subject further might be dangerous; I return, then, to the old track.

It is quite clear that alcohol is a functional poison of the narcotic class. Its action on the brain shows the gradations of stimulation, overaction, inhibited action, and actual narcosis. These effects, unless positively fatal, are transitory. But it is also clear that this is not the whole of its injurious effect; since, if the functional disturbance be often repeated, the brain itself will come in the end to be damaged. But it may be supposed this damage is caused by the excess or repetition of the functional disturbance. Such an explanation will not, however, apply. Some organs, such as peripheral nerves, are damaged, in which no functional disturbance from the immediate action of alcohol can be traced. Hence we conclude that alcohol is also a tissue poison damaging the structure of the tissue elements. This effect is not seen after a single dose, even a fatal dose, at least so far as is known, but only after repeated action of the poison. When its action is perceptible it is quite comparable to that of the so-called irritant, especially metallic, poisons, such as lead, arsenic, antimony, etc., with phosphorus, and even mineral acids. It is now recognised that these substances, if absorbed, act on all or most tissues of the body which they reach in proportion to the degree of concentration in which they may be present, and to the susceptibility of the different parts. This is also true of alcohol. It is carried by the blood to all parts (having been detected in the brain and various organs), and acts most powerfully in the first instance on the parts which it reaches with the least amount of dilution, that is, the stomach and liver. In the second place, it acts on the nervous tissues as being more vulnerable than the rest. Again, the influence of concentration in relation to the tissue damage is seen in the fact that alcohol in a dilute form injures the tissues much less than the same amount in a concentrated form, though the narcotic effect may be the same.

Another law of tissue poisons is that they all have, within certain limits, the same action, or at least there are certain modes of action common to all. These common modes of action belonging to all tissue poisons I will endeavour to state, and then see whether alcohol acts in the same way.

The first effect of such poisons is seen on the more vulnerable or parenchymatous elements, namely, nerve, epithelium, muscle fibre. On these parts their action is essentially necrotic, producing, if in a low degree, parenchymatous degeneration; in a higher degree, actual necrosis, though if the injury be not too severe, repair is possible. This is true of arsenic, antimony, sulphuric acid, and, with some modification, of phosphorus. I would submit that this is also true of alcohol, which produces degeneration, or ultimately necrosis, of mucous membrane of stomach, liver-cells, nerve-fibres, nerve-cells, and muscular fibres.

Another effect of all tissue poisons, if sufficiently concentrated, is to injure the blood-vessels, causing exudation and cell migration—that is, inflammation as generally understood. It is obvious that this is true of all irritant poisons. If chronic, this inflammation sometimes results in hyperplasia of connective tissue. I submit that concentrated alcohol acts on the stomach, for instance, to which it is directly applied, in the same way: setting up acute inflammation. The action of alcohol, however, is never quite so intense as that of some metallic poisons, since it never produces suppuration, nor has it an actually corrosive action. Its continuous or chronic action is to produce connective tissue hyperplasia, fibroid changes, or cirrhosis.

Besides these two modes of action, alcohol has one almost peculiar to itself: that of causing accumulation or infiltration of fat in various parts of the body, especially where such accumulation naturally takes place, as in liver, omentum, subcutaneous tissue. Phosphorus is like alcohol in this respect, and so is, to some extent, arsenic. This change may be called "steatosis." It is explained, apparently with reason, as due to deficient oxidation or impeded cell-respiration, the alcohol or phosphorus being oxidised in place of the fat which should be burnt up in the cell. I would ask, are there any objections to this explanation?

I would suggest the relations of fatty infiltration to true fatty degeneration as an interesting though difficult subject of inquiry and discussion. The difference in well-marked conditions is obvious. A liver cell or connective-tissue cell loaded with fat may be healthy, while a fattily degenerated cell is one of which the protoplasm is already altered in structure. But is it not possible that accumulation of fat may destroy the cell in the end, and thus pass into degeneration? If the respiration of a cell is sufficiently impeded, will the cell die as an individual does under

the same circumstances? Since alcohol appears to cause true fatty degeneration of some parts, as well as mere adipose accumulation in others, the question is particularly interesting here. This action of alcohol can hardly be called poisonous since it may aid in nutrition.

