no doubt has some relation to the food; but there is in this disease a breaking down of healthy tissue, and hence there may be more eliminated than can be accounted for by the food. That the muscles are affected in this disease, is shown by their state of weakness. The conditions observed in diabetes appear at first to throw doubt on the relation between the elimination of nitrogen and the development of heat. But there are circumstances which tend to reduce the temperature: the tissue-metamorphosis is very slow, and, after all, the extra amount of eliminated nitrogen is small. In some cases, where a diabetic patient has been attacked with fever, it has been observed that the sugar disappeared from the urine, as if there were an increase of the process of oxidation.

It has long been supposed that in diseases characterised by muscular contractions there must be an increase of urea in the urine. In tetanus, however, the urea is decreased. Senator has found that, in dogs affected with severe spasms, little urea was eliminated. This is in favour of Dr. Parkes's view, that the excretion of urea is diminished during the time of muscular action, and increases afterwards. There is no relation between the high temperature and the excretion of urea in tetanus. The heat is greatest in severe and fatal cases. May it not in this disease have some other origin than tissue-change?

In chorea, it is not well known whether and how far the process of elimination of nitrogen is modified. Probably there is but little increase, and when this does occur, it is during rest.

A recapitulation of the main points of the lectures completed the course.

SHORT TOUR THROUGH THE AMBULANCES OF BRUSSELS AND PARIS DURING THE EARLY PART OF MARCH.

By HERBERT COOPER, M.R.C.S., Wootton Bassett, Wilts.

IN Brussels, through the kindness of Dr. Smith, I received a card of admission to the ambulances. I was exceedingly anxious to ascertain to what extent a limb might be injured without having recourse to the expediency of amputation. My wish was in every way gratified. Amputations were seldom performed without excessive injuries to joints.

In the Ambulance de la Plaine des Manœuvres, built after the American system, and situate about two miles out of Brussels, I saw many cases of compound comminuted fractures of thighs, legs, and arms, the result of injuries from rifle-bullets and pieces of shell, and for the most part of a healthy appearance. In one case (a compound comminuted fracture of the leg), fifteen separate pieces of bone had come away; in another, a fracture of the thigh, five large pieces. The dressing principally consisted in the application of lemon-juice; which, though at first very painful, seemed to exercise a beneficial influence on the tissues. A very generous diet and a liberal allowance of stimulants were given to all. In several cases of wounds penetrating the shoulder-joint, ankylosis had occurred. One poor fellow had received a shot in the right buttock; the ball had passed from right to left through both buttocks, fracturing in its course the right tuber ischii, and passing through the rectum. To my astonishment, no pain or great inconvenience was felt in the act of defecation; probably from a fold of mucous membrane going before and closing the wound; and he could creep very slowly along the ward on crutches. He slept well, but will probably never again sit down. All the sufferers seemed happy and contented; and several showed me with great glee the flattened instruments of their destruction. The death-rate varied considerably. I was informed that in the ambulance inside the town, situated in the Rue du Progrès, they lost forty out of three hundred and fifty wounded. In the American ambulance outside the town, ten only died out of three hundred and fifty wounded.

In Paris, through the kindness of Dr. Mercier and Dr. Wood, I visited many hospitals and ambulances; but I could not get the true ratio of deaths from any of them. The percentage at the Grand Hotel had been enormous. All the wounded that were able to be moved had gone to the South of France.

The American system of ambulance, however, proved by far the best in every way at both places; and the comparative mortality was very small. On the whole, I could not help thinking that there had been a great improvement in the treatment of surgical cases within the last ten years; as, on a former residence in Paris and acquaintance with the hospitals, I had entertained but a very indifferent opinion of French surgery compared with our own.

REMARKS ON SKIN-GRAFTING.

By GEORGE H. B. MACLEOD, M.D., F.R.S.E., F.R.C.S.E.,

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IN all large hospitals, cases frequently occur in which M. Reverdin's proposal of transplanting skin can be put to the test; and the writer has within the last few months frequently had recourse to it, in order either to abridge the period of repair, to obtain a covering for large open sores, or to improve so far as possible the condition of the cicatrised surface. All surgeons who have to combat the usual obstacles to effectual and firm healing in extensive granulating surfaces can fully appreciate the advantages promised by Reverdin's process; and thus it has come about that skin-grafting has been largely practised in our public institutions. It in no way detracts from the merits of this plan, that the results obtained have not quite come up to the sanguine expectations formed of it. Extravagant anticipations are seldom realised; but that within certain limits skin-transplantation is capable of supplying most useful aid to the surgeon, cannot be denied by those who have fairly and perseveringly tested its worth.

It cannot be denied that, whatever practical value the surgeon is inclined to ascribe to skin-grafting, and whatever place it may take in our curative methods, it is in itself a most curious and interesting experiment. It wholly differs from the Taliacotian or any of the usual plastic operations in which a connection to the living body is retained by the graft. It resembles in its nature those old stories (but no longer "fables") of Fioravanti, Dionis, and Garengot, regarding the re-adhesion of separated parts; or the experiments of Hunter (which he, however, speaks of as "old and well known") of transplanting spurs, testes, and teeth from one animal to another—"the success of the operation being," as he tells us, "founded on a disposition in all living substances to unite when brought into contact with one another, although they are of a different structure, and even although the circulation is only carried on in one of them." Palmer tells us that Boronio, in his work, "*Degli innesti animali*," published in 1804, describes the successful transplantation of skin from one part of an animal to another; and it is well known how M. Ollier has, in recent times, transferred portions of the periosteum from place to place, producing masses of bone in unwanted parts. Reverdin's method resembles these in some measure, and is, in short, similar in principle to that of grafting in horticulture. In the following remarks the author wishes to describe shortly the results which he has obtained, without going into unnecessary details regarding special cases. With but few exceptions, all the patients operated on were treated in the wards of the Glasgow Infirmary, and the effects were watched by the surgical clinical class.

When the skin is destroyed throughout its whole thickness, and no "stools" of old tissue remain, it is of course to the edges alone that we can look for an epidermal covering. When thus the surface denuded is large, much time is required; the patient is disheartened, even if his health do not permanently suffer deterioration; and the resulting cicatrix must be tense, weak, and liable to destruction from slight causes. Deformity, too, by displacement and contraction, very commonly results from the same cause. To establish islets or centres of cicatrisation in various parts of the wide surface, and in this way to multiply the points of growth, and so to expedite the covering up of the wound, and also, it may be, to diminish tension and contraction, are the objects and aims of skin-grafting.

1. As regards the surface on which the graft is placed, it has been abundantly shown in the writer's cases, that the nearer it is brought to that of a "healing sore" the better; in fact, this is, perhaps, the chief element of success. The granulations should, in a typical case, be numerous, small, acuminate, pliant, and firm; well supplied (not excessively so) with red blood, so that the surface presents an even, regular, fresh blood colour. The discharge should be moderate and healthy; the sensitiveness not great, and yet apparent; the edges healthy, pliant, and shelving down; and the surrounding parts natural. No doubt in many cases, when such a condition of things is present, the battle is won; but we constantly attain to all this (or something approaching it), and yet, either from the great size of the breach, or the long period during which it has remained open, we should fail or be long disappointed in obtaining a satisfactory cure. In such cases, the utmost help is received from transplantation. If the granulations depart much from the healthy standard, success is doubtful or impossible.

2. As to the graft itself, it has done best, in the author's cases, when it consisted of no very minute portion of integument, but a piece large enough to be easily arranged and fixed on the granulations. Half the size of a threepenny-piece is the smallest size which has appeared con-