

# ROYAL ACADEMY OF MEDICINE IN IRELAND

President—EDWARD H. BENNETT, M.D., F.R.C.S.I.

General Secretary—JOHN B. STORY, M.B., F.R.C.S.I.

## SECTION OF OBSTETRICS.

President—A. V. MACAN, M.D.

Sectional Secretary—JOHN H. GLENN, M.D.

*Friday, January 5th, 1900.*

The PRESIDENT in the Chair.

### *Specimens Exhibited.*

DR. PUREFOY.—A case of ectopic gestation removed by vaginal caeliotomy, with microscopical section showing chorionic villi.

### *Multilocular Ovarian Tumour.*

DR. ALFRED SMITH showed a multilocular ovarian tumour which he removed from a patient aged thirty-five. The patient was seized with severe abdominal pain and acute distension, with much distress. Examination under ether demonstrated uterus free, and a tumour the size of a full-term uterus, which would not come down to the pelvis; no pedicle could be made out. Diagnosis doubtful. Operation revealed a tumour distended with blood, pedicle acutely twisted. No adhesion had formed. Recovery.

### *Syphilitic Placenta.*

DR. HEARD (of Monkstown) exhibited a specimen of above.

DR. PUREFOY said the history of the case pointed so very strongly to the probability that the condition was due to syphilitic disease that he would accept Dr. Heard's diagnosis. The greatest interest centred in the association of albuminuria with a state of health which could only be removed by the use of mercury, and the albuminuria made that fraught with danger.

DR. SMITH thought the condition of the intima of the arteries should be known before they could determine whether the placenta was syphilitic or not.

DR. JELLET asked was the quantity of albuminuria large, and had the woman suffered during pregnancy or before it? If she had suffered from albuminuria before the pregnancy he thought it would be very interesting to subject the specimen to chemical investigation.

DR. MONTGOMERY proposed that the specimen be referred to the Committee of Reference for decision as to whether it was syphilitic or not. The proposition was seconded by Dr. Knott, and adopted.

*Intraligamentous Myoma Removed by Cœliotomy.*

DR. GLENN exhibited a specimen of this disease.

*Deciduoma Malignum.*

DR. W. J. SMYLY read a paper on deciduoma malignum. Having reviewed the literature of the subject, he said that observers were now almost unanimous in believing that this was a disease sufficiently distinct to merit separate consideration. They also agreed as to its clinical features, pathological appearances, and treatment; also as to its connection with pregnancy, and differed only as to their views concerning its histogenesis. Having reviewed the various theories upon this subject, he stated that in the present state of our knowledge it was impossible to determine which view was correct, but he inclined to Veit's opinion, that the disease was a sarcoma, modified by pregnancy. He also described a case which had come under his own observation. The patient, a pluripara, was delivered of a hydatidiform mole in December, 1898. She had repeated hæmorrhages until May 10th, 1899, when she had so profuse a hæmorrhage that she was reduced to a condition of profound anæmia. The uterus was dilated, and a quantity of material resembling placenta removed, which, on microscopic examination, proved to be deciduoma malignum. Putrefaction and septic fever followed, with pulmonary symptoms and empyema preceding radical measures. She lingered two months, and then died. There was no *post-mortem* examination. Dr. Smyly showed the microscopic specimens at the Edinburgh meeting of the British Medical Association, when they were pronounced by Dr. Sænger to be typical examples of the disease which he had described.

DR. PUREFOY said he had never felt the tissue of the uterine wall in such a condition of utter degradation and softening as it was in this case. It felt like brown paper. The mole structure removed on the first occasion was of a nature not commonly seen in these cases. He thought it was mixed fleshy and hydatidiform mole. Scattered through it were distinct vesicles, evidence of vesicular degeneration being also present.

DR. SMITH said he was inclined to regard it as an ordinary sarcoma influenced by pregnancy. He knew some eminent pathologists who thought it an ordinary sarcoma. The whole literature of the subject was embodied in Dr. Smyly's excellent paper.