To sum up. The action of alcohol on tissues or tissue elements is threefold: (1) as a functional poison; (2) as a tissue poison or destructive; (3) as a checker of oxidation; and in these respects it may be paralleled by other substances called poisons, and by others which are generally considered innocuous. These views of the action of alcohol are put forward with the object of inviting criticism or correction. It is very probable that they may be in some respects one-sided or faulty.

I had intended to give some account of the morbid changes produced by administering alcohol to animals, but find that time will not permit.

(To be continued.)

ON THE OCCURRENCE OF HÆMATOMA OF THE EAR IN FOOTBALL PLAYERS.

By F. A. SOUTHAM, M.B.Oxon., F.R.C.S.

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THE traumatic variety of hæmatoma auris (an effusion of blood into the auricle, occurring in healthy persons as the result of the application of direct violence to the ear) is not infrequently met with in those who take part in the game of Rugby football.

Hinton¹ states that Dr. Farquharson (formerly medical officer to Rugby School) has observed this condition in boys after football, and Burnett² also makes a brief allusion to the same fact. Erichsen,³ in alluding to Hinton's observation on its occurrence in football players, attributes it to "hard hits on the ear." The injury is not usually the result of a blow on the ear with the football, but is produced in a "tight scrimmage" by the pressure and friction exerted by the arms and bodies of the other forward players on the ears and side of the head, when the latter is bent downwards and forwards, as is so often the case with many forward players. Probably a factor which may assist in its production is the congested condition of the vessels of the head and neck, the result of the severe straining efforts which accompany the attempt of an energetic player to take the ball through a "scrimmage." So common is this affection among those who take part in Rugby football, that I am informed it has now become the custom of many forward players to wear a tightly-fitting cap with lateral flaps in order to protect the ears.

In most cases the effusion is slight, and becomes absorbed in the course of a few days without any special treatment. It is, however, not at all uncommon for the extravasated blood, probably mingled with a certain amount of inflammatory exudation, to become organised and develop into fibrous tissue. The latter result is most likely to occur if, as often happens, the individual continues to play, and pays no attention to the swelling of the ear. The consequence is that the upper portion of the auricle, the part usually affected, remains in a thickened and indurated condition, eventually assuming an irregular, shrivelled up appearance, owing to the process of contraction which, after a time, gradually takes place in the newly formed cicatricial tissue. In other cases, suppuration is excited at the seat of injury, a similar deformity being produced after the pus has been evacuated and healing has taken place. This is well shown in the figure from a case recently under my care. The patient, a strong healthy man, aged 20, informed me that, about six months previously, he played forward in a closely contested game where there were some very "tight scrimmages." The same evening he noticed that the upper part of his left ear was much swollen in front, the swelling being of a dark blue colour. He showed it to a medical man, who opened it, and let out a small quantity of fluid blood. He played again several times during the following month, and on each occasion the ear became considerably swollen. Eventually it inflamed and was again opened, some pus being evacuated on the second occasion. After this it gradually shrank, and contracted until it assumed the appearance shown in the figure. As he was anxious to have the deformity removed, I separated the skin and

¹ *Aural Surgery*, 1874, p. 70.

² *A Treatise on the Ear*, p. 256.

³ *Science and Art of Surgery*, ninth edition, vol. 3, p. 1024.

dissected out the irregular mass, which consisted of dense fibrous tissue, closely adherent to the cartilage of the auricle. The wound readily healed without any suppuration, and the appearance of the ear was much improved.

As illustrating the common occurrence of this condition in football players, the patient told me that he knew of six other individuals, members of his own or of neighbouring clubs, who suffered from a similar deformity of the ear, produced in the same way, though not so marked as in his own case. In one instance the deformity was symmetrical, both ears being involved. Mr. Rye, one of my dressers at the time the patient first came to the hospital, at once recognised the cause of the deformity, as he had previously seen several cases of a precisely similar nature occurring among football players. Dr. Cox, assistant surgeon to the Manchester Ear Hospital, informs me that he has seen the ears affected in the same way in Cumberland wrestlers, and the common occurrence of this deformity in boxers is proved by the fact that it is shown in many ancient statues of pugilists.

CHOLECYSTOTOMY.

