scale as applied to towns, or on a small scale as applied to houses; and, being surely the most efficient means with which to combat diphtheria, typhoid, cholera, dysentery, and many similar diseases, they can hardly be the result of "masterly inactivity".

WAXY OR LARDACEOUS DISEASE.

By W. T. GAIRDNER, M.D.,

Professor of the Practice of Physic in the University of Glasgow.

It has been brought under my notice that, in the report of the discussion on Lardaceous Disease at the Pathological Society of London, I am made to appear as if I had passed over, through inadvertence or otherwise, the name of Dr. Sanders, as one of the "small band of workers in Edinburgh" who were occupied with the subject of lardaceous disease in or about 1851. It is almost needless, in the case of any one who knows the parties concerned, that I should disclaim any intention of disrespect, or even of neglect, of the kind supposed; but as I did, in point of fact, mention Dr. Sanders, and was reported in a contemporary as having done so, perhaps I may be allowed to add a supplement to this effect, and at the same time to give a few facts, dates, and references which, from being called on by the President at a moment's notice and unexpectedly, I had not time to set forth with sufficient consideration, and with the accuracy due to others as well as to myself.

In Scotland, as everywhere else, the condition of various organs now known as the lardaceous, or waxy, or amyloid degeneration, was but little studied previously to 1850. The late distinguished Professor Hughes Bennett, who was very intimately acquainted with foreign pathological investigations, has stated in his *Principles and Practice of Medicine* (fourth edition, p. 250), that he observed and microscopically examined this alteration for the first time, in the liver, in a case of phthisis in 1845; but, at a much later period, he indicated to the Physiological Society that at first he "had supposed that it was an ultimate form of fatty alteration. He was now (1854) satisfied, from numerous observations, that it was a primary alteration of the cells, and, though frequently associated with fatty degeneration, was not essentially connected with it."

There is little doubt, I think, that, by many others besides Dr. Bennett, the waxy was considered at this time as allied to the fatty alteration of the liver. The descriptions and nomenclature of Rokitansky,* in fact, while in many respects admirable, had prepared the way for this confusion, which for a long time continued in spite of chemical and microscopical investigation. Speaking for myself, I am really not able, at this distance of years, to say exactly how and when my ideas of the distinction arose; but, so early as 1847-48, in writing on the Pathology of the Kidney, I find, amidst much that is questionable and vague, this distinction clearly set forth, and several examples given in detail of the various stages of the "waxy kidney", as not only quite distinct from the then well-known fatty kidney, but as being "one form of what is commonly called Bright's disease".†

From 1848-50 onwards, I apprehend that the idea of "waxy degeneration" (as it was by this time always called in Edinburgh) was one of growing familiarity and importance in the Edinburgh School of Pathological Anatomy; and, as regards the liver, I happen still to possess a carefully compiled index of lesions to vol. xii of the *Pathological Regis-*

ter of the Edinburgh Royal Infirmary, bearing date about the period referred to, in which "fatty liver" and "waxy degeneration" form quite distinct headings, and from which all the cases of either form, distinctly recognised at the time as such, can still be easily identified. This index extends over nearly four hundred miscellaneous cases, and, as only thirteen of these are set down as waxy, while more than forty are noted as fatty livers (*i. e.*, microscopically ascertained to be such), I presume that only the more extreme instances of the former lesion are indexed. In later volumes, the proportion of waxy livers recorded is considerably greater; and it is further worthy of notice that, while "hypertrophy" and "increased density" are noted among splenic lesions, waxy degeneration does not appear in this index, showing that in all probability the facts, so carefully observed afterwards by Dr. Sanders, as regards the spleen, were at this time but little, if at all known.

