

which we wish to protect, is better away from persons who may learn to take it rather as a dram than as a small addition to meals; this error, in them, is a radical one. A like danger may follow the use of morphia, but severe cases cannot be treated without it. The repeated attacks so exhaust the patient, that it is only by economising his forces with warmth, rest, and morphia that he can retain any for the absorption of his food. Morphia may be given fractionally in ordinary mixtures, or periodically in larger doses, but in either case the remedy should be kept under the control of the doctor; in many cases it is even well to keep the patient in ignorance of the agent. For this reason I often order Dover's powder in pills, in order that the compound may not be recognised in the prescription as opium. Of other drugs, arsenic in gastralgia takes by far the chief place; indeed, it is hard to say how gastralgia was cured before the time of its introduction by Dr. Leared. Yet, even now, its power is not sufficiently well known, for, on turning to Dr. Ross's work on the "Nervous System," which I suppose to be the best in our language, I find no record of arsenic as a remedy for gastralgia; and Dr. Spender's rules for the use of the drug are too timid. Yet, after all, with soft nutritious food, warmth, rest, and lenitive or narcotic doses of opium, many cases of gastralgia still resist treatment. Oddly enough, a repetition of small blisters to the epigastrium may then be of service; and of other drugs quinine, boldly pushed on, with belladonna, form a valuable combination; and so, again, do quinine and bromide of ammonium dissolved in hydrobromic acid. The infusion of the *Prunus Virginiana* makes an excellent vehicle for such mixtures. Not uncommonly gastralgia is a product of malaria. Of this nature I have two cases before me, and in one of them very large doses of quinine cured a most intractable gastralgia, which had resisted all other measures. Luckily, I knew my friend had travelled in the East, and had had ague there. The silver salts, again, are of undoubted use; with nitrate of silver I cured one case which had defied all my previous measures. Of manganese, I have no experience. Of iron, I speak last; it has only been of much use to me in a few cases, for I do not, in fact, observe that anæmia, apart from the general lowering of all nutrition, has been so marked a feature in my cases of gastralgia as many authors definitely assert of their own. Where any distinct anæmia exists, iron, of course, is indicated, and often works a cure. Phosphorus is not so useful in gastralgia as its kinship to arsenic would lead us to expect; but the pharmaceutical compounds of the hypophosphites now sold do, by virtue of some one or more of their constituents, seem to answer well. As the stomach gains vigour, cod-liver oil should be added to the dietary, it will help on nutrition and forward recovery. In a word, arsenic and quinine are the only specifics; and the rest of the treatment may be summed up in rest, sedation, nutrition and tonics. Some gastralgics find that alkalies give them a temporary relief from pain, even in cases of neurotic and periodic type. It is not generally so, however, and the practice is not a sound one. When we leave the vagus nerve, when we leave asthma, angina pectoris, and gastralgia, we find that the specific powers of arsenic are no longer so trustworthy. In enteralgia it may have some value, but far less than in gastralgia; in enteralgia, quinine and belladonna seem best to forward restoration, though arsenic is, even here, by no means to be despised. In all visceral neuroses a most careful search must be made for any kind of peripheral irritation, and such irritation soothed and its causes averted. Of the infinite pains, moral and dietetic, which are needed for vomiting cases, I need not speak for the management of them is sufficiently well known. The only unfamiliar drug which I can recommend for these cases is the walnut-spirit sold by Messrs. Corbyn and others; this medicine, which was indicated some time ago in the *Practitioner*, I have certainly found very useful in cases of neurotic vomiting. It must also be remembered that gastralgic vomiting is spasmodic asthma of the stomach, and that a few whiffs of chloroform, or a little subcutaneous morphia, may cut the one short as well as the other.

Mr. President and Gentlemen, I must not detain you longer. Happily free as I am from neuroses in general, yet a sinking at the heart has possessed me many a time as I wrote and then read the lectures I have ventured to present to you. How slender is the offering none knows better than I. One while I have comforted myself with the thought that the late Dr. Symonds did not think the subject of headache too trivial for your thoughts; but again I reflected how much the more must

be the talent of the speaker the less striking his subject, and how great the interval between him and me. That I have said nothing new to you I am painfully aware; that my words may not have fallen below the authority of this chair is my single hope.

