doubled among the men and had increased among the women in the proportion of 5 to 7 (2 55 to 3.43).

13. In the departments which produce wine, but do not manufacture alcohol, the annual consumption of alcohol has increased in twenty years from 1 lit. 75 to 3 lit. 92 per head in those which consume cider, and from 0 lit. 69 to 1 lit. 30 in the others.

In the former the cases of insanity due to alcoholism have increased among men in the proportion of 20 to 25, and in the latter from 6·90 to 16 per cent. Among women the increase in the two groups has only been from 2 to 2·60 per cent.

14. The consumption of alcohol and the relative number of cases of insanity due to alcoholism have then more particularly increased, other things being equal, in the departments which produce and consume cider.

15. In some departments, where relatively they drink much white wine and little spirits, as in Vendée, the cases of alcoholic insanity appear as common as in those in which alcohol is chiefly used; but in the former, contrary to what occurs in the others, the cases of alcoholic insanity are relatively very rare in women.

16. Alcoholic excesses act not only by causing attacks of delirium tremens or of insanity, but also by placing the parents, at the moment of conception, in very peculiar conditions, which have an evil influence upon the physical health of the children, and upon their intellectual and moral development.

17. The increase in the number of suicides has followed, everywhere in France, the enlarged consumption of alcoholic beverages.

18. The influence of the excesses in drinking, and specially of spirits, upon the production of mental diseases and of sucide, is not a fact peculiar to France; it has been observed in all countries, and particularly in those which consume most alcohol, such as the United States, England, Ireland, Sweden, Denmark, Russia, Germany, Holland, and Belgium.

---

2. *German Retrospect.*

On the Significance of Fat Granules and Fat Granule-cells in the Spinal Cord and Brain. By Prof. Ludwig Meyer. With illustrations.

The granule-cells which Dr. Westphal found in the posterior and lateral columns of the cord in progressive general paralysis led that observer to the conclusion at once that in it consisted a universal lesion of the cord in the paralytic insane, as he had before proved of the grey degeneration of the posterior columns. Prof. Meyer, however, has not succeeded in detecting any connection between the discovery of granule-cells and a lesion of the cord to which these in-

flammation products (Entzündungskugeln) owed their origin; and so these formations prove a chronic myelitis merely, and do not lead to the conclusion that "hereby the universal product of spinal diseases among the paralytic insane is indubitably settled."

Fat granules and granule-cells spring up in all tissues under such manifold conditions that their appearance in any organ does not afford the slightest ground for a pathological estimate of the process by which they arose. The fatty degeneration of the tissue-elements of an organ is one of the normal, or, at least, common events, and granule-cells are just as likely to be the residuum of the usual *débris* of nutrition of the organism as that of a definite local inflammation. The proof given by Th. Simon of granule-cells in the cord of those who have died from protracted and deep-seated lesion of nutrition of a tuberculous nature, lends weight to this opinion. Since attention was called to this point by Westphal's observations, the spinal cord of every patient in the Göttingen Asylum who died from paralytic disease of the brain has been examined in section, and it can be positively stated that these granule-cells could be shewn in most of the cases, if not in all. But these constant and numerous products could in no way be connected with the clinical symptoms, as Westphal had pointed to them. On the other hand, corresponding with an observation of Simon's, granule-cells were found in still greater extent in the cord and brain of a person who had died from tuberculosis and not from paralytic brain affection. As on the one hand the especial connection between this discovery and progressive general paralysis became doubtful, so on the other hand one could not help suspecting that in these instances one had to do with changes of a more universal pathological significance. The origin of granule-cells from a fatty change in the nerve bundles of the cord Prof. Meyer from the first put aside altogether. The arrangement of the fat granules corresponds, as indeed can be observed in many cases of atrophy of the posterior and lateral columns, in these cases exactly with the course of the nerve-fibres, generally shewing the easily recognised string-of-pearls form. The connective tissue and vessels of the cord must then be regarded as the basis of origin for the granule-cells in the cord of the paralytic insane, the tuberculous, and the other cases investigated by Simon. Westphal takes exception to the statement that in chronic myelitis there is always a fat metamorphosis in the connective tissue, with or without increase of nuclei, and that the increase of the cell-elements is chiefly to be attributed to this accumulation of fat. Previous investigations on the development of fat granule-cells in softening of the brain substance had inclined me to the view that appearances of fatty degeneration of the cell-elements sprang from the vessels, and this view was corroborated by the observation of analogous precedents in the brains of paralytic insane. Very soon was he convinced how constantly fat granules and granule-cells appear in the brain at the same time as in the cord. In the cortical brain-substance of a melan-