In May 1852,* I published what was intended to be the first paper of a series, containing an "Abstract of Fatal Cases examined in the Royal Infirmary from October 1851 to February 1852". This series of seventy-six cases contained five well-marked instances of waxy degeneration, all of them in connection with tubercular disease, caries, or syphilis.† The facts and morbid associations are carefully noted, microscopic descriptions and chemical analyses are given in several instances, and the specific gravity of the organs affected receives special attention. The specific gravity of the waxy livers in this series varies from 1050 to 1061, the absolute weight being from 4 lbs. to 6¼ lbs. The kidneys, in one of the cases, are noted as weighing together 14 oz., specific gravity 1054; the spleen in the same case was firm, and weighed 12 oz. (history, however, of past ague), specific gravity 1066 (Case 50). A fatty liver, in a young woman dying of tubercular disease of the lungs and intestines, was contrasted with these, as having a specific gravity of only 1005. This extreme example of fatty liver contained 34.5 per cent. of fatty matter, removed by ether, as compared with 2.57 and 4.8 per cent. in typically waxy livers. Many more details are given, which are even now not without interest, and which were at the time, like the study of the specific gravity as a test of pathological difference in these cases, quite new; but, as the proprietors of the journal at this time declined to admit any more of these pathological abstracts, I was not encouraged to pursue the subject in this form, which I had been led to adopt chiefly as a stimulus to my assistants; and of these, the one chiefly engaged in the microscopical and chemical analyses of waxy degeneration was, as may be seen in connection with the details of these abstracts, the late James Drummond.

On November 25th, 1852, Dr. Sanders made his first brief communication to the Physiological Society of Edinburgh on the condition of the Malpighian bodies in the waxy spleen.‡ He refers shortly to Rokitansky, and to a specimen described by Dr. Handfield Jones in the *Pathological Transactions* of London for 1852.

On June 25th, 1853, John Kirk, then a student of medicine and assistant in the pathological department, now Her Majesty's Consul at Zanzibar, made a still more brief communication, very imperfectly reported, but illustrated by specimens, showing that in the kidney the waxy degeneration "commences in the minute blood-vessels, the capillaries of the Malpighian tuft, and the straight capillaries (arteries) of the tubes (pyramids)".§ This was, I believe, the first intimation of what is now a generally admitted fact.

On December 17th, 1853, a longer and detailed discussion is reported in the Physiological Society of Edinburgh,|| arising on specimens of waxy degeneration presented by Dr. Bennett. This discussion has been so often referred to, as containing in a condensed form the observations made in Edinburgh up to that period, that I think it unnecessary to enlarge upon it here further than to remark that the misleading analogy with fat, or lard, or wax is consistently and emphatically repudiated by the speakers at that date, on the ground of direct microscopical and chemical observation, whether as regards the liver, spleen, or kidneys. The name "waxy degeneration" is adopted simply as a description of physical characters or resemblances; and the histological alterations, which are minutely described (in the spleen for the first time in detail by Dr. Sanders), are associated in my own remarks with "a peculiar modifica-

* Rokitansky, in 1842 (*Handbuch der Pathologischen Anatomie*, Band II), describes two conditions of the liver—a waxy (*wächserne*) and a bacony (*speckige*); and it is under the latter designation (which has been adopted in English under the, to my mind, comparatively unsuggestive form *lardaceous*), that he introduces the whole of those details relative to the constitutional associations of the lesion, which he was unquestionably the first to point out. I do not know the steps by which he was led to this curious double classification of what is evidently one and the same lesion, but the details seem to show that the great Viennese pathologist had been gradually working his way towards the conception of a "transparent, albuminous, bacon-like, or bacony-gelatinous substance", without, at the same time, clearing his mind from an earlier misconception, of which his description of the waxy liver is the "survival", as Darwin would say. The waxy liver he describes as a variety of the fatty liver "consisting in a peculiar modification of the infiltrated fat, which, notwithstanding its great quantity (*menge*) is deposited in only insignificant amount upon the knife-blade". In the lardaceous liver (as above mentioned) he recognises, with qualifications, an albuminous substance, but shortly afterwards speaks of "the peculiar tallow-substance" (*Talggehalt*) as "sometimes occupying the entire organ and sometimes being confined to individual spots". Similar alternative expressions, though less in detail, occur in reference to the spleen and kidney.

† See *Monthly Journal of Medical Science*, vol. ix, 1848-9, pp. 15, 16, 105, and *Observations*, xi-xiv. The pathology of the lesion is probably quite erroneously given, especially as regards its supposed origin in congestion and obliteration of the capillaries; but the "smooth, glistening, semi-transparent appearance, which cannot be better distinguished than by the term *waxy*", and the "absence or scantiness of (granular) exudation", along with the naked-eye characteristics (given specially at p. 16), as distinguishing the waxy from "an extreme degree of the fatty degeneration", will suffice to show the point of view adopted.

* *Monthly Journal of Medical Science*, vol. xiv, p. 436.