## A CASE OF ACUTE ATROPHY OF LIVER.

By HENRY TOMKINS, B.Sc., M.D.,  
RESIDENT MEDICAL OFFICER, MONSALL FEVER HOSPITAL,  
WITH REMARKS ON THE PATHOLOGICAL APPEARANCES,  
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ACUTE atrophy of the liver is a disease of sufficient rarity, and the knowledge we possess concerning it of so imperfect a character, that every case met with is deserving of the fullest investigation. The theories put forward as to the etiology and pathology of the disease have been most varied, some looking upon it as a simple inflammatory process of a very acute character, others asserting that it is probably due to the presence and action of some form of micro-organism, and closely related to those diseases commonly termed zymotic; whilst at least one writer has gone so far as to state his belief that it is nothing more or less than a sporadic form of what is termed by him contagious jaundice of the tropics, otherwise yellow fever.<sup>1</sup> The morbid anatomy, too, of the disease is likewise anything but well known, whilst the clinical features, though better recognised than they were, still present sufficient variation to make a diagnosis at least doubtful.

The following case presents several features of interest bearing upon all these points:—

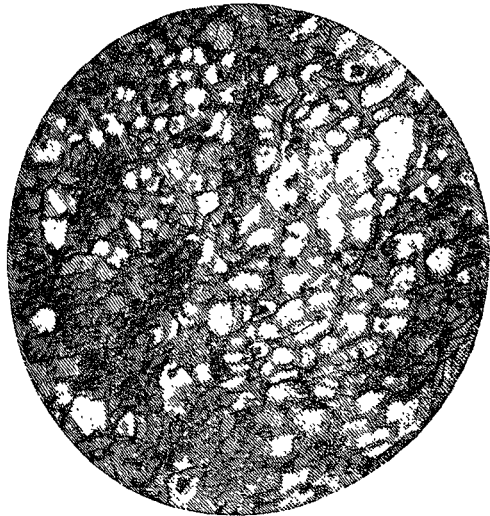
Alfred E—, aged twenty-two, a married man of spare habit, came under my care in the fever hospital of the Manchester Royal Infirmary, on the evening of January 16th, 1883, his credentials for admission to a fever hospital being only those frequently met with in patients sent thither—viz, dry tongue, more or less delirium, and some amount of pyrexia. He was at this time semi-conscious, and all the information that could be obtained from him was that he worked in an indiarubber factory, and had been ill more than a week with vomiting and pain in the head. He lay in a restless semi-delirious condition, and was with some difficulty made to understand what was said to him. It was not the active, noisy delirium one so often sees in typhus or pneumonia, nor yet the apathetic tremulous muttering delirium of typhoid, but rather of a fidgety irritable type, tossing and rolling about in the bed, and at times muttering in an incoherent manner to himself. The pulse was 120, full; respiration 32; tongue dry and brown; temperature 100·2°; lung and heart normal; no eruption on the skin, but slightly jaundiced; the only pain he appeared to have was headache. The next morning, after a very restless and sleepless night, he had become more unconscious, the jaundice was slightly deeper, but not at all excessive; the pulse had fallen to 90, and the temperature to 98°. The urine was scanty and passed in the bed; the bowels were slightly moved, the stools being costive and pale. On examining the abdomen the walls were retracted, and there was visible in the epigastrium a somewhat violent pulsation of the abdominal aorta, which, when the stethoscope was applied with moderate pressure, gave a distinct bruit, so that it was thought probable there might be some aneurismal dilatation of the aorta at this spot. The area of liver dullness appeared small, but not such as to excite suspicion of acute atrophy. The patient had vomited a small quantity of dark grumous material once or twice. During the day the insensibility deepened into profound coma, the pupils becoming dilated and the conjunctiva insensitive, the breathing stertorous, and the pulse slow, full, and bounding, his general condition resembling that of a patient suffering from cerebral hæmorrhage. He died the next morning, the temperature, which three hours before death was only 99°, running up to 104·2°. On the morning of his death the following history was obtained:—He had enjoyed good health, was not addicted to drink, and there was no history of syphilis. He, with his

<sup>1</sup> Dr. G. Harley, Diseases of the Liver.

father, had worked some years at the indiarubber works, where a number of other workmen were employed. No similar case had been known to occur. Phosphorus is not employed in the manufactory. Twelve days before admission, being in his usual health, whilst at work he complained of headache, nausea, and chilliness; the following day he ceased working, in another day or two he was confined to bed, became slightly jaundiced, and about four days before admission to hospital became rambling and delirious.