The PRESIDENT said there was one case not mentioned by Dr. Smyly—*i.e.*, Pick's case, in which he found the metastasis of the ordinary hydatid mole not to be malignant. Pick considers that the foetal structures are only accidental, and they may even form embolisms without being malignant. Opposed to Veit's opinion (with which most people would agree) was that which regarded it as carcinoma of the outer layers of the epithelium covering the villi.

DR. SMYLY, replying, said the point about metastasis in cases of hydatidiform mole was one of extreme practical importance, because anyone who had not learned otherwise would think that when metastasis occurred the case was hopeless. But the metastasis might not be malignant; a woman might have benign metastasis in her lungs and recover after operation. Of course, if there were malignant metastases the case would be perfectly hopeless.

*A Case illustrative of a rare form of Ulceration in the Female Urethra.*

DR. PUREFOY said: The close resemblance in aspect and clinical history between some forms of chronic syphilitic disease and others of a malignant nature has long been recognised—indeed, sometimes the effect of treatment by drugs must be observed before the differential diagnosis can be safely established. Especially is this observable in regions where cutaneous and mucous structures coalesce, and hence the external female genitals, as might be expected, furnish some of the best illustrations of this fact. A young woman who recently was under treatment in the Gynæcological Wing of the Rotunda Hospital, complained of pain and soreness in the vagina, and on examination the following conditions were observed:—The greater labia were of normal size and healthy. On the inner surface of the left nymphæ a circular excavation exists, the edges sharp-cut and overhanging; the base, white cicatricial tissue. The entrance of the vaginal canal is closed by a morbid growth, with nodulated surface of a deep red colour, which, on close examination, proves to be an outgrowth hanging from the edge of an enormously dilated urethra—indeed, the lower third of this passage is so widened and distorted that considerable difficulty is experienced in passing a catheter into the bladder. Strange to say, the patient, in spite of this, does not suffer from incontinence of urine. In the vestibule and adjoining parts an indolent shallow ulceration is observed, alternating with patches of white cicatricial tissue marking its former course. In the writings of the late Dr. West I had long ago observed some records of cases so closely, if not identical, with the one under consideration that I do not

hesitate to quote some of his remarks. He says—"The affection has come six times under my observation—twice in married women, who acknowledge to having suffered from venereal disease; and four times in women of unchaste life, one of whom was at the time suffering from a secondary syphilitic eruption. In each instance the patient alleged that she had either been aware of the ulceration or had for some time suffered from painful and difficult micturition. Twice the disease was associated with excrescences from the mucous membrane of the urethra. The ulceration appears to begin at the orifice of the urethra, extending thence inwards towards the bladder, producing in its course a great widening of the canal and a patulous condition of its orifice, so that the finger tip can easily enter it, while the surface is the seat of large indolent granulations which secrete a small quantity of mucopurulent fluid, are not generally very tender to touch, but highly sensitive to the passage of urine."

I have met with this ulceration independently of any other disease in these parts, but also in cases where previous ulceration had destroyed the clitoris and the nymphæ, and have seen it associated with unhealthy ulceration about the posterior commissure of the labia and the entrance to the vulva, as also with those small condylomatous growths about the vulva which one often meets with in cases of vascular tumour of the urethra, and these latter, indeed, are far more commonly present than absent. When the disease has advanced far, or has been of long standing, the cellular tissue beneath the urethra usually becomes considerably thickened, and I have seen the lower wall of it represented by a dense cartilaginous substance, not unlike one of the lips of a hypertrophied and partially procident cervix uteri, while on two occasions I have been able to carry my finger along the whole length of the canal into the bladder. Even when not far advanced this disease causes difficulty in the retention or actual incontinence of urine, while, when it has extended along the whole canal, and left its aperture permanently patulous, the sufferer may be afflicted with complete incontinence. In one such case I have seen, the patient, aged twenty-two, had suffered from the infirmity for many months. She was afforded some slight relief and comfort by wearing a pessary, which, by pressing against the urethra, partly closed it. In another such case the ulcerated canal was so widely open that two fingers could be easily passed into the bladder. In its earlier stages this distressing affection admits of some amelioration by local measures—the application, for instance, of oxide of zinc in the form of ointment, or lotion with liquor plumbi; and, even in the