† The first case in this series is one of "waxy liver and spleen", with great emaciation from caries of the vertebrae and "long-continued discharge of pus". Case 6 is one of waxy liver with tubercular disease, probably of three years' duration. Case 33 is one of waxy liver, enlarged firm spleen, advanced Bright's disease of kidneys; a pensioner, who had been in the Indian service, had suffered from ague, diarrhoea, and syphilis, and who died phthisical at thirty-nine years of age. Case 67, waxy liver with tubercular disease of lungs and intestines. Case 74, enlarged waxy liver; inipient disease of kidney; tubercle. Besides these, I find one or two doubtful cases, and one of advanced fatty liver used as a contrast chemically and otherwise.

‡ *Monthly Journal*, vol. xv, January 1853, p. 84.

§ *Ibid.*, vol. xvii, September 1853, p. 277.

|| *Ibid.*, vol. xviii, February 1854, p. 185.

tion of the protein compounds", which "presented a much greater resistance than in the normal state to acid and alkaline solvents". Dr. Sanders found the "translucent matter which constitutes the waxy degeneration" in an almost unmingled and perfectly homogeneous state in the Malpighian bodies of certain waxy spleens, and observed its reactions with acids, alkalies, alcohol, chromic acid and iodine; the last two "render it yellow and brown, but do not alter its homogeneous aspect; indeed, its characters are so marked and so permanent, that there is no difficulty in identifying it wherever it is met with". In the liver, on the other hand, the increased density of the organ (which I was able to give as extending up to 1.080), was an additional reason for regarding the change as an albuminoid, not a fatty, one. Nor were the constitutional associations of the lesion at all overlooked. In my own remarks, "this condition of the liver was found to be the source of a large proportion of the cases of hypertrophy of that organ; it was common in scrofulous, syphilitic, and other chronic exhausting diseases".

As a further contribution at this period to the chemical pathology of the liver, I submitted to the Physiological Society, along with my lamented friend and pupil the late James Drummond, on January 28th, 1854,* a paper showing the results of quantitative analysis with respect to the fatty matters, solids, and water, in typical cases of healthy, fatty, waxy, and cirrhotic livers. This paper has been but rarely referred to, but it formed at the time, and forms now, a most conclusive demonstration of the diverse character of these pathological states as affecting some of the chemical elements of which the liver is composed.

I have thus endeavoured to show that up to the time of Virchow's announcement of the so-called "amyloid" reaction, and the still more fallacious, because wholly unfounded, views of Meckel as to the "cholestearin disease", the Edinburgh School had adopted and maintained a position on this subject almost wholly conformable to the existing state of science, though not, of course, anticipating the remarkable and beautiful discoveries which we owe chiefly to Dr. Dickinson.†

THERAPEUTIC MEMORANDA.

OLEATE OF ZINC IN THE TREATMENT OF ECZEMA.

AFTER using the remedy for nearly six months, in a large number of cases arising in hospital and private practice, I desire to record my testimony in favour of the efficacy of the ointment of oleate of zinc in the treatment of eczema. For this important addition to the materia medica, the profession is indebted to Dr. Radcliffe Crocker of University College Hospital, who gave the formula for its preparation, and some cases illustrative of its use, in a paper published in the JOURNAL of October 26th, 1878. The writer concluded his observations with the following words: "I have treated a large number of cases with this remedy with most satisfactory results, so that I can with confidence recommend it as one of the most useful preparations for eczema that we possess." This statement is very unequivocal; I can as unequivocally adduce my own experience in its confirmation. I have always used the oleate of zinc made into an ointment, either with vaseline or with lard. The preparation with vaseline I have employed in private practice, and that with lard, on account of its comparative cheapness, for my hospital patients. Vaseline is preferable to lard, because it is not so liable to change, but also because the greasiness of the latter injures a patient's clothes and sometimes disagrees with his skin. The ointment made with vaseline may be rendered more "elegant" by the addition of one drop of otto of roses to each ounce. My house-physician, Dr. John Wood, informs me that he has found the oleate of zinc ointment very serviceable in the treatment of eczema, and especially in the eczema capitis of children. One of my patients, a sexagenarian clergyman, the subject of eczema, probably gouty, of several years' standing, affecting the lower part of the abdomen, the genitals, and the upper portions of the thighs, tells me that he recovered completely after using the vaseline ointment for a few weeks.

JAMES SAWYER, M.D.Lond., M.R.C.P.,
Physician to the Queen's Hospital, Birmingham.

SURGICAL MEMORANDA.

THE CATHETER GAUGE AS A PUPILLOMETER.