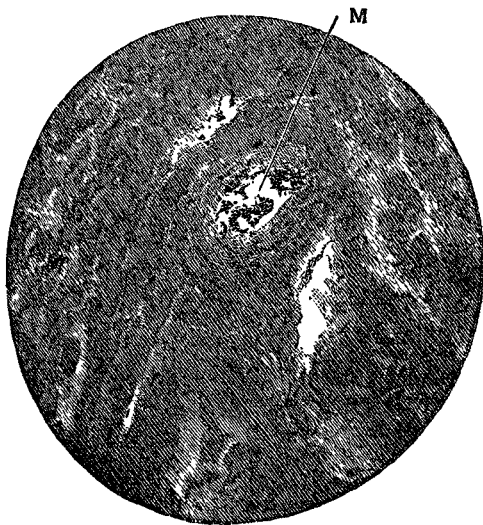
At the necropsy, made half an hour after death, the following conditions were found:—On opening the abdomen

FIG. 1.

Yellow part of liver. (From a photograph  $\times 300$  diameters.)

one was immediately struck with the absence of the liver from its usual position, none being visible beneath the edge of the ribs; it was retracted, small, and drawn up into the concavity of the diaphragm. On removal it was found to weigh only 23 oz., the surface was smooth, but slightly wrinkled. Upon section it presented to the naked eye much the appearance of a nutmeg liver, but of a redder hue, throughout the greater part of its substance; but in the right lobe at its upper part were two small patches about the size of a large filbert, of a dirty yellow colour. The gall-bladder was partially filled with bile; the bile-ducts were patent.

FIG. 2.

Showing micro-organisms at M. (From a photograph  $\times 300$  diameters.)

(The illustrations are from photo-micrographs taken by the process recently described before the Manchester Microscopical Society.)

The aorta was not dilated. The heart, lungs, kidneys, and brain were, to the naked eye, apparently normal; the spleen was dark, not very soft, and weighed 8 oz. Beneath the pericardium, and also beneath the peritoneum covering the duodenum, were several small extravasations of blood. Inside the duodenum and stomach there was a quantity of dark-coffee-coloured fluid, and the mucous membrane generally was dark and congested. The colon contained a quantity of pale scybala; there were no ulcers or other sign of inflammation along the intestinal mucous

membrane. About 3 oz. of urine, deeply tinged with bile pigment, were drawn from the bladder; this contained albumen; leucin and tyrosin were subsequently detected in it. Upon subjecting the liver to microscopical examination, it was at once apparent that the condition was not that of a nutmeg liver. In the red part the destruction of the tissue varied considerably; but in those parts where the greatest changes had taken place the destruction of the liver cells appeared to be most complete around the hepatic (?) veins. In the yellow parts the destruction was much more advanced, scarcely a trace of liver tissue being visible (see Fig. 1), but only a trabecula of vessels and fibrous tissue, containing a few cells and granular debris. Here, then, are two important facts—partial destruction in the red part, and complete destruction in the yellow patches. But the most interesting feature in the case was the discovery of a large number of micro-organisms within the liver, or, rather, within the bloodvessels, and these, as seen in Fig. 2, are of a comparatively large size. They do not appear to be in the general parenchyma, but only in the small vessels and capillaries.

The following remarks upon the pathological appearances met with here are by Dr. Dreschfeld, Professor of Pathology in Victoria University, who carefully examined the liver:—