advanced stage, attended with widening of the urethra, the use of strong nitric acid, or the actual cautery, may bring about such cicatrization and attendant contraction of the diseased parts that control of the bladder may be regained. Some facts in the history of my patient, as well as some scaly patches on the face and neck, afforded such presumptive evidence of a syphilitic taint that I prescribed for her a combination of bichloride of mercury and iron in mixture, and its use was followed by marked improvement, though I cannot be sure of its permanence. In many points these cases bear a close resemblance to that formidable disease of the female genitals first described in 1849 by M. Hugnier, and to which he gave the name "lupus hypertrophicus, or perforans." This affection is very rare; I have myself only once seen it, and medical literature does not afford records of more than about 40 cases in all. In the admirable "Memoirs on Diseases of Women," by Dr. M'Clintock, will be found excellent illustrations of some of them. Whatever views we entertain as to their pathological history, they serve, I think, to enforce the remark with which I began this short communication.

DR. SMITH asked what was the difference between this condition and prolapse of the mucous membrane of the urethra?

The PRESIDENT said he specially asked the question as to whether the orifice of the urethra was in the centre, because the same idea had occurred to him as to Dr. Smith. The ulceration seemed to be very much like the ulceration that took place in prolapse.

DR. PUREFOY, in reply, said that if the President and Dr. Smith had seen the case they would not put forward the opinion that it was prolapse. It had no character in common with that condition. Some of the tissue was whitish, and of almost cartilaginous hardness. The outline of the urethral canal was perfectly distinct. The tissue was entirely different from the ordinary mucous lining of the urethra, and was associated with and continuous with cicatricial tissue.

The Section then adjourned.

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#### SECTION OF ANATOMY AND PHYSIOLOGY.

President—PROFESSOR W. H. THOMPSON, M.D.

Sectional Secretary—A. BIRMINGHAM, M.D.

*Friday, February 2, 1900.*

The PRESIDENT in the Chair.

*Protamines and their Cleavage Products.*

THE PRESIDENT read a paper on this subject. Protamines, hitherto

obtained only from the ripe milt of various species of fishes, are believed by Kossel to be the simplest proteids. On hydrolytic cleavage they yield mainly hexone bases—viz., arginin, with histidin and lysin in some cases. These bases have recently been shown to exist largely in antipeptone. It appeared desirable, therefore, that their physiological properties, as well as those of the protamines, should be examined. The experiments were performed on anæsthetised dogs in the Physiological Institute, Marburg, and yielded the following results:—The protamines were found to be very poisonous, the maximum non-lethal dose being one-fifth of a gramme. Their effects in many ways resembled those of the albumoses; blood pressure was rapidly and profoundly lowered, but, with a moderate dose, returned to normal in half an hour. Coagulation was greatly retarded, and the number of leucocytes in circulation largely reduced. These effects were also temporary. Respiration was peculiarly influenced; the movements were at first greatly accelerated and exaggerated; then came a gradual decline, ending in complete cessation. After a few seconds diaphragmatic respiration returned, and gradually became deeper and deeper, the movements of the thoracic walls during this period being wholly passive. Subsequently (after the lapse of an hour or more) active thoracic respiratory movements reappeared, and the function gradually became normal. Other muscles—viz., those of the trunk and limbs, were also temporarily paralysed. None of the cleavage products showed these effects, nor did a trace of residue, which splits off in addition to the hexone bases, during the process of hydrolysis. Histon, a substance obtained from lymphoid organs, which has considerable chemical resemblance to the protamines, produced almost identical physiological effects.