I QUITE agree with Mr. Arthur Cooper (JOURNAL, 12th instant) that the French catheter-gauge is more suitable than the English for measuring the pupil, combining as it does the advantage of ready comparison, advocated by Mr. Hutchinson, with the numerical constancy rightly insisted on by Dr. Gowers. I did not know of the perforated cards, which would certainly be both easier to use and more accurate than the thick polished metal-plate with bevelled openings.

I may mention, however, that in a set of pocket test-types, which Mr. Hawksley (300, Oxford Street) is making for me (and which will be procurable in a few days), a pupillometer will be included, consisting of black spots, measured in millimètres, and stamped on grey card to imitate somewhat the natural contrast between the pupil and the iris. I hope that this model may be found more accurate and convenient than perforations either in metal or card, as there will be neither double outlines nor shadows.

EDWARD NETTLESHIP, Wimpole Street.

CLINICAL MEMORANDA.

RUPTURE OF THE RIGHT AURICLE.

THE following case is, I think, deserving to be put on record, such lesions being of rather rare occurrence. Mrs. —, aged 38, very intemperate and leading a most dissolute and abandoned life, suffered for some years from dyspnoea, which became much aggravated by cold, excitement, or rapid motion, and sometimes produced fainting when a flight of stairs was quickly mounted. After a few days' illness from influenza, she expired suddenly during an abortive attempt to vomit. A *post mortem* examination was made forty-eight hours after death. The body was laden with fat, it being two inches thick over the chest. On raising the sternum, the lungs were found collapsed. The pericardium was very prominent. On being opened, it was found full to distention of fluid venous blood, which had escaped from two jagged irregular lacerations just below the termination of the superior cava. The heart itself was in the last stage of fatty degeneration, the remains of the muscular structure being pale, flabby, and easily broken down with the scalpel handle. The mitral valves permitted slight regurgitation. I was unable to make any further examination of the other organs, owing to circumstances which I need not mention. Neither could I learn anything regarding the health of the deceased, except the dyspnoea above-mentioned.

EDWARD R. TENISON, M.D., Shepherd's Bush.

DYSIDROSIS.

A CURIOUS case, resembling in many points the disease termed dysidrosis, came under my observation a short time ago. Notwithstanding the accompanying symptoms to the profuse perspiration, I concluded that the disease was dysidrosis; but the concomitant phenomena are, I believe, somewhat anomalous, and do not exactly tally with existing descriptions of the disease. A somewhat delicate-looking girl, of markedly nervous temperament, about sixteen years of age, sought relief for profuse sweating of hands and feet, accompanied by swelling and great pain at the extremities of the fingers and toes, of a fortnight's duration. The feet were less affected than the hands, being the seat of considerable pain and tenderness, with the extremities of the toes somewhat swollen, and everywhere bathed in clear inodorous sweat. The hands had become almost useless, the pain at the extremities of one or two fingers being very severe and the surface of all displaying extreme tenderness. The back of the hand, as high as the wrist, was sweating very freely, the palm of the hand was still more bathed with perspiration, and the fingers, especially the two index fingers, were literally dripping with it. The fingers were swollen, especially at the extremities, and slightly reddened; the surface, however, was perfectly smooth and remained unbroken. The pulps of the two forefingers, which were exceedingly painful, showed signs of suppuration; but, though an incision into the right forefinger gave exit to just a bead of pus, there was no amelioration in her condition. Besides being naturally delicate and feeling weak, she did not complain of her general health, and there were no apparent causes for her disorder. Poultices and hot fomentations, tried by the patient before consultation, gave only temporary relief, and the application of spirit and cold-water dressings, with opium administered internally, eased her but slightly. The greatest relief was obtained by the application of linimentum aconiti and linimentum bella-

* *Monthly Journal of Medical Science*, vol. xviii, p. 393.

† The observations of Friedreich and Kékulé (Virchow's *Archiv*, 1859) are simply a return to the position held all along in Edinburgh from the misleading analogies above referred to. The iodine test, however, has remained as a permanent residuum of valuable fact amid the changes of opinion to which it led. An elaborate review of the whole subject by the late Dr. Parker (*British and Foreign Medico-Chirurgical Review*, 1854), and also one by Dr. Sanders of the first edition of Dr. Dickinson's work (*Edinburgh Medical Journal*, 1868) may be referred to as completing, from possibly slightly differing points of view, the above *résumé* of the principal dates and facts.