

understand that the will must be signed in her presence. Then Dorothy signs, and Sylvia, apologising for the liberty she is taking, appends her quaint little signature. She is very proud of it, when she has achieved this feat, but is disturbed from contemplating her handiwork by a loud knock at the front door.

"Run down and see who it is, please," says Dorothy.

Sylvia, delighted to escape from Miss Melmerby's hawk-like eye, hastens down to the door. Here another shock awaits her. It is a telegraph boy. A bold, bad telegraph boy!

"What do you want?" gasps the ordinarily polite little maid.

"I don't want nothing," returns the telegraph boy. He is accustomed to create an impression; it is a kind of tribute to his uniform.

"Then why don't you come to the back-door?" demands the dove-like Sylvia. "You shouldn't frighten everyone like this."

The telegraph boy is inclined to be rude, but Sylvia is so very pretty that he restrains his inclination, for which he is rewarded by an invitation to have some bread and cheese in her spotless kitchen. Sylvia has been well taught the duty of hospitality—even to telegraph boys.

Sylvia brings up the telegram to Miss Melmerby. "If you please, ma'am, it is for you," she says, handing the salver to Miss Melmerby.

"Open it for me, Dorothy, and read it out," says Miss Melmerby, who is feeling rather tired after the excitement of making her will.

Dorothy does so.

"What is it all about?" asks Miss Melmerby. She has made her will, and wants to go to sleep.

Dorothy reads it out.

"Stock Exchange, London,"
To Miss Melmerby, Care Jonathan Geddes, Geddesden.
Sold out Paramattas at 45. Sending cheque by post.
Flutterbye and Kight."

Miss Melmerby sits bolt upright in her excitement. Her eyes almost start from her head. "What is that?" she gasps. "Read it again! Read it again!"

Dorothy complies, wondering at her aunt's sudden excitement. "What does it all mean?" she asks.

Miss Melmerby's secretive nature asserts itself again. "Oh, nothing," she mutters, almost collapsing. "It is only that stockbroker wiring about some shares. He ought to know better than to frighten me in such a way. I think if you leave me now, Dorothy, I can get a little sleep."

Dorothy goes out wondering at her aunt's excitement. That worthy old lady has been guilty of an untruth in the excitement of the moment. The telegram means that the thousand shares which she held in the "Paramatta Mine Development Company" have gone up like a rocket, owing to some mysterious manipulation or craze of the British public, and that her wily stockbrokers have sold out before they commence to go down again. It also means that she has made forty-five thousand pounds out of the once worthless stock given to her by an old Company promoter whom she had once helped, and which stock she had refused to part with because she could not get anything for it.

Miss Melmerby once more sits up in bed. "And now that I have got my money back," she soliloquises, "I'll invest it in real estate or something safe, and have nothing to do with speculation in any shape or form. That will can stand for the present. If things are as I suspect, it will not require very much modification some day. What was that absurd book Mr. Holcroft read to me the other day about Brere Rabbit and how he 'lay low?' I will 'lie low.'"

When Dorothy returns an hour later she finds Miss Melmerby peacefully sleeping. The telegram is still clasped in her skinny hand. Her breathing is easy and regular. She seems to be having pleasant dreams. In fact, there is a decidedly pleased expression on her withered countenance. Of a verity, Aunt Melmerby is cashing that cheque, and feels life is not all dust and ashes. She wakes to find Dorothy bending over her.

"I think I could take a little chicken-broth or something of that kind," she says, and Dorothy knows that Miss Melmerby has no intention of dying just yet. "Let in the light again, child," says Miss Melmerby. "If Jinks comes again tell him that it is quite unnecessary, as I only want rest, and not physic. He seems to think I'm an animated water-bottle."

END OF CHAPTER THE NINTH.

IT IS VERY HEALING.

BY A FAMILY DOCTOR.



HEALING! Aim—yea, longing—of suffering humanity since the beginning of time! One of the first necessities born of the knowledge of good and evil! Unwearying and unceasing has been the search for a heal-all. Endless are the substances, from cobwebs to carbolic acid, in which hope and yearning have found it—only to lay each aside in favour

of a new talisman, in its turn to be tried and found wanting. Still the quack and the nostrum vendor continue to flourish, a rank growth in the inexhaustible soil of human credulity and weakness, watered by the tears of countless generations, manured by promises the most false and extravagant, by lies the most pitiless and shameless. What is healing? Yea, reader, what is the philosopher's stone? Where is the royal road to learning, or to wealth? Nothing is healing. No

substance yet known, nor to be known in the fulness of time or of knowledge, possesses any such property. It does not exist. It is a false fiend born of our woes, nourished by our fears, kept alive by vain delusion. Happily for us, we have a weapon whereby we can cast out this demon from us, with all his hired brood of lies and heal-alls. This weapon is none other than the patient and faithful study of the natural process of repair.