cholic patient who died in this asylum from phthisis, large granule-cells were found all over. In this locality, as in the grey substance of the central ganglia, it was easily proved that the granule-cells adhered to the vessels. A similar result was afforded by the following observations:—

The task was, however, much more difficult for the white substance of the brain, and still more of the cord. In hardened and well-injected preparations the histological results were rather doubtful; only in quite fresh sections, or in those treated after the manner of Deiter, in very weak solutions of chromic acid, is it possible to isolate the vessels sufficiently gently. But anyone who has had to do with the bundles of nerve-fibres will know how to appreciate the difficulty of this task. A preparation that has been cautiously just spread out, strings itself together again at once; the nerve-fibrils form true knots and bands, and masses of myelin prevent all observation.

It may then be not deemed superfluous if an account of the details of the undertaking is given. No one will confess more willingly than the Professor himself that the desirable degree of certainty has not been acquired, and the reader must be permitted to judge for himself of the value to be attached to the results. It has been already stated that sections of parts of the cord hardened in chromic acid or spirit lead to no reliable results on the connection between the granule-cells and the tissue-elements of the normal cord.

This holds especially of transverse sections, for when containing only a small quantity of fat the granules and parts of granule-cells yield much sooner to the knife, however carefully used, than the parts around them do. Granules and granule-cells, the latter often crushed or split into two or more parts, are torn by the knife from their original place, and spread over tissue-elements with which they never had the slightest connection. Still in one case in which the cord-vessels were very full of blood, sections were made in which groups of granules appeared limited to the circumference of the vessels. Granules and granule-cells surrounded, in the form of rings and sheaths, the transverse and longitudinal sections of the vessels. In the neighbourhood of the very large accumulations of fat in which the vessels were often fully imbedded were single fat granules noticed, giving the impression that they had been loosened and scattered from their original place mechanically. After many attempts Dr. Meyer limited himself to longitudinal sections of the cord in the freshest state possible (4-6 hours after death), which can be preserved for two or three days according to Deiter's method, the preparations being cut off in the thinnest possible manner by fine scissors. In careful sections made in the direction of the course of the nerve-bundles one sees easily, as soon as the degeneration is somewhat developed, a yellowish or reddish grey indefinite delineator of straight or winding stripes and lines. The centre of this part shows a more or less branching vessel, as can be seen with low powers. When using higher powers the preparations

