 163.

³ MUH.TUL.BI: an animal, Boissier, *Div.* 29, 6; *Doc. Ass.* 111, 6, etc.; Virolleaud, *Bab.* 1, 26. Its hair used (19, 2, ii, 4); in almond-oil anoint (96, 4, 9); its bone, in fumigation for ears (33, 1, 33).

⁴ KU.NIK.IB.ŠU.LAL, apparently made up of two groups, KU.NIK.IB = *ulapu*, and ŠU.LAL = *kibtu* "wheat" (Hrozný, *Getr.* 62; cf. *AM.* 51, 10, 5). Bray with **ammi, sesame, human bones, sulphur, etc., as unguent (19, 2, ii, 7); cf. 29, 1, 3 (unguent, with 3 others); bind alone on temples, poultice, 20, 1, 34. Cf. 63, 2, 5; 94, 2, ii, 15. *Fumigate*, with various drugs, alkali, sulphur, bitumen, human bones, etc., 93, 1, 12; ears, with seed of tamarisk, *liquidambar, etc. (35, 1, 5; 38, 2 r. 2). Cf. 33, 1, 29, 30, 35; 34, 6, 6; 80, 6, 3; 99, 3, 18 r. 9, 12, 18; 103, 1, 6. (On *ṭiṭ ulapi* "mortar", see Thureau-Dangin, *RA*, 1914, 87.)

⁵ I take *ru'ut nāri* "spittle of the river" to be the same as *meerschaum* = magnesite, or magnesium silicate. It must be some definite earth, just as *kibir nāri* is sulphur. Meerschaum is said to be used as fuller's earth in the Turkish Dominions (*PC.* xv, 63). The suggestion in Bostock, Pliny (xxxv, 53 ff.) is that silicates were more used in medicine in ancient times. Of the earths in Pliny, Chian earth is a cosmetic, Cimolite is an aluminous silicate "a white chalk dissolving in water", there being two kinds of Cimolian earth (Pliny, xxxv, 57), used externally for tumours, etc.

In *CT.* xiv, 9, K. 4373, r. v-vi, 4-7, it is included in the same group as sulphur and *hāpu* (twice). Does *hāpu* = Syr.  "wash", with reference to fuller's earth?

6. . . . fruit of the "sea-tree", *muza*-stone, *ṣab*-stone, *liquidambar male [and female], kelp (?), cinnabar of Egypt, together in a skin- . . . on his neck thou shalt put, and [he shall recover].

8. The left horn of a kid which has been covered (?)¹ thou shalt reduce: the horn of a ram thou shalt reduce: *arušte*-powder² thou shalt . . . , . . . instead of powder (?), **ammi, alum, caper, seed of tamarisk, . . . [*liquidambar] male and female, kelp (?), laurel-berries, lupin, **calendula*, *imhur*-[*ašrā*] . . . , sumach, male mandrake-root, *muza*-stone . . . [the]se [drugs] together thou shalt bray, mix in oil, [apply, and he shall recover].

No. 14. *AM.* 4, 7 (81-7-27, 61), *top broken*.

1. . . . thou shalt continue the treatment, and he shall recover.

2. . . . that man "seeketh the Temple of Shamash"³ and . . . ; . . . pine-gum (?) thou shalt bray, wrap in a fleece, put it on his stomach . . . in spelt-bread let him eat . . . thou shalt continue the treatment and he shall recover.

7.⁴ . . . [that man] "seeketh [the Temple of Shamash (or Sin, or Ninurta)]", and for seven months he shall see fair things: . . . pure . . . of Nipur (?) thou shalt apply to his head . . . for seven days continue the treatment, and he shall recover.

10. . . . sickness that man, remove (?), [that man "seeketh the Temple of Shamash (or Sin, or Ninurta)]" and shall see fair things: for his recovery . . . oil of cypress on his head thou shalt put . . . thou shalt continue the treatment and he will recover.

No. 15. *AM.* 5, 1 (K. 2532), *top broken*.

2. . . . leek, an old shoe, together thou shalt dry, reduce . . . lead, antimony,⁵ salt together thou shalt mix, once, twice, (or) [thrice] . . . If

¹ ZU, opposed to the ordinary UŠ.NU.ZU? Cf. the similar text 96, 4, 1-6.

² For *aruštu* Del. *HWB.* 141 quotes Sarg. *Ann.*, 201, A.BAR *munammir arušti-šunu* "antimony (or plumbago) which polishes their *aruštu*".

³ For this phrase cf. 34, 4 r. 5, 9, and 37, 2, 8. It may be a euphemism, especially the "seeing fair things" (madness, delirium?). Unless, of course, it means that he shall go to the temple for relief.

⁴ Cf. 34, 4 r. 5, or 9, as part duplicate.

⁵ A.BAR, long connected with Syr. ܐܒܐܪ "lead", cf. IB. No. 13, *el-abar* collyrium, from

ܐܒܐܪ. It came as tribute to Tiglath-Pileser I (v, 39) from Melitene. Noticeable is *uban* A.BAR ("a finger of A.BAR," 101, 3, iii, 13); cf. with this, 19, 6, 3, *ana lib* A.BAR *tanadi*

ditto alum (and) chamomile thou shalt bray, in cedar-oil mix, [apply to his head, and he shall recover].

5. If a man's head in his youth is full of grey hairs, to blacken the grey hair . . . a stork (?)¹ (a stork), or a . . . in the fire thou shalt boil, their dung thou shalt take, in oil [thou shalt mix] . . . the Charm "ŠAK.KI EN.NA" seven times . . . the Charm "ŠAK.KI EN.NA" thou shalt recite . . .

10. If ditto, thou shalt take a ram's horn, with bone of . . . in a fire "he" shall calcine (it), with oil . . . three days on his head thou shalt bind it . . .

13. (Cf. 4, 1, 14.) If ditto, the *ma-ereš-ma-lī* plant, the head of . . . , the head of a black raven, the head of a hawk,² the head of . . . together

ubanu . . . , 77, 6, 7 *ša* (?) *-pan-ti* A.BAR *ina* NI . . . , 49, 4 r. 8 NAM.SI.DI (= ? *nam-si-di*) A.BAR *teppuš(uš)*. In 101, 3, 9 . . . A.BAR is applied to anus.

But the more common group is LIŠ.A.BAR (especially in eye-texts), which must mean antimony, collyrium, or properly the sulphide, antimonite, long used in Syria for darkening eyelids (Rutley, *Elements of Mineralogy*, 289). LIŠ = *idgurtu*, which latter word is used as an adjective to "mountains" (*idgurāti*, MA. 129), which must refer to the sharp peaks. This points to LIŠ = "needle" or similar, i.e. *idgurtu* = Syr. ܐܝܢܐ "great needle" (cf. 19, 6, 17, *id-gur-ti* NI . . .).

In LIŠ.A.BAR "needle(s) of antimony" we must see either (a) the needle with which the stibium was applied; cf. *SM.* ii, 118, "wrap a piece of wool round the top of a *koḫl*-needle," to insert in the ear (or 194, similar), or the description of a girl painting her eyes (Chandler, *Travels*, ii, 140, quoted Smith, *Smaller Bible Dict.*, 396), "thrusting in at the external corner a bodkin which had been immersed in the soot"; or (b) more probably the peculiar elongated prisms of antimonite, found in masses having a columnar structure. It will be observed in the eye-texts that it is the LIŠ.A.BAR which is ground up.

LIŠ.A.BAR is prescribed if a man's ear is heavy: "after this a LIŠ.A.BAR in oil or . . ." (34, 1, 22) (cf. the use in *SM.* above); perhaps also to insert up the penis (62, 1, ii, 10); and . . . *ina* LIŠ.A.BAR *itti dišpi* HI.HI "in (with) antimony-needle(s) with honey thou shalt mix" (43, 1, ii, 11). But its chief use is for the eyes: LIŠ.A.BAR *ta-zak* (8, 1, 10) "antimony-needle(s) thou shalt bray, [apply] to his eyes"; . . . LIŠ.A.BAR *ina* NI *u epir eri* RAT MAR (11, 2, 21) "antimony-needle(s) thou shalt bray with oil and copper-dust, (and) apply" (also cf. 8, 5, 6; 8, 6, 3; 10, 3, 3; 12, 8, 13).