But, says the reader, healing has actually been effected by proper applications, such as cold water, poultices, zinc ointment, sticking-plaister. Has it been effected by them? Only when they have fulfilled certain conditions. The reflective and experienced reader will recall many instances in which the progress of some wounds, treated in exactly the same way, has been disastrous. What, then, was the healing fairy doing on these occasions? Perhaps she was asleep or indisposed—not at home—maybe writing unsolicited testimonials. Still, business must be attended to; meanwhile it has come to be noised abroad that many wounds have healed themselves, by mere natural processes. Worst of all, a new and opposition firm has arisen which says: "You cannot add to your stature, nor can you make your flesh heal. Nature does that. You can only study the obstacles in her way and remove them." Their proposals are worth considering. They cost nothing; no nasty shilling boxes—they cure you for fun. The name of this firm is Observation, Experiment, and Reason, with Sir Joseph Lister as managing director.

Wounds will be considered, for the purposes of this paper, as being of two kinds—the raw surface and the clean cut: these illustrate the two great methods by which wounds heal. The raw surface (as on the foot when the boot galls) heals by filling up from the bottom, and then skinning over from the edge. It may, at first, bleed: this stops as soon as the blood clots in the vessels. There has been an injury; therefore there must be an inflammation. [See paper, "It Turned to Inflammation."] This will, as usual, be proportional to the severity and duration of the original injury, and to any maltreatment subsequent to the original injury. If the original injury has been from a cause of short duration, and the subsequent treatment has been proper, after the bleeding has stopped, the first thing we notice is an evidence of inflammation—the redness about the wound from dilatation of the injured vessels; while from the surface of the wound oozes a thin liquor derived from these injured vessels, glazing the surface by its strong tendency to jelly and set. The next day, perhaps, this discharge will be replaced by a thin pinkish fluid, more copious, because it has been collecting under the wound, steadily flowing from the injured vessels, and can no longer be retained. This discharge is soon replaced by a yellowish one, containing matter. Meanwhile the floor of the raw surface has become studded with little pink cones. Wherever these occur there must be matter, even in the most healthy wound; they are inevitable in a raw surface, but should never occur in the clean cut. How are these pink cones formed? Loops of

blood-vessels grow out of the original blood-vessels. Around each loop white blood-cells collect, so that the whole mass (loops and cells) form a pyramid. These pyramids, being attached by the base to the original blood-vessel, and free at the apex, float out in the direction of the stream almost like water-weed, except that their shape, as well as their direction, is determined by the direction of the current, which is towards the raw surface, the direction of least resistance. Thus is formed a series of pyramids, side by side, the tops of which are the red cones we see. As these pyramids grow, they fill up the wound from the bottom (those of their cells which are nearest the surface floating away as the matter discharges), till the floor of the raw surface is level with the skin. Lastly, the natural skin at the edge of the wound spreads over the raw surface, a scar is formed, the healing is complete. This method of healing takes place in all wounds where two raw surfaces cannot be kept in contact, where there is a hole instead of a slit in the flesh. It is slow, and if the wound is large, as in a big burn, the constant discharge of matter terribly exhausts the patient. In treating any such wound, we can only put the application on the surface. The real active changes are beneath the surface, and cannot be reached directly, as there is a strong current from the active living repairing tissue towards the application, constantly tending to wash it away.

So much for your healer. His chief business, then, is with flesh doomed to death as matter. If he is to touch the birthplace and laboratory of repair, he can only get at it directly by destroying the very growth—the formed healing material—which he ignorantly professes to have created.

The clean cut heals by its two sides being joined together; this union takes place over the whole face of the side at the same time, so that the depth of the cut does not delay it, unlike the last method, in which the depth of the hole makes the difference. When the cut is fresh, it gapes from the elasticity of the skin. It bleeds till exposure to the air clots the blood in cut vessels, and plugs them. Inflammation shows itself by redness and swelling about the wound. The bleeding having stopped, a thin clot of blood fills the space between the two sides of the cut, if these are close enough together. If all goes well the inflammation is slight and transient, and soon gives place to the healing process. New blood-vessels, formed from the old ones, push their way into the clot, which soon becomes filled with white blood-cells, emigrants from the damaged vessels; by means of these is soon formed the firm, white, fibrous scar, and healing is complete, without the formation of matter. If, on the other hand, the sides of the wound are subject to tension, gaping unduly, and the wound is irritated by germs or otherwise, the clot breaks down, the emigrant white blood-cells come away as matter, and the process of healing is changed to the tedious mode of the raw surface.