should be gently teazed out, and when the vessels and the parts in their immediate neighbourhood are not so entirely isolated as to show them in their whole extent, there generally appear granules and granule-cells separated from the vessels scattered among the nerve-fibres, yet a comparison of numerous specimens leads to the conclusion that the vessels are the particular point of origin of the formations, and that, by the manner of preparing, some granules have become loosed here and there, and have managed to get between the nerve fibrils. At times, notwithstanding every care, not a single fat granule could be found between the nerve elements, though accumulations of them appeared in the vessels. Cavities were often noticed which exactly corresponded with the isolated granule-cells, like bricks which had tumbled out from a wall. A few granules appeared to adhere so firmly to the wall of the vessel that they could be sooner rent asunder than set loose, and then one half would fall among the nerve-fibres, whilst the other half corresponding to it remained firm in its place of origin. To show how little the form of the part was changed by the teazing, the lines of separation corresponded in all the bends and angles, so that in bringing them together the form of the entire granule-cell was reproduced. The fatty degeneration of the wall of the vessel (for so we must designate these changes) generally appears in the "transition-vessels" (Übergangsgefässen), or those which are close to the capillaries, and by preference in the venous transition vessels, and in the smallest veins. The formation of the granules begins in the immediate neighbourhood, mostly at both poles, of the oblong nuclei placed parallel with the long diameter of the vessel. By gradual and slow development does the further increase of the fat-granules proceed in the above-named direction, and one then sees them surrounding a whole vessel in the form of a string of pearls and pointed streaks. Occasionally the same thing goes on simultaneously in more rows lying close to one another, which finally cover the whole vessel with a coat of granules. In another place separate collections of cells are more severely attacked, the granules occupy the whole circumference of the nucleus, quickly cover it, and make it almost invisible. As the accumulation proceeds the spindle-shaped cells change their form, increase in width, and become oval or round; of such a size too, that a single cell may exceed the original width of the vessel. If they develope in a scattered manner, the heaps of granules often form knotty risings in the walls of the vessel. If this development of granules proceeds in most or all of the cells of the sheath of the vessel there results a thick, dark, solid-looking cylinder, within which the much smaller channel of the vessel can only be recognized from its containing red blood-corpuscles. That in a similar manner the new-formed cells of the vessels in the brain convolutions of the paralytic insane are often turned into granule-cells may be here mentioned. The change appears to attack only separate parts of cells, or, at least, to proceed very gradually. Also in Myelitis, according to Manukopff's description,

are found in the vessels of the spinal cord fat-degenerations of various degrees close by the aggregations of nuclei. In one notable case, transverse sections in the lumbar region displayed yellowish-white spots, which, for the most part, consisted of enormous fatty, tree-like vessels.

Together with the fatty degeneration, there are seldom wanting other changes of the wall of the vessel, which must be regarded as consequences of the former. There is no doubt that, sooner or later, the fat granules are again re-absorbed. In favourable cases a preparation will show the transition from large dark cells filled with granules to the indistinctly-limited drops of fat. A moderate granule formation may without any certain re-action on the structure of the vessel-wall be re-absorbed, but larger accumulations of fat-granules, above all the formation of larger-sized granule cells, appear to cause permanent changes of tissue. It appears as if the cells and fibres of the vessel-wall were by the infiltration of fat-granules displaced and separated. The boundaries of the vessel-wall within and without are less parallel, and the whole vessel seems less supple. Together with the fat-granules there appear other corpuscles, less smooth and more angular, which reflect the light more strongly. They do not disappear when treated with ether, though by the mineral acids, with the development of gas bubbles. These deposits of lime salts in the walls of the vessels often attain colossal dimensions, as is well seen in the vessels of the brain. The vessels in such cases, with these concentric encrustations of lime, stand out like bristles, and can be easily isolated. The closure and complete obliteration of the smaller vessels is the consequence of these changes. Together with these are other changes to be noted as consequences of the preceding degenerations. Whether the amyloid corpuscles, which in sclerosis of the vessels of the nerve centres cover the walls of the vessels, belong to this category may be doubted, though concerning the place of their development they are always in relation with the fat granules and granule-cells in the brain and cord. Fatty degeneration and sclerosis of the smallest vessels so constantly accompanied the degenerative processes of tissues, that it must be regarded as the characteristic symptom in retrograde metamorphosis of tissues. It is found in all old inflammations, in granulation of wounds, boils, false membranes, purulent collections in the pia mater, in cancers, &c.

The question arises whether, as lesions of innervation can cause secondary lesions of nutrition, so more protracted and more severe lesions of nutrition do not in their turn influence the nervous system, enfeeble it, and bring on fatty degeneration in the vessels of the nerve centres as an expression of this defective innervation of the whole organism. But if this influence be ascribed to all lesions of nutrition, it might be expected that the locality of the nearest and most suffering organs, such as the lungs, kidneys, bladder, would in inflammatory affections of these organs exert an influence on their centres of nerve

supply. Discussion on this question, so far as it concerns the function of the organ, is avoided, as is also the investigation of the sympathetic system.