¹ *Igirú*. If the two diagonals following indicate a gloss, then *igirú* = "*laḳlaḳka* or . . .", i.e. the stork. The Heb. עֲבֹרָה (obviously = *igirú*) is a migratory bird which chatters (Isa. xxxviii, 14; Jer. viii, 7), which is a description applicable to the stork. Sennacherib (*CT.* xxvi, 30, li. 48, 57, ed. King) describes how he introduced the *igirú* into Nineveh, to occupy the pools along with the wild pigs, describing them as having a far distant home.

The White Stork is common round Mosul. I do not remember the Black Stork there, but it is obvious from our medical text that a black bird is necessary, and it may well be that the *igirú* is the Black Stork (which is not a proper inhabitant) as distinct from the *laḳlaḳka*, White Stork (although it is true that the White Stork has some black on its wing). Other black birds in Mesopotamia are: (1) the Cormorant, which I have seen at times at Mosul, driven in from the sea; (2) the Black Glossy Ibis, but only at Birejik (see my *Pilgrim's Scrip*, 308), where it is a migrant. In *SM.* ii, 691, the "fat of a black raven" is the equivalent.

² *Išsur hurri*, Zimmern (*Akkad. Fremdw.* 51), Arab. *fēr el-hurr* "hawk". Cf. hawk's blood, in *SM.* ii, 702, to make hair grow.

thou shalt reduce, bray, in good oil mix, on his head press, [bind on, and he shall recover].

16. If ditto, thou shalt catch a chamaeleon,¹ open its stomach . . . , return the . . . to its stomach; thou shalt wait (?)² . . . for seven days . . . ; the . . . from its stomach thou shalt take, dry, reduce, bray, [mix] in good oil . . . , on his head press; seven days thou shalt anoint (?), bind . . . "The grey hair shall become black"; while thou bindest him, the charm thus thou shalt recite . . .

(Perhaps add here No. 16, *AM.* 6, 4 (K. 13505), *top broken.*)

2. While thou bindest him, the charm thus [thou shalt recite] . . .

3. If a man's head [has] grey hairs (? , *paršumâte*) . . .

4. [If] a man's head [has] grey hairs (?) . . . thou shalt bray . . . licorice, in honey [mix and apply].

6. [If] a man's head has grey hairs (?) . . . *usa-beer* . . .

No. 17. *AM.* 5, 2 (K. 2471), *top broken.*

2. **Bellis* (and) *crataegus azarolus* (?), their (?) leaves thou shalt pound . . . 5 shekels of gum of *galbanum, 5 shekels of wax (honeycomb) into a pot . . . The gum (?)³ which thou hast bound on thou shalt take off: after thou hast taken it off . . .

5. If a man has anointed himself with unguent which is not fresh (?),⁴ and his head . . . thou shalt wash, dry; then *gulbana*-plant⁵ thou shalt dry, reduce, [apply].

¹ *Ār ili* "sheen of god" (like the plant *ār kaspi* "silver sheen", i.e. anemone, *AH.* § 10, f). It is a synonym of *harba-bibillu*, Del. *HBW.* 51, and it occurs again with *lummū* and *hammu* as equivalent of . . . MUL (*CT.* xiv, 2, K. 71, A, I, 32-34), Delitzsch thinking that in this latter occurrence it is a different word from the former. (Cf. *KAR.* 182, 1, 19.)

Harba-bibillu is comparable to the Arab. حرباً "a chamaeleon", which is obviously the magical animal necessary here to change grey hair to black, and the Syriac at once shows how it can adopt Assyrian in Syr. ܫܝܢܝܢ "a lizard", i.e. from our *ār ili*. "Sheen of god" must refer to the chamaeleon's capacity for changing colour.

Cf. Weidner, *RA.* 1914, 119, *har-ba-bi-lu[m]*, and *CT.* xxii, 48, 8, *har-ba-bi-li*. *Lummū* looks like "that which changes colour", from the Arab. *lma'* in viii conj. passive, "be changed" of colour of face.

² *Tetekib*, Heb. עָכַב "wait", or *tetekib*, Aram. עִקַּב "come late".

³ A. DAN.

⁴ The reading must be *šamni la ta-ki* ("oil not fresh (?)"); but *taki* can be referred to תוך "to be damaged". *Lataki* لَاتَكِي "fit" is possible.

⁵ I doubt *galbanum*, which should be √הלב.

7. If ditto, thou shalt bray **calendula*, in [oil mix, and apply it]. If ditto, thou shalt bray chamomile, in [oil mix, and apply it]. If ditto, thou shalt bray PI.PI-fennel, [in oil mix and apply it].

No. 18. *AM.* 5, 3 (K. 10655 + 10926), *top broken*.

The section I, 8-10, is duplicate of *KAR.* 202, i, 20, and should read *Enuma NA muhhu-šu UD.DA-at ênâ^{II}-šu ibarrura . . . GAB (?) tabašal šburaši ššumlali šbaluḫḫi sahlê GAB šamaššammi "siḫi ina šizbi taláš(aš) tašamid-ma ibalu(ut)*.

"When a man's brain is on fire (?), his eyes *ibarrura* . . . thou shalt boil wax (?): thou shalt knead in milk pine-gum, oleander (?), *galbanum, lolium, mucilage (?) of sesame, artemisia, bind on, and he shall recover."

Cf. *Ud-da-at* (?), 6, 9, 6, and *KAR.* 202, ii, 27, *Enuma NA UD.DA-at TUK šârat kaḫḫadi-šu išaḫḫuh*, the latter being duplicate of *CT.* xxiii, 32, 8, and Jastrow, *Trans. Coll. Phys. Philad.*, 1913, 18. Jastrow restores his broken text from elsewhere in *CT.* xxiii, with NE.NE ("išatu uḫammaṭ") for UD.DA-at: it may be that we must read UD.DA-at (= *iḫammaṭ*) here.

Ibarrura or *iparrura*, difficult. For *barâru* Jastrow suggested no Semitic comparison, although he gave a rendering. The verb *barâru* is a synonym of *palâmu* (Del., *HWB.* 188) = Aram. פָּלַם, Pa. "to cover with mud" (i.e. here matter, pus?); while *parâru* might be Heb. פָּרַר, Pilp. "to quiver". It occurs again, 97, 4, 30, duplicate of *KAR.* 184: *Enuma NA šAG.DIB.BA TUK.TUK-ši PI^{II}-šu išagguma ênâ^{II}-šu ibarrura SA TIG-šu ikkalu^{VI}-šu*, etc.

Cf. *CT.* xxiii, 23, l. 1 ff. (dupl. of *KAR.* 202, i, 1) *Enuma NA muhhu-šu išati ukal SA.ZI šAK.KI TUK-ma ênâ^{II}-šu idak ênâ^{II}-šu birratu*, and ib. 27, 12 [*Enuma NA NE*].NE TUK-ma ênâ^{II}-šu *ibarrura dâma ukalla*.

No. 19. *AM.* 5, 5 (K. 8074), *top broken*.

1. [If ditto?], thou shalt pound chamomile, fat . . .

2. To remove itching, fennel (?), UŠ.GUL¹ in lees (?) of . . . [thou shalt apply].

3. For ditto, thou shalt rub² chamomiles on the place, "black alum"³

. . .

¹ For UŠ.GUL cf. 17, 1, 2.

² *Takar* (√*kâru*?). From the passages in which this occurs it must mean "to rub, smear", e.g. *eḫir šinnišu takar-ma ibaluṭ* "the root of his tooth thou shalt rub and he shall recover" (36, 2, 11, cf. 4): "When ênâ^{II}-šu DUL-ma (= *katma*) ukal ênâ^{II}-šu takar thou shalt rub his eyes" (for dimness or cataract?, 9, 1, 37): *adi dâmu šI.GAB takar* "thou shalt rub until blood appears" (25, 6, ii, 8): rub anus (53, 1, iii, 3; Kū. ii, iii, 48). Cf. פָּיַר "smear".