Now, it must at once strike the reader that in the perfect method of healing of cuts, especially if deep, most of the work is done, as it were, underground.

How does the healer reach it? Plainly he cannot. His work, for good, has terminated when he has sold you his pitiful shilling box; but, unhappily, not so his work for evil, if he causes you to interfere with the natural process.

The healing of wounds, then, resolves itself into allowing the natural process to start with the least possible delay, by limiting the inflammation (the inevitable result of injury) to that amount which is necessarily involved in the original injury; by cutting short the time during which that injury acts (in injuries which are prolonged in their action, such as a mustard plaster which has been left on too long); by preventing fresh sources of irritation, such as irritating ointments, dirt, germs, retained discharges.

The treatment of wounds, then, chiefly consists in avoiding maltreatment of them. First, stop the bleeding. Exposure to the air will clot the blood, and plug most of the cut vessels. If any remain unplugged and the bleeding continues, press firmly but gently on the wound or vessels—if a large one, for a few minutes—examining cautiously from time to time to see if it has stopped. The reason this method sometimes fails is that, instead of firm, patient pressure, a series of fussy, nervous, hurried digs, pokes, and dabs displace the clots as soon as formed.

Secondly, remove any dirt, gravel, glass, thorns, &c.

Thirdly, destroy any germs, fungi, bacteria, by washing the wound, and the parts around for some distance, with some lotion which will kill them, and which any chemist will supply. The person who dresses a wound should always, before touching it, wash his own hands thoroughly in one of these lotions; if, in the course of dressing the injury, he has occasion to touch anything—his own clothes, the bed, any part of the patient's body, or anything else whatever which has not been so purified—he should purify his hands again. It is obviously useless for the dresser to purify the wound if, after having done so, he touches some unpurified body, which must be swarming with germs, collects them on his fingers, and sows a crop of them in the wound, for one germ may soon make a million. For the same reason, when the wound is being purified, purify it (the wound) first, then the parts adjacent, washing round and round in a series of circles, each larger than the last, and never go back from the edge of the purified area to the wound. This holds good of all dressings after the first; and many a wound, which has started pure (aseptic) and healthy, has been converted into a putrid sore by the neglect of this apparently trivial precau-

tion. The surgeon, of course, purifies all his instruments before using them.

Fourthly, avoid tension and secure drainage. All discharge from a wound, in excess of that quantity which can be carried away easily by the circulation, should come away in the dressings. If it is allowed to collect in the wound, it forms a stagnant pool most favourable to the growth of germs. Any chance germs finding such a nest would grow and multiply, instead of being carried away by the circulation or being killed by the healthy flesh, and antiseptic applications. Further, any such collections under, or deep in the wound, if unable to get out, give rise to tension, great pain, and swelling, setting up further irritation, leading to the formation of matter, burrowing in the flesh and destroying it. Therefore, if a wound after a few days shows signs of becoming inflamed, the cause is very likely inefficient drainage, and a surgeon should be consulted. Inefficient drainage is the danger so often hidden under sticking-plaister. The common remedy is a poultice, which, though soothing, introduces more germs, and does not attack the cause directly. All the advantages of a poultice can be obtained in a hot antiseptic fomentation.

Fifthly, see that the sides of the cut are in contact with one another—that there is no gaping. Sixthly, put on a dressing. This, of course, should be free from germs. The most generally convenient is old but clean linen rag, which has been boiled for a quarter of an hour and dipped in boracic lotion. If the wound is a raw surface, dress it with boracic ointment spread on a boiled rag, as a protective. The chief objection to antiseptics for domestic use lies in the fact that, the germs being extremely tenacious of life, the substances which will kill them will also kill human beings if left carelessly about to be drunk by children. Now, boracic acid lotion is not nearly so poisonous, but for that very reason will not effectually purify a wound, but will keep a wound pure which is already pure. Still it would be an immense advance on our present methods, and would save a great many human lives, if those who are timid of the stronger antiseptics would carry out the above principles from beginning to end, even with boracic lotion alone. This is made by dissolving one part of boracic acid with thirty-one of water. Care should be taken to keep all such solutions out of the way of children or careless people.

Seventhly, keep the wound at rest.

In conclusion, it may not be out of place to express the hope that this article, together with "It Turned to Inflammation," may have given the reader a clear idea of injuries and their consequences.