PROFESSOR COFFEY said it occurred to him, when thinking over Professor Thompson's former work, that there ought to be some parallel between the action of the protamine and the antipeptone, because antipeptone has now yielded some of the products that come from the protamine substance. Kutscher has established that antipeptone yields at least—if it is not a mixture of—arginin and other products. Is the action of antipeptone, as determined by Professor Thompson, the result of the presence of this arginin? How far will the action of antipeptone, of arginin, and of the protamine (which contains arginin) then coincide? But, as Professor Thompson showed, while the protamine substance itself has a very definite action, its products have no such action, and we are, therefore, face to face with the very interesting point that protamine

substance which will yield arginin, lysin, and lysatinin has very pronounced physiological effects, while its products have not. Such a divergence in action among closely allied substances is illustrated by the contrast between the proteid of nutrition and the proteose, which is one stage of its digestion—the first an absolutely necessary material, the other a poison.

DR. WALTER SMITH said it was interesting to notice that certain chemical reactions, such as Millon's and the Biuret, in every-day use in hospitals, were related to the existence of these protamines, so that researches such as those of Professor Thompson had an interest for the physician, as well as for the physiologist. One of the most interesting points was the different physiological effects of hydrolysis on protamines and proteids. The proteids became more toxic when hydrolysed, but the toxic activity of the protamines was diminished. As to possible pathological and therapeutical results, he thought it quite possible that in such problems as the action of antitoxic sera some help might be derived from these researches. Piperazin, a remedy in which he had no faith, had already been derived from these bodies.

DR. DAWSON said it was now established that certain depressed states of consciousness were almost always associated with raised blood pressure. The means hitherto at hand for controlling this had given very good results in the treatment of cases, but were not satisfactory, in the fact that their effect was very brief. It would be very important if from these protamines one could be selected which would produce a fall of blood pressure, and be more lasting in its effects, while devoid of risks.

The PRESIDENT, in reply, said, with regard to the possible similarity between antipeptone and some of these cleavage products, when working at antipeptone he was astonished to find it had very little effect on blood pressure and blood coagulation. It raised blood pressure slightly, and hastened coagulation. He found arginin hastened blood coagulation, while its effect upon blood pressure was practically nil—*i.e.*, it quite coincided with the effects of antipeptone. These substances reduced enormously the number of leucocytes in the circulation, but the leucocytes reappeared in about three-quarters of an hour; they could not, therefore, have been destroyed, nor have wandered out of the blood-vessels. Replying to Dr. Dawson, the fall in blood pressure, produced by even a dangerously large dose, would not last more than half an hour.

*Model of Thoracic and Abdominal Viscera.*

DR. PATTEN, in the unavoidable absence of Professor Canning-

ham, exhibited for him a model of the thoracic and abdominal viscera from behind, which had been prepared primarily to exhibit the form and relations of the spleen.

*Simple Forms of Mucous Glands.*

PROFESSOR COFFEY said his sections were exhibited to illustrate the formation and manner of development of the small racemose glands of mucous membranes. The specimens were taken from the œsophagus of snakes. The earliest stage was seen in the simple alveolus or sac opening without a duct, on the surface. Then forms, apparently consisting of two or three alveoli placed side by side, with the blind extremities of the alveoli alone distinct, and communicating with a large common cavity which, without narrowing, opened by a wide orifice. Simple dichotomous forms indicated another stage, but here there was complete distinction between the branched tube with its columnar epithelium, and the alveolus with oval cells. More complex conditions with trefoil alveoli and longer branched tubes were also present, approaching to the mammalian form.

*A Series of Human Epiphyses.*

DR. KNOTT exhibited a large series of human bones, all of which presented non-united or partially united epiphyses. The series illustrated the development of the limb bones, the pelvis, scapula, sternum, clavicle, metacarpals, metatarsals, phalanges, vertebræ, ribs, and a large number of cranial bones. Amongst the specially interesting items were an atlas which was obtained in process of ossification from at least nine centres, and an ulna which presented a small epiphysis on top of the ordinary epiphysis for the upper end of the olecranon process, a centre of ossification which, up to this, seems to have completely escaped the notice of anatomists. When the elbow joint was bent this supernumerary epiphysis presented a striking resemblance to a diminutive patella turned upside down.