³ IM.IŠ.MI.KUR.RA.IM.IŠ.TAK.KUR.RA = *gabî* "alum" (Thureau-Dangin, *RA.* 1920, 28): IM.IŠ.MI.KUR.RA (opposed to IM.IŠ.UD.KUR.RA, 59, 1, 45) occurs again 59, 1, 29, to be drunk

4. For ditto, seed of leeks, ***ricinus*, "black"-plant (*Xanthium strumarium*?) together thou shalt bray, [apply].

5. If a man's head gets an itch, thou shalt bray flour of corn, rub on . . . Thou shalt remove his (its) *ritrittu* (scab?), wash in beer: powdered (bark) of box thou shalt apply, bind on . . . powdered (bark) of box, powdered (bark) of *elammaku*, powdered (bark) of the "all-unguent" tree . . . on the front thou shalt remove (?), thou shalt press, thou shalt reduce *suadu* (and) cedar (and) bray (them) . . . in rose-water thou shalt wash: the powdered (bark) of box, the powdered (bark) of *elammaku*, the powdered (bark) of the "all-unguent" tree . . .

10. If ditto, thou shalt shave his head, thou shalt anoint (it) with fish-oil,¹ before he sleeps² thou shalt remove (it), the root of . . . , the root of *kumahu*, bed (dregs) of GAR.RIN.NA, lupins, seed of *ḫutrate* . . . together thou shalt bray, with cattle-urine thou shalt bind his head, in beer thou shalt wash, in rose-water thou shalt . . . , seed of *vitex agnus castus*, seed of mandrake, linseed, seed of sumach, PI.PI-fennel juice, . . . , turmeric, *saggilatu*-alkali, juice of *ma-ereš-ma-li* plant . . . thou shalt dry, pound, (and) strain, in rose-water knead, again dry, pound, (and) strain, in beer . . . : for three days thou shalt not take (it) off; on the fourth day, when thou takest it off, in hot urine thou shalt wash . . .

No. 20. AM. 6, 1 (K. 11544), top broken.

2. . . . scarlet anemones thou shalt bray, [apply to] his head . . . [*e*]kidu without salt thou shalt bray, in milk thou shalt [knead] . . . [apply] the scarlet anemones to his head, . . . cool [it]; then the aforesaid *e*kidu without salt . . . ; [thou shalt bind] on his head in a bandage . . . thou shalt not take (?) his . . .

8. . . . flour of spelt-corn in water thou shalt knead, bind his head . . .

9. . . . sulphur, salicornia-alkali, cantharides (?) . . . these [drugs] together in the shade thou shalt dry, pound, [strain] . . .

for dyspnoea, for which alum is also drunk, l. 24. Drunk in Lutz, *AJSL*. xxxvi, 80, l. 1. Its value appears to be *sah* (?) (*kit* (?), *lil* (?)) -*mu* (*VR*. 27, 19, *e-f*). Pliny (xxxv, 52) speaks of several kinds of alum, the white and the black, both used for dyeing; but Bostock in his note (loc. cit.) quotes a Dr. Pereira, who says that Pliny did not distinguish alum from sulphate of iron, since he calls one white and the other black. Are we to consider IM.IŠ.MI.KUR.RA = sulphate of iron?

¹ NI.KIL = *šaman nūni*, *SAI*. 3701.

² Cf. KI.NÁ, 47, 1, 1.

No. 21. *AM.* 6, 2 (K. 8008).

1. . . . which on the head of the sick man thou hast bound . . . [the charm . . .] UŠ.MU.E thereafter thou shalt recite.

3. . . . which the opening of his mouth hath turned to favour, in the house wherein the charm hath been performed, in the (ditto) which the charm hath . . . (*ušširu*?). The lord to [compose?] his limbs,¹ the lord to learn [his disease] . . . [at] his bed a kid at the head of the sick man . . . "Take [the . . .] of a cow." . . .

No. 22. *AM.* 6, 3 (K. 9828 + 11868), *top broken* (cf. K. 13417, Pl. 12, and K. 13398, Pl. 41).

2. Thou shalt pound and strain . . .

3. 10 shekels of [dried?] powder of mucilage (?) of sesame . . .

4. 10 shekels of dried (?) powder of mucilage (?) of sesame . . . the first day thou shalt bind his breast, his head . . . thou shalt pour on his head, in the house . . .

7. 1 shekel of cantharides (?), $\frac{1}{2}$ shekel of . . . (Cf. 8, 1, 27.)

8. $\frac{1}{3}$ *ka* of seed of *pirhi*, $\frac{1}{3}$ *ka* of seed of beans (?) . . .

9. $\frac{1}{3}$ *ka* of ground meal, 1 (?) shekel of juice of . . .

(*Four lines broken.*)

15. $\frac{1}{3}$ *ka* of juice of . . . thou shalt again dry . . .

17. $\frac{1}{3}$ *ka* of *supalu* (gum?), $\frac{1}{3}$ *ka* of . . .

18. Salicornia-alkali . . .

(*For AM.* 6, 4, *see* 5, 1.)

No. 23. *AM.* 6, 5 (S. 414).

1. . . . thou shalt take out the hair (*or*, thou shalt thread (on) wool) . . .

2. . . . thou shalt heat, grind, apply . . .

3. [*stor]ax (?) thou shalt bray, [apply] . . .

¹ Cf. my copies *CT.* xvi, 5, 181 ff., and translations, *Devils*, i, 19.

4. . . . in white (?) mountain-honey and water thou shalt wash and he shall recover.

5. . . . in oil thou shalt anoint, **calendula*, fennel . . . in water thou shalt wash his head, in oil anoint . . .

7. [His head] thou shalt wash in water (?) and bray fennel, anoint in oil.

8. . . . in mountain-honey thou shalt anoint . . .

No. 24. *AM.* 6, 9 (K. 10212), *top broken*.

3. . . . thou shalt [boil], spread on a skin, [bind on and he shall recover].

4. . . . head, *arê*-(plant),¹ *kankadu*-(plant) thou shalt dry . . . [in] *barga*-oil mix, continuously [apply].

6. If a man his head . . . ,² and his body hurt [him], thou shalt dry . . . , pound, (and) strain; flour of *gu-gal*, flour of *gu-du*, flour of . . . in lees of beer thou shalt knead [and apply].

9. If ditto, dried (?) mucilage (?) of sesame, fir-gum, pine-gum . . . [thou shalt apply].

10. If a man's head get a pain, roses³ . . . [If ?] his head take a pain, licorice-root . . . in the morning without a meal let him drink.⁴

No. 25. *AM.* 7, 3 (K. 10562), *top broken*.⁵

1. If ditto, vinegar,⁶ *billu*-wine . . .

¹ Cf. 39, 1, 38, **a-ri-e*.

² *Ud-da-at* (?) (or *ud-da-šir* (?)). See No. 18.

³ Cf. 64, 1, 15 . . . *su a-ḫi-iz kam-ti kasī zir ʿšimri* . . .

⁴ Cf. 64, 1, 4.

⁵ Joined to K. 7953, pls. 64-65, after this was in type.

⁶ *Tābatu*, A.GEŠTIN.NA. Kūchler (83) and Del. *HWB.* (298) "water mixed with wine". But the ideogram really means "water (liquid) of wine"; water with wine would have very little value in the medical receipts in which A.GEŠTIN.NA is prescribed. My own view is that it represents *vinegar*, *acetic acid* in its simple form. Vinegar occurs more than a hundred times in *SM.*, and yet we have as yet identified no proper word for it in Assyrian. Nothing, as far as I know, has been compared to the Syr. *ḫallá*, but conclusive is BIL.LAL = *tābatu* and *enšu* (*SAI.* 3157, 3156; Meissner, *MVAG.* 1913, 2, 20, 17), the latter being obviously 𐎲𐎠𐎺𐎠 "vinegar".

In a case where the patient voids urine "like that of an ass", followed by blood, the physician is to introduce two (or three) shekels of gum of *galbanum mixed with $\frac{1}{3}$ *ka* of A.GEŠTIN.NA up the penis (66, 7, 18). This mixture is made for the good reason that acetic acid is a powerful solvent of gum-resins (i.e. *galbanum) (*PC.* xxvi, 342). A similar small

2. Again, river-bed (or, lees of beer?) . . .

3. If ditto, scabies thou shalt cover (?) . . .

4. If ditto, vinegar, *billu*-wine . . .

5. If a man's head . . . river-bed (or, lees of beer?) . . .

B. DISEASES OF THE EYES.

No. 26. *AM.* 8, 1; *AM.* 12, 8; *AM.* 20, 2 (K. 2570, etc.), *top broken*.

(a) . . . thou shalt reduce, bray . . .

