

is owing both to the albuminous parts of the gall, as well as to the chymus.

For explaining the manner in which the chymus is changed into chyle, it may be adopted, that it proceeds from an absorption of oxygen, and the process of digestion is accordingly performed in the following succession. The albuminous parts of the food coagulate in the stomach by an oxygenation, and are again dissolved by the acid of the succus gastricus, but partly changed into a milky emulsion. The whole mass is now deprived of its oxygen by the addition of the gall, whereby the lymphatic parts of the gall and of the food coagulate in small particles, which are again changed into a mucilaginous mass, by a greater desoxydation, which possesses the property of coagulating on contact with the atmosphere, and after being absorbed by the lymphatic vessels, obtains the name of chyle.

According to the experiments of Dr. REUSS and EMMERT, the chyle has more analogy with blood than with milk, on which account it rather deserves the appellation of white blood than of milky juice. It neither contains oily particles nor saccharum lactis, the characteristic constituents of milk. We may also conjecture, that the phosphat of the oxyd of iron, which, according to the interesting discovery of FOURCROY and VAUQUELIN, is the colouring matter of the blood in the state of superoxydation, does pre-exist in the chyle in form of a white phosphat. (CH. L. WERNER, *Experimenta circa modum quo Chymus in Chylum mutatur, in Animalibus instituta* præside J. H. F. AUTENRITH, Prof. Tubingensi.)

Observations on Simple Fractures where the Union fails.

By A. CARLISLE, Esq. Surgeon to the Westminster Hospital, &c. &c.

To Dr. BATTY.

DEAR SIR,

ONE of the unpleasant accidents which occasionally happen in the treatment of simple Fractures of the Cylindrical Bones, is the failure of union. It may possibly have occurred to some of your readers to note particular circumstances either in the general constitution, the mode of treatment in such cases, or peculiarities in the manner of the fracture. As I have not met with any satisfactory reasons for the defect of ossific union in those occasional instances, I beg leave to state the following

histories, which may perhaps induce gentlemen of greater experience, and better knowledge, to clear up this obscurity. The following three cases were the subjects of memorandums at the time they presented themselves, and which record is as follows.

A sailor, about forty-five years of age, on board one of His Majesty's ships of the line on the Jamaica station, had his thigh fractured by a fall, and soon afterwards returned home with a fleet. After fifteen months the broken thigh had not acquired any firmness, but it was easily moved, as if a joint was formed at the fracture. The ends of the broken bone had passed each other two inches. The man was athletic, of dark complexion, chewed much tobacco, and drank spirituous liquors whenever he could obtain them. By his own account, the treatment of his limb, both as to bandages and rest, had been according to the common routine. This man was induced to undergo a painful operation; both ends of the fractured femur were sawed off to the extent of an inch and a half from each, and although the limb was carefully attended to, yet the union did not obtain, and he remained to the time of his death with a flexible joint in the middle of his thigh.

A young athletic man, between twenty and thirty years of age, by trade a house carpenter, had a simple fracture of the os brachii about its middle; the bandages and splints in common use were applied, and it was concluded as a matter of course that his limb would become firm in the ordinary time. At the end of six months I observed him still using the sling, and carrying his fore-arm and hand like a dead limb. On removing the bandages the fracture had not united, and motions of the limb did not occasion pain in the part. This man was a patient in the Westminster Hospital, and had been enjoined low diet and extensive evacuations, which over anxiety on his part had carried to great extent. His limb had always hung low in the sling, the fore-arm and hand were constantly œdematous, and the upper arm had stretched full two inches in length, so that the ends of the fracture were separated to this distance. I saw him twelve months afterwards with a disunited brachium, having tried a variety of methods to excite union, but all unsuccessfully.

A soldier, between thirty and forty years old, had his tibia broken and fibula dislocated; he had been treated in a military hospital, and the lowering plan carried to its full extent. After ten months the broken bone was loose, although a piece of splinter appeared to be intervening; it is very probable that this man's limb became firmer, but I have never heard of his fate.

Although cases of defective ossification after simple fractures

are uncommon, yet when they do happen it is very distressing to both the patient and practitioner. Nor is there any decided inference to be drawn from these cases, as to the certain cause of such misfortunes.

The sailor's thigh did not fail, because the broken ends were pushed beyond each other; for this commonly happens to the same extent, and yet the fracture unites; and the result of his operation shewed something like a constitutional deficiency in the ossific process.

The carpenter's arm must have been in a favourable position for union during the earlier period, for it was kept remarkably straight.

The soldier had experienced no other treatment or symptom beyond what may be considered as common routine.

In all these men the vascular system appeared sluggish, their pulses were slow, and the characteristics of inflammatory disposition were wanting. Perhaps, in such constitutions where the ossific union has once failed, or where the sluggish, inactive disposition of the vascular system is well marked, it may be prudent to watch the natural progress of inflammatory symptoms; to moderate them when actually present, *rather than to anticipate their appearance*; and after the thirtieth day, to commence a more generous regimen.

It has not occurred to me to make observations on a number of similar cases which I have seen, and which, perhaps, other practitioners may have noticed, with a view to an explanation of this phenomenon.

I am,

DEAR SIR,

Yours, &c.

Soho Square, Aug. 26, 1801.

A. CARLISLE.

The importance of Eudiometrical Observations and Experiments, as leading to an improvement of the means of preventing disease, has long been acknowledged: In continuation, therefore, of the subject commenced at page 10, of the present volume, we extract from the American Philosophical Transactions, No. xxxii. the following

Experiments and Observations on Land and Sea Air. By
ADAM SEYBERT, M. D.

AN endeavour to add any facts or observations to a branch of knowledge, which has been treated of by many of the most enlightened philosophers of the present century, may be deemed