PROFESSOR BIRMINGHAM referred to the great difficulty of procuring specimens to show the epiphyses. Many of Dr. Knott's series were of the greatest interest, particularly those of the atlas and ulna. He was not satisfied, however, that the additional centre for the olecranon was constant. The incompleteness of our knowledge of epiphyses is illustrated by the fact that he exhibited some specimens two years ago in this Section which showed that the descriptions of the development of the coccyx found in all the



English text-books were inaccurate. The first coccygeal vertebra has at least five epiphyses instead of the one usually described.

*The Form and Position of the Stomach.*

PROFESSOR BIRMINGHAM gave a lantern demonstration of the form, position, and relations of the stomach as seen in bodies which have been hardened by intravascular injections of formalin. The chief points upon which he dwelt were:—That the empty stomach was contracted, not collapsed, its pyloric portion resembling thick-walled small intestine; its cardiac portion rounded, but attenuated; its surfaces looking, the one up, the other down, and its long axis nearly horizontal. In this condition it rests on the “stomach bed,” occupying only the lower part of the “stomach chamber,” the upper part of this space being occupied by the great omentum and the transverse colon, which double up over the empty stomach and lie between it and the diaphragm. The large, flattened, and collapsed stomach, with anterior and posterior walls in contact, usually described and pictured, is not found in the hardened body. Three stages were recognised in passing from the empty to the distended condition. In the first the fundus and cardiac portions were expanded, the pyloric portion remained contracted, and the lesser curve sharply bent as in the empty state; in this stage the stomach resembles a Florence flask, strongly bent at the junction of neck and body. In the second stage the cardiac portion is further expanded, and the pyloric portion opens out, but the junction between the two is distinctly marked. In the third stage there is an enlargement of all the axes of the organ; the distinction between pyloric and cardiac parts is almost lost; the pylorus is carried an inch or two to the left of the middle line, and the antrum pylori is developed. But in all these changes there is no *rotation* around the long axis of the organ, with a raising up of the great curvature, etc., as commonly described. The distended stomach lies obliquely, its long axis running from the fundus, not vertically, as we have been taught in recent times, but inwards and downwards, at an angle of about 40–45 degrees with both the horizontal and mesial planes. The various views expressed by the author were illustrated by photographs of hardened bodies, and also by a series of hardened stomachs, showing the various stages of distension, and showing the sphincter action of the diaphragm on the lower end of the œsophagus.

DR. PATTEN said that in some investigations which he had recently made he had noted that as we ascend the scale from the lower animals there was an increasing tendency for the long axis

of the stomach to become somewhat oblique, while, at the same time, the transverse colon became more distinctly marked. Was the transverse colon the principal factor in determining this change in the position of the stomach?

MR. TAYLOR said he had examined some formalin subjects from a surgical standpoint, and could bear out all Professor Birmingham had said regarding the position of the stomach. One point had impressed him very much in connection with gastro-enterostomy. The operation adopted for a long time, and still adhered to by some surgeons, was to take a piece of the small intestine, bring it up over the transverse colon, and fix it to the upper wall of the stomach. Now the beginning of the small intestine occupies a deep recess in the left region of the abdomen below the stomach, from which it is separated by the transverse meso-colon only, as just pointed out by Professor Birmingham. If the meso-colon be torn through, and this portion of the intestine connected to the under surface of the stomach, the result will be that the intestine will be connected to the lowest part of the stomach, and thus gravity will assist the passage of the food into the intestine.

PROFESSOR BIRMINGHAM, in reply to Dr. Patten's question, said he thought the obliquity in the human stomach was probably due to the wide thoracic framework. In a female subject with a very constricted waist, the stomach (which he exhibited) lay almost vertically on the left side of the vertebral column. Regarding the question of the existence of a valve at the cardiac orifice, he thought that little reliance could be placed on observations made on dried specimens. The return of food from the stomach into the œsophagus would be amply guarded against by the contraction of the muscular fibres of the œsophagus and the crura of the diaphragm, as illustrated by a specimen exhibited.

*Visceral Anatomy of the Gibbon.*

DR. CHARLES J. PATTEN brought forward a communication dealing with the visceral anatomy of the gibbon. The paper dealt principally with the form and position of the thoracic and abdominal organs. Many of these (lungs, heart, stomach, spleen) very closely resembled those of the human subject, as one might anticipate in such a highly developed anthropomorphous ape. The specimen was first hardened in formalin to ensure the contour of the viscera.