Then follows a series of observations. The first series includes an examination of the cord and brain of 18 patients who suffered from the most various affections in the Hamburg Hospital. The greater number of these preparations were intentionally taken from those who died in advanced age, in order to obtain well-grounded observations on the influence of old age on the fatty degeneration of the vessels of the nerve centres. The second series consisted of those affected with insanity, but not with progressive general paralysis. Subjoined is a case taken from each series :—

First Series.—A woman, 47 years old, who suffered a long time from tuberculosis in the organs of the chest and abdomen. Fatty degeneration of numerous small vessels in every part of the cord, in the posterior, lateral and anterior columns, and in the gray substance. Great development of fat-granules and granule-cells in the posterior columns of the cervical region, the vessels of which show roughnesses and inequalities, consisting of fat-granules. In the convolutions of the brain, in the capillaries, and the smallest vessels, accumulations of granules around the nuclei, which are seldom visible.

Second Series.—Albert G., drunkard. When 35 years old had *delirium tremens*. At 36, chronic alcoholism, incoherence, ideas of grandeur, hæmoptysis, purulent expectoration, and feverish symptoms. At 41 he died. Cavities in the right lung; tuberculosis of liver, spleen, kidneys, and capsules; pachymeningitis; atrophy of brain; moderate sclerosis of the smallest vessels of the lateral and posterior columns; fatty degeneration in the posterior columns of the dorsal portion. T. C. S.

A Case of Forensic Psychology. By Professor Ludwig Meyer, of Göttingen.

Lascivious behaviour towards a child five years old—Partial craziness or incoherence—Congenital idiocy—Predilection for the disgusting.

A journeyman shoemaker, named August Thute, of Lindau, was accused by the Crown Prosecutor at Göttingen of indecent behaviour towards the daughter, aged five years, of the farmer W. The accused, who lived with his mother in the house of W., on the afternoon of March 15, 1869, enticed the child into a garret, under the pretence of helping him to find his pipe. Soon afterwards the mother heard the child cry out loudly, and found her sitting on a bed that was standing there. She complained that Thute, who professed to be occupied with a grain-chest placed at a small distance from the bed, had "done something to her and had pinched her." Afterwards she confessed to her father that the prisoner had lain upon her. From the girl's genitals a tolerably abundant stream of blood flowed down, and wetted the shirt and stockings.

A surgical examination showed that the bleeding proceeded from a rent ¾inch long on the under part of the entrance to the vagina. Whilst the mother was leading the child away Thute escaped from the house, and did not return for two days. He appeared excited, talked much; on the afternoon of the 18th assaulted his mother with a stool without any provocation, and if the neighbours had not intervened would probably have killed her. He left, threatening to set fire to Lindau, and to slit up with a knife the bowels of everyone who approached him. He was found by a gendarme, after a long search, in a neighbouring barn under the straw. It was generally suspected that his intellect had suffered. According to Madame W., in whose house he lived, "he is not in possession of his five senses, and everyone in Lindau knows it. She holds him to be a dangerous man, who might cause a deal of mischief, although in ordinary conversation with him it would not be remarked that he was crazy. One 14 days he will be always eating, and the other 14 days he will touch nothing. He eats snails and worms when he can get them." The husband of this woman says that the prisoner often makes most astounding assertions, *e.g.*, that the Hartz mountains must be taken away, and that it could be done in 14 days. Another time he said, "You think, indeed, that the Saviour is dead, but he is still alive, and is wandering elsewhere in the world where he cannot be again found." In the baptismal register of the priest at Lindau is found the remark that "Thute was undoubtedly of weak intellect." His master, Hennigés, said that during the time of his apprenticeship he behaved well, but that after his return from travelling he had shown signs of insanity. In consequence of these assertions, the Court of Göttingen directed that Thute should be put under observation in the Göttingen Asylum. The result of this six weeks' observation was as follows:—August Thute is 34 years old, of thick and short, moderately nourished body. The deepened pit of the stomach, the raised left shoulder, and the corresponding curvature of the spinal column (left-sided skoliosis) are doubtless results of his employment, which forced him during his years of growth to sit daily for hours in a constrained position, and with his right shoulder depressed. This malformation deserves especial mention, because apparently to this and to no other pathological antecedent was attributable the slight but well-marked malformation of his skull. The head is crooked (skoliosis) in this fashion, that behind the left half exceeds the right both in breadth and length, whilst at the temples the opposite relation occurs. The head is narrow, long, rising like a roof over the sagittal suture. The forehead recedes greatly, and the frontal sinuses are very prominent. Prognathous countenance and very low animal expression. The skull, moreover, is not small, and the measurements indicate a fair volume of brain. Expression of the face is stubborn and stupid, scarcely altered even when excited, and that, too, only by the rise of a little colour to his otherwise dusky pale cheeks. Both pupils re-act somewhat slowly