(b) [If a man's eyes] . . . its leaf, *salicornia*-alkali thou shalt bray, in rose-water knead, [bind on]: . . . bray, beat up in fat, in equal parts bray, [mix] in curd, [apply].

(c) If a man's [eyes] are sick and matter (?) is secreted on his temples, [thou shalt spread] tanners' verdigris¹ on vellum (?), on [his eyes] bind: bray copper-dust, arsenic,² yellow sulphide of arsenic, mix in curd, apply to his eyes . . .

(d) When a man's eyes are sick and are inflamed, thou shalt bray dust of a copper saucepan in curd, apply to his eyes; a bronze blade . . . in water thou shalt wash . . . once, twice, thrice apply to his eyes, *lolium* in beer-dregs thou shalt knead, apply.

(e) [If a man's eyes] . . . [in a (?)] saucepan thou shalt reduce, pound, bray in sweet curd.

2. When thou doest . . . apply to his eyes.

quantity is used (41, 1, iv, 21). A.GEŠTIN.NA is prescribed with other drugs for using on the head (65, 5, 8) (cf. vinegar externally for the head as a medium with other drugs, *SM.* ii, 41, 63, 64, 65). It is also used for the temples (20, 1, iv, 39). It is boiled in a pot, and then many plants are introduced into it to make an enema (49, 6 r. 6). It is used in a mouth-wash (28, 7, 7) (cf. *SM.* ii, 187, etc.); for toothache (28, 1, 4) (cf. *SM.* ii, 186). Note 50, 3, 4, "once, twice (or) thrice the *lolium* . . . which vinegar has not destroyed he shall eat" (*ša A.GEŠTIN.NA la šul-pu-tu ikkal^o*). "Wine-water" could hardly have the strength necessary to "destroy" anything, whatever the object of the verb may have been here. (Cf. 66, 7, 22, [A.GEŠTIN.NA.D]AN.GA *tuballal e-nu-ma TAK (= ušalpit ?)-šu*, etc.) "Strong vinegar," A.GEŠTIN.NA.DAN.GA, is still more indicative: it is a medium for 25 drugs and aromatics (84, 1, ii, 4); in 57, 5 r. 3, $\frac{1}{2}$ *ka* of alkali, $\frac{1}{2}$ *ka* of "strong vinegar", 5 shekels of salt, 5 shekels of **ammi, boiled in *kurunnu*-beer and with oil added to it, is to be poured on (up?) the anus.

¹ "Shoemaker's vitriol," *SM.* ii, 114.

² See l. 23.

3. ***Ricinus* thou shalt bray, cook in beer . . . pour in his eyes; thou shalt bray **bellis*, bind on. Thou shalt bray *pirhi*-plant (and) bind on: *artemisia*, **sagapenum* in milk knead, bind on; raw¹ kidney-fat in the morning thou shalt put . . . an antimony-"needle" thou shalt bray, apply to his eyes.

6. If his eyes are sick and are dim,² pine-cone-gum . . . in water thou shalt wash, bind: fruit of the poppy, **storax* . . . [thou shalt apply].

8.³ If a man's eyes are sick and for many days will not open, in the fire (of his head his eyes are full of film, his head) thou shalt press, three times a day dough thou shalt cool, (seed of **bellis* thou shalt reduce, in *pûru*-oil) an antimony-"needle" thou shalt bray, (and) [apply] to his eyes.

11. If a man's eyes are affected with dryness,⁴ he shall rub⁵ an onion, drink it in beer, [apply] oil to his eyes . . .

12. Powder of date-stones⁶ thou shalt reduce, bray, knead in rose-water, bind⁷ on, before a meal let him . . .

13. Thou shalt disembowel a yellow frog,⁸ mix its gall in curd, apply to his eyes.

14. 5 (?) *bur*⁹ of [*gu*]-gal flour, 6 *bur* of powder of roses, 5 shekels of lolium (in) rose-water . . . thou shalt bind on his temples and eyes.


15. Thou shalt bind on . . . ; where the seed of the . . . -plant has gone in he shall touch (?)¹⁰ and . . . three times ". . ." he shall say.

¹ *Sámu* "red".

² For the use of *ma u*, cf. 20, 2, 7.

³ Dupl. of *KAR.* 183, 11 ff., whence the restorations in round brackets.

⁴ *Tabila(m)*. E. is probably right in his translation "dry" (xiii, 5). It is used of **storax* when applied to the eyes (8, 1, 28; cf. 92, 8, 9), to ears (36, 1, 18): of *Giš.gil* (= tannin), applied "dry" to eyes (16, 1, 4): various cereals, including lolium, applied "dry" to the head (16, 1, 6): of drugs to be applied "dry" to the head (64, 1, 38): cf. 13, 6, 10; 18, 4, 5; 28, 7, 10. "If a man coughs 'dry', (and) does not spit" (81, 3, 4; cf. 81, 1, ii, 22).

⁵ *Uḫašša*, doubtless, if not Syr. , Af. "to rub", some form similar to it. Cf. 105, 1, 18. [*šá*]mu šar ina eli uḫašša. The remedy of drinking a raw onion in beer would presumably induce tears.

⁶ For this receipt cf. *SM.* ii, 663.

⁷ *Tukappat*, Heb. *kâphath* "bind".

⁸ Cf. *SM.* ii, 66, 3.

⁹ It is doubtful whether the passage in l. 27, with its variant *šiklu* "shekel", gives us much help in deciding the amount of the *bur*: " $\frac{1}{2}$ *bur*" is clear; in " $\frac{1}{2}$ shekel" the "half" is not written so clearly, but seems probable.

¹⁰ Very doubtful rendering: for *ekû* see p. 4, n. 6.

17.¹ If a man[']s eyes are sick, **ammi, *hyoscyamus*, rose[s], lolium, *maštab*-plant, fat of *opopanax, seed of pine, gall (?) [of the tanners]² . . . in curd, suet of the kidney of a male sheep, wax (?) of honey thou shalt include,³ apply to his eyes.

19.⁴ If a man's eyes [are sick, *storax in curd thou shalt bray and apply :] [If a man]'s [eyes] are sick, cantharides (?) in curd thou shalt bray (and) apply.

20.⁴ If a man's eyes are sick [alum in curd thou shalt bray and apply :
If a man's eyes are sick, *lolium* (?) in milk thou shalt boil (and) apply.

21. If a man's eyes are full of blood, and day and night not . . . and the middle of his eyes is red, his eyes being dim,⁵ thou shalt reduce roses . . . [in] cows' [milk (?)] or in the milk of a harlot⁶ thou shalt knead (and) bind on. In the morning thou shalt take it off, and bray arsenic⁷ in curd,

¹ Part duplicate of Scheil, *RA.* 1921, xviii, 1, 6.

² *Kammu* (*ša aškapi*): Kū. iii, ii, 18: cf. 19, 6, 8, 10, 13, externally for eyes (note the peculiar form of the ideogram): for eyes (10, 4, 6), ears (34, 1, 28). It cannot be the "sumach of the leather-workers" of *SM.* ii, 487 (the Assyrian for "sumach" is "LID.GAB, *šapru*, *AH.* § 10, BG); but gall is used for both eyes (frequently) and ears in *SM.* (ii, 112). The oak-galls are the source of tannic acid, (a styptic) which is a staple commodity of the hills of North Mesopotamia (see my chapter in Woolley, *Carchemish*, ii). What seems to be conclusive is 12, 4, 6: *ina lipi kaliti alpi šalmi kima kam-ma*, i.e. "in the kidney-fat of an ox black as gall". Cf. *šuhta ša aškapi*, 12, 8, 5, and its duplicate, 20, 2, 5.

For the sign *aškapi* see Christian, *Vienna Oriental Journal*, 1911, 425; De Genouillac, *OLZ.* 1908, 381; Meissner, *OLZ.* 1911, 385.

³ *Tuštabbal*.

⁴ Duplicate Scheil, *RA.* 1921, xviii, 1, p. 6.

⁵ *DUL-ma*, presumably *katma(ma)*, since *dulmu* appears to be out of the question. *Énâ^{II}*-*šu DUL-ma u-kal* (9, 1, 37): . . . *u DUL-ma ta-za-ak* (62, 3, 14): *énu DUL-ma išakkan(an)* (?) (13, 3, 5): . . . *-su-u DUL na-di-* . . . (95, 4, 3). Cf. *kat-mu* (22, 3, 1, 2).