The Section then adjourned.

following week, and to 9 in the week ended March 17, fell to 5; 6 patients were discharged during the week, and 26 remained under treatment on Saturday, being 1 under the number in hospital at the close of the preceding week.

The number of cases of enteric fever admitted to hospital was 6, being 1 under the admissions for the preceding week: 10 patients were discharged, and 43 remained under treatment on Saturday, being 4 under the number in hospital on the previous Saturday.

Deaths from diseases of the respiratory system, which after having risen from 55 in the week ended March 3 to 78 in the following week, fell to 39 in the week ended March 17, rose to 72, or 20 over the average for the corresponding week of the last ten years. The 72 deaths comprise 48 from bronchitis and 22 from pneumonia.

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#### METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of March, 1900.*

Mean Height of Barometer, - - -	30·083 inches.
Maximal Height of Barometer (13th, at 9 p.m.),	30·838 „
Minimal Height of Barometer (18th, at 9 p.m.),	29·246 „
Mean Dry-bulb Temperature, - - -	39·7°.
Mean Wet-bulb Temperature, - - -	37·5°.
Mean Dew-point Temperature, - - -	34·6°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·200 inch.
Mean Humidity, - - - -	82·5 per cent.
Highest Temperature in Shade (on 11th),	53·5°.
Lowest Temperature in Shade (on 17th),	27·1°.
Lowest Temperature on Grass (Radiation (on 18th) - - - -	22·0°.
Mean Amount of Cloud, - - - -	73·9 per cent.
Rainfall (on 13 days), - - - -	·963 inch.
Greatest Daily Rainfall (on 19th), - - -	·234 inch.
General Directions of Wind, - - - -	E., N.W.

#### *Remarks.*

A very dull and cold month. The earlier part was dry, but there were frequent falls of snow or sleet and hail after the 15th. The total precipitation, however, fell slightly short of one inch. The amount of cloud was unusually large, being no less than 73·9 per cent. The estimated duration of bright sunshine was 84 hours, being a daily average of 2·7 hours.

In Dublin the arithmetical mean temperature ( $40\cdot8^{\circ}$ ) was  $2\cdot3^{\circ}$  below the average ( $43\cdot1^{\circ}$ ); the mean dry-bulb readings at 9 a.m. and 9 p.m. were  $39\cdot7^{\circ}$ . In the thirty-five years ending with 1899, March was coldest in 1867 and 1883 (M. T.= $39\cdot0^{\circ}$ ), and warmest in 1893 (M. T.= $48\cdot1^{\circ}$ ), and in 1868 (M. T.= $47\cdot3^{\circ}$ ).

The mean height of the barometer was  $30\cdot083$  inches, or  $0\cdot167$  inch above the corrected average value for March—namely,  $29\cdot916$  inches. The mercury rose to  $30\cdot838$  inches at 9 p.m. of the 13th, and fell to  $29\cdot246$  inches at 9 p.m. of the 18th. The observed range of atmospheric pressure was, therefore,  $1\cdot592$  inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was  $39\cdot7^{\circ}$ . Using the formula, *Mean Temp.* = *Min.* + (*Max.* - *min.*  $\times$   $\cdot485$ ), the M. T. becomes  $40\cdot6^{\circ}$ . The arithmetical mean of the maximal and minimal readings was  $40\cdot8^{\circ}$ , compared with a twenty-five years' average of  $43\cdot1^{\circ}$ . On the 11th the thermometer in the screen rose to  $53\cdot5^{\circ}$ —wind, S.; on the 17th the temperature fell to  $27\cdot1^{\circ}$ —wind, W.N.W. The minimum on the grass was  $22\cdot0^{\circ}$  on the 18th.