Portions of the liver which I received from Dr. Tomkins were at once placed into absolute alcohol, kept there for a few days, and then examined with different staining reagents. As Dr. Tomkins has already remarked, the naked-eye appearance of the liver varied in different parts; in some it was of redder colour, and showing the several lobules well, the centre part of each lobule being of lighter colour than the peripheric part, whilst in other parts the liver was quite yellow in colour and more uniform in appearance. Sections of the red portions, when examined microscopically with a low power, showed the peripheric part to deviate but little from a normal liver, whilst the central part appeared finely granular. Examined with a high power it was seen that in the peripheric part there were still large masses of normal liver cells, with their nuclei distinctly visible. Other liver cells showed masses of fat granules, with nucleus, however, still visible, whilst others were entirely filled with fatty detritus. Between the liver cells but a sparing quantity of areolar tissue was seen; the central part of the lobule, examined with a high power, consisted of masses of fat granules, shreds of liver cells and masses of fine fibres, and a few small round cells, like leucocytes. The interlobular spaces were thickened, showing an increase of round and spindle-cells; the biliary vessels showed no proliferation; the portal veins showed but little increase of the periportal tissue. The arteries, however, exhibited thickened walls and some cellular infiltration within them. Sections treated with Bismarck brown, and sections stained with methylene blue and methyl-anilin violet according to Koch's method, showed the presence of numerous large micrococci; these were seen in the portal canals, filling the arteries, and in the peripheric part of the lobule between the liver cells, filling up apparently the capillaries between them. The micrococci were larger than those seen in septic poisoning, and took the aniline staining well, and also retained it; so that in sections which had been treated with strong acetic acid after having been stained with methylene blue, while all colour had disappeared from the nuclei of cells &c., the micrococci still retained well the blue colour. In the central part of the lobule very few micrococci were seen, and these appeared to have been carried there artificially during the preparation of the section. (The accompanying micro-photograph, Fig. 2, shows the interlobal space between two lobules. The micrococci are seen filling an artery; some micrococci have been swept out by the knife and are seen lying promiscuously in the neighbouring tissue.) On microscopic examination the yellow portions of the liver showed the characteristic appearance seen in yellow atrophy; the liver cells had almost completely disappeared from the lobules, and were replaced by masses of fat granules; these had fallen out in some places, leaving empty spaces bounded by fibrous tissue (see Fig. 1). Very few micrococci were seen in the yellow parts scattered about in different portions of the preparation. The microscopic appearances found are interesting chiefly in two respects:—1. The red portions of the liver in this case, instead of being more diseased than the yellow parts, as is usually the case, were less affected than the yellow portions, and they were further distinguished from the red atrophy usually found associated with the yellow atrophy by the absence of any proliferation

of biliary ducts. 2. The presence of micrococci in the periphatic part of the lobules and interlobular spaces of the portions of the liver taken from the red part. The fact that the autopsy was made within half an hour of the death of the patient, coupled with the fact that the micrococci, besides being larger than septic micrococci, were found to fill up completely bloodvessels and to distend the capillaries between the liver-cells, clearly show that they must have been present during life. It will also be noted that they were found only in those portions of the lobule where the liver-cells were either as yet quite intact or only at the commencement of the disease process. Whilst older observations (such as those of Eppinger, Waldeyer, Klebs) mention the presence of micro-organisms in the liver and also in other organs in acute yellow atrophy, the most recent observations (such as those of Coats, Klein, &c.), made with improved methods, gave negative results. In two cases of acute yellow atrophy which I had examined before, quite according to Koch's method,<sup>2</sup> no micro-organisms were seen. This difference is, perhaps, to be explained by the fact that in my former cases, and perhaps in those of other observers, the disease had already been considerably advanced, and affected the whole of the liver lobules, whilst in this case the process was seen at its commencement in some places, and only there the micrococci were found. How far these micrococci are pathogenic it is impossible for me to say. Unfortunately, I omitted to cultivate them, and as I had only portions of the liver given to me for examination, I am not in a position to state whether any of these micro-organisms occurred also in other tissues or organs besides the liver.

## THE URETHROGRAPH.

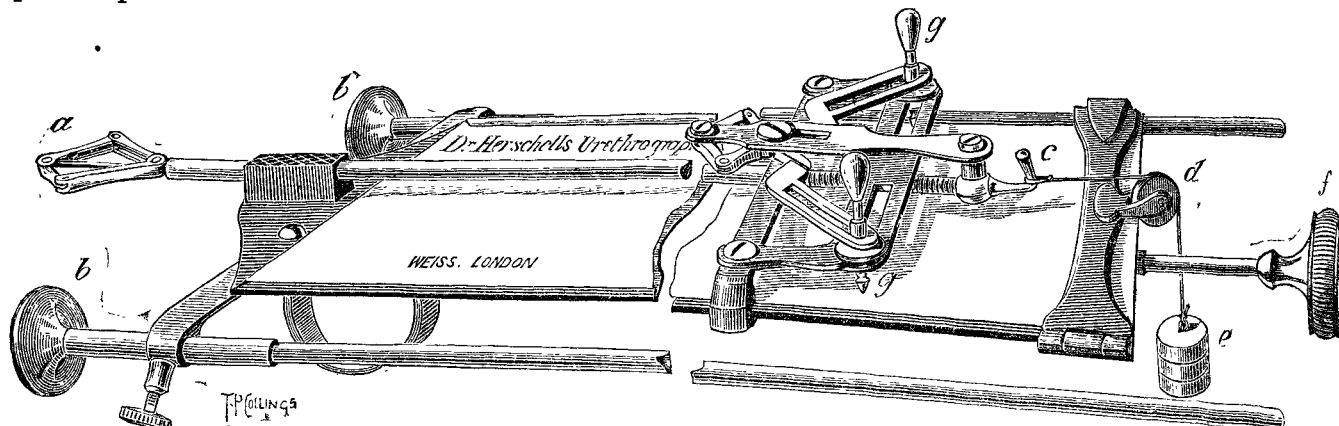
By GEORGE HERSHELL, M.D. LOND.