on changes of light. Very noticeable is a fibrillar twitching of the eye-lids, especially and chiefly when the eyes are closed, and which, if this condition be preserved for a little time, spreads itself over cheeks and forehead. The extended and out-spread fingers are always on the tremble, as in a tipsy person or one suffering from chronic alcoholism. No abnormal shaking of the body when the eyes are shut. Feeling of pain very much blunted; thus, if a needle be stuck deeply into the hands, feet, or even face, nothing seems to be noticed of it, or if the two poles of an induction apparatus are placed as close together as possible on the arm, leg, or neck, no complaint would be made of it, although a healthy person would have found the pain unbearable.

The behaviour of the prisoner was in prison, as well as under his new surroundings in the asylum, constantly torpid and indifferent. He was noticed to stand, by hours at a time, in the corridor, always in the same place, upright, with an utterly unmoved expression of face, unmindful of what was passing around him, until called by the attendant to his meals. He was obedient to those in charge, but required keeping to any assistance he might be giving.

Although he had not followed his employment for some time he never hesitated an instant to work at the boot repairing in the shoemaker's shop. When questioned about his stay in the asylum he showed complete want of observation and judgment, and thought he was perhaps in a workhouse or hospital. When his attention was called to the peculiarities of some of the lunatics, he thought they were joking, or perhaps were "not quite right in the head." As for himself he liked the place better than the prison or even than Lindau, as the food and the sleeping accommodation were good. Just as little was he able to form an opinion of his own presence in the asylum. He showed no astonishment at the assertions of the lunatics who addressed him, and believed all their statements about endless riches, impending dangers, ill-treatment, and so on. He could not recollect his own age, nor the date, nor the month. He had only a vague impression of the important events of the past year concerning the war. When asked in prison to whom the country belonged, whether to the King of Hanover or to the King of Prussia, he answered, after a deal of consideration that Hanover was now Prussian; but he could not give the time when the change took place. When questioned again in the asylum on this point he replied with a self-satisfied air that "he had conferred with the prisoners and warders on the subject, and that the Prussian possession occurred in 1866, though he was not quite sure that it was not in 1867. At that time came the battle of Langensalza, and an insurrection against the Hanoverian and Prussian governments had broken out. The King of Hanover lost the land because he was blind, and had given bad counsel; for it said in the Bible that a blind king was destruction to the land." Thute's intelligence was just as little able to control the events of his own life. When asked why he

no longer carried on his own trade, but had for six years eat the bread of idleness in the house of his half-brother, he gave only a few insufficient reasons.

Thute always, in relating things, departs from the point. Only at the beginning of his answer is the slightest, even though it be superficial, relation to the proposed question; very soon these slight threads are lost in a mass of statements, only connected together in the most remote way; so that it is difficult to obtain a satisfactory history of his life.