The rainfall was  $\cdot963$  inch, distributed over 13 days. The average rainfall for March in the twenty-five years, 1865-89, inclusive, was  $2\cdot061$  inches, and the average number of rainy days was  $16\cdot5$ . The rainfall, therefore, and also the rainy days were much below the average. In 1867 the rainfall in March was very large— $4\cdot972$  inches on 22 days. On the other hand, the smallest March rainfall was  $\cdot288$  inch on 8 days in 1893.

The atmosphere was more or less foggy in the city on 6 days—viz., the 5th, 10th, 11th, 21st, 28th, and 29th. High winds were noted on 7 days, reaching the force of a gale on two occasions—the 15th and 18th. Snow or sleet occurred on the 16th, 18th, 19th, 20th and 26th; and hail also fell on the 1st, 18th, 19th, 20th, 24th and 26th. The temperature exceeded  $50^{\circ}$  in the screen on only 5 days, compared with 19 days in 1899, 9 in 1898, 14 in 1897, 21 in 1896, 13 in 1895, 22 in 1894, 26 in 1893, and only 7 in 1892. It fell to or below  $32^{\circ}$  in the screen on six occasions. The minima on the grass were  $32^{\circ}$  or less on 14 nights, compared with 13 nights in 1899, 15 in 1898, 9 in 1897, 8 in 1896, 10 in 1895, 12 each in 1894 and 1893, and 25 in 1892. The thermometer failed to reach  $40^{\circ}$  on 3 days. A solar halo was seen on the 29th. Thunder and lightning occurred on the 11th. Lightning was also seen on the 19th and 25th.

The rainfall in Dublin during the three months ending March 31st amounted to  $6\cdot698$  inches on 63 days, compared with  $5\cdot562$  inches on 51 days in 1899,  $4\cdot570$  inches on 48 days in 1898,  $7\cdot069$

inches on 57 days in 1897, 4·898 inches on 47 days in 1896, 9·084 inches on 52 days in 1895, 6·028 inches on 53 days in 1894, 5·196 inches on 49 days in 1893, 4·808 inches on 48 days in 1892, only 1·650 inches on but 32 days in 1891, and a twenty-five years average of 6·411 inches on 51·0 days (1865–1889) inclusive.

At Knockdolian, Greystones, Co. Wicklow, 1·320 inches of rain fell on 14 days. The corresponding figures for March, 1899, are 1·080 inches of rain on 9 days. The maximal fall in 24 hours was ·375 inch on the 18th. The total rainfall since January 1, 1900, equals 11·756 inches on 58 days, compared with 9·690 inches on 51 days in the first quarter of 1899.

The rainfall in March at Cloneevin, Killiney, Co. Dublin, was ·94 inch on 14 days, compared with ·67 inch on 9 days in 1899; 1·29 inches on 15 days in 1898; 3·28 inches on 23 days in 1897; 2·61 inches on 23 days in 1896; 3·29 inches on 21 days in 1895; 1·11 inches on 14 days in 1894; ·26 inch on 9 days in 1893; ·98 inch on 10 days in 1892; and a fifteen years' (1885–1899) average of 1·848 inches on 15·3 days. The maximum in the 15 years was 3·59 inches in 1888, the minimum was ·26 in 1893. At this station the total rainfall since January 1 was 8·17 inches on 62 days, compared with a fall of 6·95 inches on 45 days in the first quarter of 1899. On the 18th ·25 inch fell.

At the National Hospital for Consumption, Newcastle, Co. Wicklow, the rainfall was ·892 inch on 12 days, compared with 1·054 inches on 9 days in March, 1899. On the 18th ·311 inch fell. The total rainfall from January 1 to March 31, inclusive, was 10·631 inches on 57 days, compared with 9·329 inches on 48 days in the first quarter of 1899; 4·767 inches on 40 days in the first quarter of 1898; and 10·086 inches on 57 days in the first quarter of 1897. The extremes of temperature were highest, 53·0° on the 11th, lowest, 26·0° on the 17th.

At the Railway Hotel, Recess, Connemara, Co. Galway, the rainfall in March was 1·311 inches on 13 days, ·300 inch being measured on the 29th. Snowstorms occurred on the 16th and 17th. Only ·010 inch of rain was measured up to the 15th.