⁶ *šaišamka* (or, *šAL.ŠAM.KA*). *Šamkatu* is another form of *šamhatu* (MA. 1058), and presumably this is the same. Cf. l. 33 (curious); 12, 3, 5; 13, 2 r. 9; 13, 6, 13; 57, 10, 5.

⁷ *tašAŠ.HAR* (probably to be read thus instead of **AŠ.HAR*). Before discussing this (which, as *AZ.HAR* on *CT.* xiv, 8, obv. 14 = *ŠIM.BI.ZI.DA *SIG.*SIG*) it will be well to discuss *ŠIM.BI.*SIG.*SIG* of l. 28 (Br. 5185, 5186) first.

Consider the following equivalences:—

<i>ŠIM.BI.*SIG.*SIG</i>	= <i>léru, šipu</i> (Br. 5185, 5186).
<i>ŠIM.BI.GUŠKIN</i>	= <i>léru, šipu</i> (Br. 5187, 5188).
<i>IM.ŠIM.GUŠKIN</i>	= <i>šipu, šindi huraši</i> (<i>SAI.</i> 6297).
<i>IM.GUŠKIN</i>	= <i>šipu</i> (Br. 8487).
<i>ŠIM.GUŠKIN</i>	= <i>šipu, léru, damatu</i> (Br. 5198-5200).
<i>IM.ŠIM.TAK.IŠ</i>	= <i>léru, šindi ni-</i> . . . (<i>SAI.</i> 3548).




From a comparison of these, and from analogy with *šindi huraši*, we may reasonably see in *ŠIM.BI.*SIG.*SIG* an original equivalence *šindu arku*.

Pinches was nearly right when he said that *šindu* is "probably not 'spot' but certainly 'mark'" (*JRAS.* 1898, 444, quoted MA. 1072): "an eight-year-old brown donkey without

his eyes *rapadi*-plant¹ on a bronze blade² [thou shalt anoint ?]. A thread

šindu on it" (MA. *ibid.*) certainly indicates "paint" when it is considered alongside of the quantities "four *mana* of *šindu*" and "sixteen *mana* of *šindu*" of the contracts (quoted Del., *HWB.* 674). Cf. Langdon, *OLZ.* 1909, 112, and Dougherty, *Shirkātu*, 84.

Šipu and *liru*, the equivalents of *šindi huraši*, are considered as "Goldleiste", "Goldlehm", "Goldpaste" by Del., *HWB.* 645, and Jensen (*KB.* vi (1), 510), both reading *šibu*. (Cf. Neb. iii, 30, *šibi šaplanu 'erini zulūlu.*)

But we can go a good deal further in the identification than "Goldleiste". The word, on the analogy of  "smeared",  *pasta*, Syr.  "liquid gum", must

be *šipu*, not *šibu*: *liru*, its synonym, is doubtless Heb. רַר, Arab. رال "slaver", etc.

We have therefore to define a drug not remote from "gold paint" or "gold leaf", used in *AM.* as (1) ŠIM.BI.*SIG.*SIG for eyes (l. 28 and l. 31), and read, as I suggest, *šindu arku* "green (yellow) paint"; (2) ŠIM.BI.GUŠKIN "gold paint", also for eyes (with *hīlu* of copper and ^{ta}AŠ.HAR, 12, 8, 6; 20, 2, 6); 15, 4, 2; for mouth (externally, with *nigella*, **ammi, *eruca*, alum, and *storax (36, 2, 3); and even drunk (for pain?) with thyme, *supalu*, lolium, *nigella*, etc., in oil and *kurunnu*-beer (16, 4, 5).

The eye-medicines and mouth-washes of *SM.* ii, 90, 94, and 176, 181, 187, 188, contain that drug which easily suggests itself here, i.e. *arsenic*; it is even drunk in *SM.* ii, 412, 463, etc. As a paint it is the yellow trisulphide of arsenic, a natural product of Kurdistan (F. Rutley, *Elements of Mineralogy*, 285), which provides the yellow dye or paint known as *auri pigmentum* or orpiment.

This is so close to *σανδαράκη* (cf. Pliny, xxxiv, 18) that it is obvious that the Greeks borrowed the Assyrian words *šindu arku* "green (yellow) paint". There is the slight objection that *σανδαράκη* in Diosc. and Pliny appears to be more the *realgar* or red (and orange) sulphide than the yellow orpiment. Yet from Bostock (Pliny, xxxv, 22, note) it would appear that Pliny speaks of the pale or massicot, as well as the red, and it may well be that a confusion arose between the two kinds, especially as *σάνδουξ* = "the red stone" (*sāndu*, cinnabar). We may therefore consider that ŠIM.BI.*SIG.*SIG and ŠIM.BI.GUŠKIN are the yellow sulphide of arsenic, the "yellow arsenic" of *SM.*, and as equal to *šindu arku* = *σανδαράκη*.

We can now turn to ^{ta}AZ.HAR. There is no doubt about the equivalence ^{ta}AZ.HAR = ^{ta}AŠ.HAR: the former occurs 10 times in *AM.*, the latter 6 times. It is used externally, chiefly for eyes (here in curd, and 16, 1, 21); 9, 1, 24; 12, 4, 5; 12, 8, 6; 15, 4, 6; 19, 6, 12 (in powder); 20, 2, 6; 50, 1, 3 (eyes(?)); for cheeks (or beard, 26, 8, 9); for ? 57, 10, 2. For some urinary trouble, brayed alone in curd, or with salt in curd, for [introduction by penis], 62, 1, ii, 6, 7.

AZ.HAR, as we saw above, = ŠIM.BI.ZI.DA *SIG.*SIG, evidently closely connected with ŠIM.BI.*SIG.*SIG. ŠIM.BI.ZI.DA in *SAI.* 3546 = *guḫlu*, i.e. *kohl* (Zimmern, see MA. 215). We have thus a "green *kohl*" used for eyes chiefly, but also for urinary trouble, called AZ.HAR, AŠ.HAR, closely allied to yellow sulphide of arsenic, but not quite the same, as it is used side by side with it in the same prescription (12, 8, 6). But it is obviously some form of arsenic. It can hardly be the *ghār* in the Arabic "realgar", since the latter (red sulphide of arsenic) does not comply with the "green" demanded. It is more probable that AZ.HAR, AŠ.HAR (a foreign, borrowed word, since there is some doubt about the sibilant) is comparable to Arab. *haḡira* "be green", and even to *ἀσρέυκον*, *ἀπρέυκον*, both curious words.

¹ For this plant see *AH.* § 10 R. *Rapadu* is the name of a disease.

² GIR UD.KA.BAR. GIR is properly a dagger, razor, or sickle (an edge or a point): e.g. in 11, 2, 7, ". . . take out and GIR UD.KA.BAR *ḫimeti tapasaš* thou shalt anoint a bronze blade with curd"; 10, 3, 31, ". . . *ina dišpi* UD GIR.UD.KA.BAR „ (= MAR) ". . . in white honey a bronze blade thou shalt apply"; 12, 8, 7, ". . . thou shalt apply to his eyes: a bronze blade . . . once, twice, (or) thrice thou shalt apply to his eyes." All the above are eye-texts; 70, 9, 4 is uncertain.

of blue ¹ wool and of white wool thou shalt spin, twist, bind on; his temples on both sides . . . thou shalt take out, and his eyes . . .

26. If a man's eyes are changed ² to blood, seed of *eruca*, mountain-honey, yellow sulphide of arsenic ³ thou shalt mix [and apply].

27. 1 shekel of cantharides (?), $\frac{1}{2}$ shekel of *storax, $\frac{1}{6}$ "Akkadian salt" ⁴ [thou shalt bray, apply to his eyes].

28. Thou shalt apply to his eyes dry *storax: therein yellow sulphide of arsenic. . . . Thou shalt bray the dung of a lizard ⁵ in marrow of "long bone" (thigh), without a meal [thou shalt apply].

30. 5 še of *storax in oil thou shalt bray, apply to his eyes; cantharides (?) in curd [thou shalt mix and apply].