THE instrument, a description of which I published in THE LANCET of June 2nd, 1883, was imperfect in many ways. The principal fault was the fact that the recording pins traversed a portion of the circumference of a circle instead of moving vertically to the axis of the urethra. My second instrument, which is the subject of the present article, is a great improvement upon the previous one, and does not possess its chief defects. Nevertheless, even this one must only be regarded as a step in the experimental evolution of a new machine, perfection only being reached, as for instance in the case of the midwifery forceps or sphygmograph, by a series of tentative efforts, each in its turn to be cast aside and superseded by an improved form.

The following is a technical description of my urethrograph in its present and improved form. The apparatus mea-

and below, is a cross-bar, with the lower member of which a longitudinal screw (*f*) engages. This screw operates to work the cross-bar, together with the gear it carries, from end to end of the frame or platform, on which a strip of smoked paper for the reception of the diagram rests. Upon the upper member of the cross-bar is fixed a vertical stud, on which are pivoted two cross-levers, scissor-like. Corresponding ends of these levers are connected by links to one end of a bar mounted to reciprocate longitudinally on the stud carried by the upper member of the cross-bar, whilst the other end of the longitudinal bar is attached to a wire passing through a tubular rod carrying a head (*a*), the construction of which will be presently explained. The longer arms of the scissor-like levers are slotted, and the cross-bar is also provided on either side with guide-slots running at right angles to the platform. Through each of these guide-slots and a slotted arm of the diagonal or scissor-like levers a scriber (*g*) passes, the lower extremity of which bears lightly upon the smoked paper, whilst the upper end may be loaded with a weight sufficient for ensuring the distinct marking of the paper. The head (*a*) constitutes what may be termed the exploring implement, and consists in a series of four levers articulated together and mounted on the end of the tubular probe. As before mentioned, a wire passes from the outer extremity of the articulated head, constituting the exploring implement, to the recording apparatus, and between the opposite end of this wire and the cross-bar a light spiral spring is introduced, the function of which is to cause a tendency in the exploring instrument to remain at its extreme width—that is to say, as greatly extended laterally as the size of the passage within which it is enclosed permits. The effect of the spring may be increased by the addition of a weight (*e*), suspended by means of a cord passing over the guide roller (*d*) and attached to the hook (*c*).

The action of the apparatus is as follows:—The transversely collapsible head (*a*) is pushed forward and protruded as far as possible from the framework by means of the longitudinal screw and thumb nut (*f*). This head, being collapsed by approximating with the finger and thumb of the right hand the arms carrying the scribers (*g g*), is introduced into the urethra as far as the bulb, and allowed to expand. The instrument being held steady, and supported in the manner previously mentioned, the rod carrying the head is slowly withdrawn along the urethra by turning the thumb nut (*f*), traversing in its course the whole canal anterior to the bulb. Upon reaching a strictured portion of the passage the quadrilateral head becomes contracted in respect to its width and extended longitudinally, the amount of this elongation being communicated by means of the central wire to the longitudinal top bar represented in the figure. This bar, in a similar manner, causes the quadrilateral system constituted by the links and the shorter arms of the scissor-like levers to be correspondingly elongated, and the longer or slotted arms of the last-named levers (operating the scribers) to be



sures and records diagrammatically any variations in the size of the passage, and at the same time indicates the position of such variations. The contrivance consists in an oblong framework, mounted, by means of a loop underneath, upon the forefinger of the operator, whose thumb rests on the plate marked in the accompanying sketch with diagonal cross-lines. There are also two adjustable side-struts or buffers (*b b*), adapted to press against the body of the patient and steady the instrument whilst in use. Mounted so as to slide upon the two sides of the frame, and extending across the same both above

moved inwards, this action taking effect against the resistance of the spiral spring and adjustable weight (*e*). The width of the path traced by the two scribers varies with the circumference of the urethral passage traversed by the exploring instrument, the relative position as well as the degree of such variations being indicated upon the diagram produced.

Moorgate-street, E.C.

AT Glasgow a lad has been fined forty shillings for distributing "secret disease" pamphlets, which the stipendiary magistrates said were obscene.

<sup>2</sup> Journal of Anatomy and Physiology, 1881.