In spite of all his ramblings there is, however, a distinct circle of ideas in which Thute continually revolves, viz., the strangest bodily afflictions, caused by special and secret influences. "At most times it was like a pressure or a constriction under the breast. Sometimes it resembled a breath blown through the body, which entered his heart and limbs. His blood was thick and would not move, his lungs glued fast, and the strength taken from his arms and legs. Moreover, the head was affected, for it was as if a noisome current of air in the form of a snake crept through the neck into the head. His neck often felt fixed, and then his head became weak and giddy. Often his whole body felt as rotten as if it would come to pieces. These and many other troubles occurred chiefly in consequence of evil vapours and winds, which he had traced in Lindau and during his apprenticeship. In Hamburg, in 1856, he was infected by injurious smells from an overflow pipe. He had palpitation of the heart, giddiness, and so much trouble that he sought relief for it all at the hospital; when there he had cold water poured on his head." The short records which were at that time made of his illness show that even then Thute behaved in a strange manner, for there were no appearances of disease to be noted, and he was thought to be shamming, though no motive for such could be discovered.

In 1866 Thute lost his situation, and was unable to obtain employment in the neighbouring towns. He then worked in an india-rubber manufactory at Haarburg. At this place was repeated the feeling of sulphurous or other vapours creeping into him, and making his blood thick, and his head weak.

In Göttingen again, one day at dinner time it appeared as if a snake had suddenly turned round in his body. He lay in the greatest anguish in the street, when there encountered him, from an angular chimney, a wind, which made him feel in his hands and feet as if he was crucified. Sharp-cornered things appeared to him to be very dangerous, especially when they moved quickly, and he proposed that the corners and edges of the railway carriages should be rounded.

His proneness to swallow strange and disgusting things is intimately connected with these diseased sensations. It occurs only at times, in an impulsive manner, and is always associated with a feeling of distress and disquietude. He then drinks his urine, swallows live frogs, worms, and such like (without using his teeth). If he finds a

dead animal—a dog or a cat—he tears it open, and eats some of the lung, "because it makes him strong." In the asylum he eat coal, earth, &c.; once he succeeded in getting to the night-stool, from which he fished up and eat a piece of carbolate of lime that had been used for disinfection. The form of disease in this case may be described as dementia with hypochondriacal fancies, or partial incoherence, for it is just this circle of illusory ideas that least of all gives the impression of intellectual activity, whilst again, in all other directions, the mental functions are weakened or absent.

A whole row of similar cases might be adduced (some may be found in the Göttingen Asylum) which have come in collision with the law through these shameless insults of a sexual kind. In a few, the best of those in this category, whose peculiarities were carefully looked after during their youth, it was made clear that a congenital defect or at least an early affection was the cause. In their early years is noticed a limited capability of intellect and moroseness, at times interrupted by motiveless emotional bursts. They are avoided and made fools of by their schoolfellows. When with puberty the passions are awakened, and life forces upon them its claims to some occupation or other, then their defective intellect becomes recognised in forms of laziness, disobedience, &c., in addition to numerous pathological sensations which arise to the consciousness of the patient, such as various hypochondriacal feelings, ideas of demoniacal possession, electric, magnetic, and acoustic influences, &c. So far as we have seen, inclinations to obscenities are common, and the ends of cigars, tobacco ashes, blood, urine, and fæces are devoured, and amongst them are many defilers of corpses and committers of rape on children, who belong to this class of idiots.

In the case of Thute pure sexual impulse was scarcely the cause of his crime, for it does not appear to have been ever present. According to his own account of what had happened, he felt very weak and oppressed, and thought it would do him good if he "placed his hand on the child's genitals to see how they were made." It does not appear that Thute in the few moments that intervened between the cry of the child and the approach of the mother had connection with the former, as no traces of such appeared. It is more probable that the injury spoken of was caused by the finger-nail, in order that from the blood thus made to flow he might be cured. T. C. S.