31. If a man's eyes are full of blood, thou shalt bray yellow sulphide of arsenic in curd, apply . . . ⁶

32. Thou shalt mix *bellis and lupins in equal quantities, [thou shalt apply them] in curd (and) *liquidambar.

¹ *Ḳannu*. It is opposed to "white" wool here; on the other hand, in *ADD.* No. 954, 1-2, the contrast is between it and *šalmu* (GIG), both also of wool. *Šalmu* is used of flowers (e.g. the anemone, *AH.* § 9 P, ll. 145, 146), but also of the "black-headed race". *Ḳannu* would appear to be connected with Syr. ܩܢܢܘ *knáneos* (perhaps *uḳnu*, Jensen), or more probably with Syr. ܩܢܢܘ *isatis tinctoria*, woad. The connexion of *rapadi in this prescription may offer some explanation (in its connexion with "blue wool") for *AH.* § 9 B, l. 167 [*ra*]-*pa*-*di* = *ša-mi uḳ-na-a-ti.

² *Šunnu'*, either Heb. שִׁנְנָה "are changed", or perhaps, like *šintu* "dyed garment" (*MA.* 1076), from Heb. שִׁנִּי = "dyed scarlet".

³ Doubtless for ŠIM.IŠ.GUŠKIN. See p. 24, n. 7.

⁴ MUN.EME.ŠAL.LIM, i.e. "Salt of Akkad", as distinct from ordinary salt (*tábtu*), mountain-salt (*tábat šadi*, *Kū.* i, i, 31), and *tábat Amanim* (cf. 65, 5, 17) "Salt of Amanus", supposed to be ammoniac or rock-salt.

MUN.EME.ŠAL.LIM, 22 times in *AM.*: used for eyes (here: 8, 5, 10; 8, 7, 3; 9, 1, 13, 34, 38; 11, 2, 44; 16, 1, 8, 10; 17, 4, 7); for yellow teeth (31, 6, 7); ears (35, 2, 12); wash head (64, 1, 37); in cough (by letting a piece dissolve in the mouth, followed by pig-meat soup, beer, and honey (80, 1, 12); in fumigation (99, 3, 8).

Various salts occur in *SM.* The most likely equivalent for MUN.EME.ŠAL.LIM appears to be either (1) "Armenian Salt" (cf. *IB.* No. 381, "Armenian nitre") or (2) "Indian Salt" used for eyes (ii, 89, 98) and for cleaning teeth (ib. 190) (but "Cappadocian Salt" for ears, ib. 115). The probability is that it was called "Akkadian Salt" because it was especially that efflorescence of salt which appears on alluvial soil (certainly common in S. Babylonia), and probably comparable to the Indian Salt, *Réh*, an efflorescence on the surface of the ground, of sodium carbonate, sodium sulphate, and sodium chloride (Sir G. Watt, *Commercial Products of India*, 51), over large tracts of desert; or even potash, also from an efflorescence (ib. 972).

⁵ "Dung of a lizard," for eyes, *SM.* ii, 101, 660.

⁶ *K.* 2570 has: *maštakal*-plant (and) *tarḫu*-plant in equal quantities thou shalt mix, [apply].

33. Thou shalt bray (and) apply BAL-“stone” in saliva: . . . in milk of a harlot (?) [thou shalt mix and apply].

34. Blood from a pig’s heart [thou shalt pour] into his eyes . . .

(Pl. 9, 1.) Col. ii.

3. . . . (some) drug against pain . . . in rose-water thou shalt wash . . . thou shalt apply.¹

6. If a man . . . [in] oil thou shalt bray, apply.

7. If a man . . . thou shalt apply.

8. If ditto . . . dry into his eyes thou shalt blow.

9. If a man’s eyes . . . *arno*[*glosson*] (and) **bellis* in ground meal thou shalt mix, in wine [thou shalt apply].

10. **Storax* . . . , arsenic in curd thou shalt bray, apply.

11. [If] a man’s eyes are sick . . . thou shalt bind . . . arsenic in curd thou shalt bray, apply.

13. . . . cantharides (?), “Salt of Akkad,” ***ammi*, . . . these drugs together thou shalt rub,² in *šilute* . . . with rose-water thou shalt cover, (and) apply to his eyes.

16. 3 shekels of cantharides (?), . . . shekel of . . . mountain-honey thou shalt bray, apply to his eyes. This is a drug for twenty days.

17. Charm: . . . of life [is freed] . . . is freed, People in . . . ? Recite the charm.

20. Incantation: [If a man]’s eyes are full of blood.

21. Ritual for this: root of the plant . . . (and) *ellu* thou shalt bind (together), 14 knots thou shalt tie; as thou tiest thou shalt recite the charm, bind on his forehead.

¹ *Tatippi*, Syr. *ʿphá*, Pa. *imposuit (medicamentum)*.

² *Tamarrak*, מִרְקָ “rub” (?). Also 97, 1, 3, *tušahhar tamarrak*: 10, 4, 6, various drugs *ešteniš tamarrak*: 95, 2, ii, 13: 52, 1, 8, two forms of asafetida *tamarrak*. *Umarrak*, E. (xiii, 11) correctly “let melt”, but incorrect in his transliteration *maráqu*. It is obviously from Heb. מִרְקָ “to melt”. “He shall put a piece of ‘Akkadian Salt’ in his mouth and *umarrak*” (80, 1, 12): she shall put *allankaniš* in her mouth and *umarrak* (67, 1, iv, 23).

22. Charm: ? Recite the charm.

23. Incantation: [If a man]'s eyes are full of blood.

24. Ritual for this: thou shalt bray arsenic in curd (and) put it into his eyes.

25. Charm: Sound front, sound back, smitten front, smitten back . . .¹ Flesh multiplieth flesh, blood produceth² blood, dung³ createth (?)⁴ dung! Perform, O Gula, the high Charm of Life! Let them bring nigh the cataplasms,⁵ (which) thou hast arranged (and) grant recovery!⁶ Recite the charm E.NU.ŠUB.

29. Incantation: If a man's eyes are full of blood.

30. Ritual for this: 3 še of salicornia-alkali, 3 še of gum of ***andropogon*, 3 še of lizards' dung thou shalt bray together,⁷ knead in goats' milk, bind on his eyes.

31. If a man's eyes are sick and full of blood, unguents (only) irritating (?)⁸ the blood, blood (and) tears coming forth from the eyes, a film⁹ closing over the pupils¹⁰ of his eyes, tears turning to film, to look oppressing him: thou shalt beat leaves of tamarisk, steep them in strong vinegar, leave them out under the stars; in the morning (i.e. on the morrow) thou shalt squeeze (them)

¹ About one line unintelligible to me, somewhat similar to 11, 1, 3.

² *Inašab*, Syr. **ܒܫܒ**, especially to lay, produce (eggs).

³ *Sánu*, Syr. **ܫܢܘ**, human excrement.

⁴ *Uḫannan*, doubtful. I can trace nothing probable in Semitic; the assumption is that

ܘܫܢܢܐ "nest" is at the base of it. Can it be connected with *ḫinnatu*, Arab. **قينة** *podex* (Christian, *Vienna Oriental Journal*, 1912, 390)?

⁵ For *šimditi* cf. *šindi ša ḫat edimmi*, 99, 2, iii, 4, and *napšalti u šindi*, 102, i, 35.

⁶ For this use of *balaṭ* without termination after *bulṭi* (= *bulluṭi*) cf. my *On Traces of an Indefinite Article*, 27.

⁷ This use of alkali, gum, and lizards' dung is parallel to the mention of flesh, blood, and dung in l. 26. See *AH*. § 10 c, 2.

⁸ *Ul-ta-ta-ni*?. If the form is correct, it must be like *uk-ta-ta-šar* (MA. 427), either from *šanú* "to change" or *enú*, Heb. **ענה** "to afflict", etc.

⁹ *giš.MI*, i.e. probably a film like conjunctivitis. Cf. 13, 2 r. 3, 4; 18, 6, 4.

¹⁰ *AN.KAL*, of eyes here and 8, 6, 5; 13, 2 r. 11; 18, 6, 7. There is no reason to suppose it the same as *irri énáII-šu*, 16, 1, 2. It is also the name of a stone, 7, 1 r. ii, 7; *SAI*. 376. Is this the blue schist used for eye-pupils in the Tell Ubaid lions (Hall, *Proc. Soc. Antiq.*, 1919-20, 32)?

in a helmet: white alum, *storax, "Akkadian Salt," fat, cornflour,¹ *nigella*, "gum of copper," separately² thou shalt bray: thou shalt take equal parts (of them), put them together; pour (them) into the helmet (in) which thou hast squeezed (the tamarisk); in curd and *šuniš*-mineral thou shalt knead (it), (and) open his eyelids with a finger (and) put it in his eyes. (While) his eyes contain dimness, his eyes thou shalt smear, and for nine days thou shalt do this.