By ROBERT TORRANCE, F.R.C.S.Ed.,

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THE success attending ovariectomy has led to the adoption of abdominal section for other pelvic and abdominal tumours likely to affect seriously the life of the patient, unless of a cancerous nature. Dr. Handfield-Jones had the merit of suggesting operative measures, particularly in cases of threatened death from impacted gall-stone, though Jean Louise Petat¹ was the first to recommend a similar proceeding in 1743. Dr. Marion Sims was the first to follow out the plan, but unsuccessfully, and the present case was one, amongst others by various surgeons, that has been successful since that time. It seems to be a very general opinion that exploration of the abdomen is justified if antiseptic precautions are only strictly followed out, but in this case it was performed successfully without their use at all. I debated in my mind whether to make the opening, as Sir Spencer Wells has suggested, by means of *potassa fusa* in order to obtain adhesion of the peritoneal lining, or by incision, but eventually adopted the latter method, from which there was not much difficulty from

hæmorrhage, and, moreover, there was very little dragging on the gall-bladder when it was attached to the abdominal wall.

The patient, S. B., aged 37, had been married thirteen years, was the mother of four living children, and had had two miscarriages. Her menstruation was normal and health good, till the early part of the year 1887, when she began to experience spasmodic pains in the right side over the liver, which extended to her right shoulder and epigastrium, and were aggravated by walking and lifting slight weights. A swelling noticed in August slowly increased, and during last winter pain became more intense, and she presented a cachectic appearance on coming to me in December, suffering from incessant headache, sickness, and obstinate constipation. These symptoms were sometimes so severe that they were accompanied by vomiting and shivering, and she suffered intermittently from severe attacks of colic, making her so ill that she was obliged to lie almost constantly on a sofa during the greater part of the day. Latterly her attacks had increased both in number and severity, so much so, indeed, that she was scarcely able to get out of bed. The urine gave only negative results. When the swelling was first discovered by herself, it was painfully tender to the touch, and remained so more or less up to the time of her coming to consult me. The tumour was found to be a distended gall-bladder, which moved freely up and down with respiration. Puncture with a hypodermic syringe showed its contents to be of a white starchy-looking fluid, and operative interference suggested itself to me.

The operation was performed on January 3rd, the tumour being exposed by a vertical incision through the abdominal parietes immediately over it, and about three inches long. After placing three pads behind the distended gall-bladder, an aspirator needle was introduced at the fundus, and $4\frac{1}{2}$ ounces of opalescent fluid removed. The anterior wall of the gall-bladder was now pulled forwards by two pairs of long forceps, and opened sufficiently between them to admit easily my index finger. Forty-three small round stones, about the size of coffee-beans, were scooped out with my forefinger and partly by the use of a curette, then washed out with a Higginson's syringe. They were closely packed together, each gall-stone having quite made a bed for itself, so to speak, on that of its neighbour, and weighing 53 grains. The gall-bladder was sponged dry, the bile ducts explored without finding anything, and the pads removed from the abdominal cavity. The edges of the thickened gall-bladder were now fixed to the abdominal wall, including the peritoneum, by a continuous suture, the edges of the wound being brought together above and below by interrupted sutures, which were removed on the eighth day; a rubber drainage-tube was left in the gall-bladder, and removed on the twentieth day, while the wound was left to the *vis medicatrix nature* almost entirely. For ten days more only a small sinus was left, from which some mucus continued to be discharged, the diet up to this time being restricted almost wholly to milk and beef-tea. Her after-progress, I might say, was uninterrupted, a temperature-chart indicating the evenness and rapidity of her recovery. She got up on the nineteenth day, and gained strength daily. The wound was entirely healed at the end of six weeks, and her health now is as good as ever it was, and certainly very much better than it had been for twelve months previously.

THERAPEUTIC MEMORANDA.

SULPHONAL.

AS notices of this drug are few, and some not very favourable, it may be worth while stating that I have found it very useful in an obstinate case of insomnia. The patient is a gentleman, over 70, who has frequently for months at a time suffered from sleeplessness. He has used every drug of repute, both new and old, but none except sulphonal have given him natural sleep, and all with after-effects so unpleasant as to necessitate their discontinuance. He has taken sulphonal in twenty-grain doses twice a week or so for many weeks; it has never failed to procure three or four hours sleep, and he observes that he is rather drowsy next day, and sleeps soundly the following night, and generally the night after as well.

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Windermere.

It has been arranged to issue a new edition of the *United States Pharmacopœia* in 1890.

¹ *Mémoires de l'Académie de Chirurgie*, tome i, p. 155.