38. If ditto, myrrh, *storax, "Akkadian Salt" through a bronze tube³ into his eyes thou shalt blow.

39. If a man ditto, "gum of copper" (and) *storax thou shalt bray, through a bronze tube into his eyes thou shalt blow.

40. If a man ditto, *mint and *storax thou shalt bray, through a bronze tube into his eyes thou shalt blow.

41. Charm. O clear eye, O doubly clear eye, O eye of clear sight! O darkened eye, O doubly darkened eye, O eye of darkened sight! O eye of sleepy (?) sight, O eye of . . .⁴ sight, O eye of evil sight! O failing⁵ eyes, O painful⁶ eyes, . . . eyes, like the slaughter of a sheep . . . [like ?] hay (?)

¹ KU *ka-a*. Also 80, 7, 7 (Rm. ii, 162), E. (xiii, 18) leaving it untranslated, the remedy thus made being a kind of gruel with alcohol, doubtless to produce a healthy perspiration. It must surely be "flour of *kā*", as in Hrozný (*Getr.* 64, quoting King, *Magic*, 12, 30) *banū šeam u ki-e* "creating corn and *ki*", the latter obviously parallel to "corn".

² *A-ḫi-nu-u, a-ḫi-en-na-a*. Various drugs *a-ḫi-en-na-a* . . . (43, 1, 9): "red wool and white wool *a-ḫi-en-na-a* NU.NU separately thou shalt spin" (10, 1, iii, 15). Various drugs *aḫinū* RAT "separately thou shalt bray" (9, 1, 34): also cf. 49, 1, ii, 6; 8, 3, 2. Del. *HWB.* 40, and E. (xiii, 8 "gleichmässig") are certainly wrong; it has been correctly derived from *aḫu* "side", but how it can mean "gleichmässig" I am at a loss to understand. Clearly the adverbial use from "side" must be "aside": the very quotations in *HWB.* show this, *māta aḫi-ennā nizuz* (V R. 1, 126) "we will divide the land into separate portions, apart" (not "unter uns"): the god Nusku repeats the word of his master to Ea *aḫi-ennā* "aside, apart" (not "hinüber"). The passage about spinning the wool separately (contrasted with 11, 1, 1, *ešteniš*), the red and the white bound on separately to each eye, is conclusive.

³ MUD: cf. E. xiii, 17, MUD.A.BAR = *appu abaru* a tube of *abaru*.

⁴ DA.A.

⁵ *Abū, apū*, applied to eyes: 10, 1, iii, 9, 21; 11, 1, 33; 12, 9, 6; *ip-pa-a*, 14, 1, 5; *tab-ba-a*, 10, 1, iii, 10; referable to Syr. ܐܘܒܐ *defecit, caruit, exstinctus est.*

⁶ *Ašū*, referable to Arab. أسى "be afflicted". Jastrow (*Trans. Coll. Phys. Philad.* 1913, 375) suggested the correct meaning, but without a Semitic comparison. It is applied to headache, *ašū* RI.RI (26, 1, 6) (i.e. *muhhušu* or *šumkutu*) "throbbing pain": cf. 6, 9, 11; 19, 4, 3, 6; to eyes (9, 1, 42; 10, 1, iii, 9, 22; 11, 1, 17, 33; 16, 1, 17, etc.). It can seize on a man (16, 4, 8; 55, 8, 4). It is applied as a description to numerous plants (*CT.* xiv, 29, K. 4566 *passim*), sumach, **calendula*, root of *arnoglosson*, licorice-juice, ***ricinus*-seed (berries), mustard, *hyoscyamus*, **galbanum*, *carduus marianus*, fir-gum, pine-gum, etc., i.e. "drugs for pain". * In *AM.* 16, 3, 13, *mišu* "ašī in a receipt, probably = "some anodyne." 16, 4, 2: . . . "ašī *parasi*(si), "a drug for stopping pain."

thrown away, like a cup of sour wine (vinegar) thrown away. . . . [Of these twain] Nergal between them a boundary [hath set] . . . The charm is not . . . (?)¹: it is the charm of Ea [and Marduk] . . . [the charm of Nin-aḥa-kuḍdu] the mistress of charm; Gula, [quicken the] recovery, thy gift (?). Recite the charm.

(Pl. 10, 1.)

48. [Incantation for a] Sick Eye.

49. . . . as thou tiest it thou shalt recite the charm, on his eye . . .

50. [Charm.] (As in 9, 41-42.) . . . of Gula . . . "[Whom shall I send to the daughter of Anu] of Heaven,
Col. iii, 1.

that they may bring me their ewers of *ḥulalu*, their basins of bright lapis, that they may gather me the waters of the sea, the broad ocean, whereon no woman in her courses hath descended,² wherein no separated woman hath washed her hands, that they may cast them for me and cool the blazing fire in his eyes?"³ The charm is not . . . (?), it is the charm of Ea and Marduk, the charm of Damu and Gula, the charm of Nin-aḥa-kuḍdu, the mistress of charm. O Gula, quicken the recovery, thy gift (?)! Recite the charm.

¹ I am still uncertain whether my old translation of this passage (*PSBA*, 1908, 149) is as far out as critics say. It is now customary to leave it untranslated. Langdon (*PBE*, xxxi, 56) gives the various forms in which it occurs, and *ia ut-tu* (which omits *un* at the end) is fairly common. But the Malay parallel in my *Semitic Magic*, xlvi, is suggestive.

² Variant *urrušti la uširru* (*CT*, xxiii, 3, 8).

³ Part duplicate of my copy of SA.GAL.LA, *CT*, xxiii, 2, 5: added to by E., xiii, 135. *D(t)allu* (E. "Türverschluss" wrongly, comparing *BSGW*, 70 (1918), 5, p. 27¹) is a vessel, as has long been known (MA. 1159). Br. 2579, *DUK* (= *karpātu*). *DAL* = *dallu* = *naman* . . . The water is to be gathered up, and hence "door-locks" are ridiculous. *Karpātu* is the cup (or basin?) into which the water is poured: *dallu* I take to be the modern Ar. *delleh*, a spouted copper jug, now used for coffee (see my article *JRAS*, 1923, 240, No. 15). Moreover, it varies with *ḥannu* in l. 20 below. This word is probably connected with Arab.

قنية "a phial".

Ḥarištu (varying with *urrušti*, *CT*, xxiii, 3, 8) is from *ḥarāšu* (MA. 341; Del. *HWB*, 293) "hold back", i.e. the woman held back under restriction, *tabu*, Heb. עצה: Ebeling translates *urrušti* "eine Schmutzige".

Musukkatu is from the similar root סדק (*HWB*, 497, originally "shut up", Arab. سَك) will equally mean a woman segregated. Ebeling has understood it correctly as a menstruating woman, but his "wortl. 'sehr schlimme'" from *msk* is impossible for *musukkatu*.

Ḥarištu has a special section (*V R*, 18 c-d, 19-21, MA. 342), and there is even a *ḥannu ša ḥarišti* (*V R*, 15, d 47).

The woman and maid "with unwashed hands" (see my *Devils*, ii, 139, and *Semitic Magic*, 117 ff.) are always a source of pollution, the reference being euphemistically to menstruation.

6. Incantation for a Sick Eye.

7. Ritual for this: this (is) for red wool, a thread thou shalt spin, tie seven knots, as thou tiest (them) recite the charm, bind on his sick eye.

8. Charm (*as in* 9, 41-42). O failing eyes, O painful eyes, O eyes sundered by a dam of blood¹! Why do ye fail, why do ye hurt? Why hath the dust of the river come nigh you, (or) the spathe of the date-palm whereof ye have chanced to catch the pollen which the fertilizer hath been shaking? Have I invited you, Come to me? I have not invited you, come not to me, or ever the first wind, the second wind, the third wind, the fourth wind cometh to you! Charm.

14. Incantation for a Sick Eye.


15. Ritual for this: red wool, white wool separately thou shalt spin: seven and seven knots thou shalt tie (in each): as thou tiest, thou shalt recite the charm; the thread of red wool thou shalt tie on his eye which is sick; the thread of white wool thou shalt tie on his eye which is whole, and he shall recover.

17. Charm (*cf.* 9, 41-42).

Of these twain the daughter of Anu between them hath built a wall; the one will not move in accord with its fellow. Whom shall I send to the daughter of Anu of Heaven, that they may bring me their ewers of *hulalu*, their basins of bright lapis that they may gather (the waters)² and bring (them) to the failing eyes, the painful and troubled eyes? Recite the charm.

23. Incantation for a Sick Eye. Ritual for this: as before.

24. Charm. O clear eye, O doubly clear eye, O eye of clear sight! O painful³ eye, O doubly painful eye, O eye of painful sight! A pair, they are one eye, yet a mountain is set as a bar between them . . . (on) their surface a knot is tied, (on) their under parts a wall is built. . . What hath been their wind, what not their wind . . .? What hath been their windgust, what not their windgust?⁴ Wind of the face, dimness of the face, cloud . . .

¹ *Pur-sit dámi šu-te-iš-li-pa-a-tu*, parallel to *pur-si-in-di da-a-mi šu-ḥar-ri-a-tum* on 11, 1, 33,  "cleave".

² As before, Col. iii, l. 1?

³ See *SAI*. 8609, *ešá*, and 8612 *ašátu*.

⁴ i.e. the wind bringing dust into the eye: cf. 11, 1, 11.

30. [Incantation] for a Sick Eye. [Ritual for this : as before.]

31. [Charm] (*as in* 9, 41-42).

(*Pl.* 11, 1.)

1. [Ritual for this :] red wool (and) white wool thou shalt spin together, seven and seven knots thou shalt tie : as thou tiest, thou shalt recite the charm, bind on his temples and he shall recover.

3. [Charm :] Sound [front], sound back, smitten front, smitten back : thou art a true hero, thou a weak reed.¹ Recite the charm.

4. Incantation for a Sick Eye. Ritual for this : as before.

5. (*Unintelligible formula.*) Recite the charm.

6. Incantation for a Sick Eye. Ritual for this : as before.

7. Charm. The eye of the man is sick, the eye of the maid is sick, the eye of the man and maid who shall heal ? Thou shalt send, they shall receive. Pure palm-fibre² thou shalt chew³ in thy mouth, twist with thy hand, bind the man or maid on their temples ; the eye of the man or maid will recover. Recite the charm.

10. Incantation for a Sick Eye. Ritual for this : as before.



11. Charm. In Heaven the wind blew and brought blindness⁴ to the eye of the man : from the distant heavens the wind blew and brought blindness to the eye of the man. Unto the sick eye it brought blindness ; of this man his eye is troubled, his eye is pained. The man weepeth grievously for himself.


Of this man, his sickness Ea hath espied and (said) "take pounded roses, perform the Charm of the Deep, and bind the eye of the man". When Ea toucheth the eye of the man with his holy hand, let the wind which hath brought woe⁵ to the eye of the man go forth !

¹ Like 9, 1, 25.

² KU.LIB, i.e. either the "clothes + heart" or the "flour + heart" of the palm.

³ *Tehipi*, lit. "destroy." There is no authority for "chew", but it seems the obvious rendering.

⁴ Better Syr.  than  "poison", which is probably *sammu* "drug".

⁵ *Uddubu*, Heb.  "grieve".

32. Incantation for a Sick Eye.

33. [Charm.] Failing [eye], painful eye, eye pent by a dam of blood¹; the [twain] weep before their mother Mami: ["Why hast thou tormented (?)] us, and on us bound the pain, the blood, and the wind?" Recite the charm.

36. [Incanta]tion for a Sick Eye.

37. [Ritual for this: red wool (and)] white wool thou shalt spin separately, fold them in the middle in a fold, bind [the red wool] on his eye which is sick, the white wool on his eye which is sound, and he shall recover.

39. (*Charm*): Recite the charm.

41. Incantation: If a man's eyes are set (?).

42. . . . a thread thou shalt spin, double it twice, tie seven knots. As thou tiest (them), thou shalt recite the charm, bind on his temples, and he shall recover.

(*Pl. 12, 1.*)

1. [Charm. O] seed-corn . . . , why hast thou borne heat to me? Like a *šuršuru*²-bird flying to the edge³ of the river, in the streets it hath met me. [O . . .] chopped straw (?)⁴, why hast thou borne to me a throbbing (winking) like a star, . . . me like a flame, before flint and steel reached (overcame) you? [The charm is not . . . (?)] . . . it is the charm of Silig-mulu-šar, of Marduk: it is the charm of Nin-girimma, mistress of charm . . . thou knowest and I bring. Recite the charm.

50. [Incantation for] removing blood (?), chopped straw (?), and blindness⁵ of the eyes.

¹ *Pursindi*; the phrase obviously parallel to 10, 1, 10. *Parāsu* = "to stop, hinder."

² *Šuršuru*, Arab. شُرْشُرُ, a small, unidentified bird. *Ira*, עוֹרָא.

³ Cf. Heb. פֶּה, used of sword-edge, *Pr. v, 4.*

⁴ See Del. *HWB.* 287 for quantities measured by *biltum* (not *gur*, as dates); cf. Ex. xv, 7 (inflammable), Is. xl, 24 (windborne). *Zunnani*, from *zanû* (cf. *bunnanu*) or *za'ānu*?

⁵ *Nisma*, from *samû* "be blind": or *manma* "anything (?)".

51. . . .¹ a gentle (?)² fragrance descended on the earth . . . and thou didst make seed-corn³ to sprout: [ripen]ing (?)⁴ [brought] harvest,⁵ harvest [brought] the ear, the ear [brought the threshing]. Sin [harves]ted, Shamash gathered; when Sin had harvested and [Shamash] gath[ered] . . . Shamash and Sin threshed,⁶ and the chaff [spread] motes [abroad].

[Incantation for removing] chaff from the eyes.

57. [If a man's eye] is full of . . . , lolium, flour of roast corn, in beer thou shalt knead, bind on.⁷

No. 27. *AM.* 8, 2 (K. 10495). Col. ii.

1. If ditto, *storax, *solanum . . .
2. If ditto, thou shalt dry the head of a lizard . . .

3. Thou shalt reduce *kak ti ti lu*? . . .

4. If a man's eyes ditto, and . . .

5. The brain of a *kul-tim* . . . in equal parts thou shalt mix . . .

6. *The young of a raven⁸ . . .

¹ The following is a very tentative translation of a difficult passage containing several new words.

² *Alalu*, presumably an adj. in agreement with *bašamu*, Syr. ܒܫܡܘ. *Basamu*, properly "balsam" in Assyrian, apparently with its presumed earlier equivalence to ܫܫܡܘ "sweet smell". Are we to see in this the equivalent of רֵיחַ, Gen. ii, 6?

³ *Habburru*. Cf. Langdon, *PSBA.* 1914, 31, "seed-corn." It must be something of the kind. Langdon, *AJSL.* xxviii, 228, "If the seed-corn be not sound, it will not produce the green shoot and create seed." From Del., *HWB.* 268, it should mean "husk". Is it ܫܫܡܘ "corn"?

⁴ [*Ham*]mannu (?), from *hamamu* = *esidu* (MA. 323).

⁵ *Kišru*, ܩܝܪܐ "harvest".

⁶ *Isišanimma*: the Arab. شاص = "rub"; شيص = "finish". The word appears elsewhere in Assyr. (MA. 1096); the meaning "rub" appears to apply here to the method of rubbing out grain by threshing-sledges, as is done to this day in the Tigris valley. Cf. Aram. ܫܝܥܢܝܬܐ, a kind of wheat (?). *Mirḥu* is similarly the "rubbed" thing, Heb. מֵרַח, the

Arab. مرح being to rub with oil, or clean wheat of its husks or dust. *Lilá*, presumably from *lalá* "be full".

The passage describes the growth of the wheat which has produced the dust or chaff which has entered the sick man's eye. The gradual tracing of the history of the offender is common in Assyrian medicine (cf. the Legend of the Worm in the Tooth).

⁷ First line of next tablet, i.e. K. 2500, 16, 1.

⁸ Cf. 11, 2, 33.



