

soon dispelled, for I felt him trembling, and heard him give vent to a great sob. Then I did a not very boyish thing, which it has always pleased me to remember. Putting my hands on his head, I turned it to one side, leaned down till my cheek touched his, and said in his ear, "Chick, I never dreamed of this; but you hit what you aimed at."

He raised his head quickly, his eyes were wild with fear; and I added, "Why, you carried that cap away so clean that he never noticed it was gone."

I have never ceased to be thankful for those few words, and for the change which I saw sweep through his eyes and over his face.

"Do you really believe," he said slowly, "that I hit what I aimed at?"

"Of course I do; but what I want to know is why she shouldn't marry Jan if she wants to, and how your knocking off his cap could be expected to stop it?"

"Jack!" he gasped out, not very grammatically, "he's a witch! He's got round that girl some way by his gipsy tricks."

"Oh!" I said, "I see now; you thought that his spell might be in that red, foreign-looking night-cap of his, and if you carried that away the spell would be broken."

Chick looked at me with suspicion. He must have seen through the readiness with which I accepted such an explanation, but he simply said—

"Yes, of course. I wanted to break—the spell!"

"But," I repeated, as we walked home arm in arm across the grassy "Dene" which separated the town from the shore, "after all, why shouldn't she marry Jan if she wants to?"

And then at last I was able to draw from him bit

by bit the story of what he, poor boy, regarded as his wrongs.

He told me that, the evening before, he had gone out blackberrying in the lane that climbs straight up the hill above the Ness. A shower came on, and he took shelter under the trees by the old sun-dial which some quaint person has set there, at the point from which you look down on the river's mouth and the town beyond.

One other person fled there from the rain: the young lady who spoiled our evening in so unlooked-for a manner.

Pleased, as I take it, with her bonny face, Chick forgot his shyness, and began to chat with her. The rain came down faster, and began to drip through the trees. She drew the lad under her cloak, and (though Chick was generally the last person to allow such a liberty) put her arm round him.

So far as I could gather from his account, the conversation worked round to Jan the ferryman, and Chick had answered all her questions about him as politely and pleasantly as possible. So when the sun burst out again over the moor, and down the long river to the harbour and its tiny craft, lighting up the breakers on the bar and spreading its glory out over the sea beyond, she had stooped and kissed him, and light, new created, had shone in upon the deep and formless void of the boy's heart.

It was all simple enough, and I can understand it now; but that night I could only understand Chick's last remark as we said good-night at the corner of the street in which he lived.

"By Saint Hal and the six, I can't make out how I missed that shot! but, for all that, I'm thankful I did."

JOHN TREGARTH.

## WHY WE FEEL TIRED.

BY A FAMILY DOCTOR.

**ONE** of the advantages which a doctor enjoys, as compared with other people, is that of being able to see minute differences and appreciate fine distinctions. This is a result of his scientific training; and whereas most people talk as though there was only one kind of "tiredness," which is infallibly cured by simply going to bed, he distinguishes many kinds.

When a man on a holiday has done a steady tramp of twenty miles, he says he is tired as he sits down to a substantial supper, and no doctor who heard him say so would consider it a case demanding his attention. But if a man finds, in the middle of the morning, that he is tired and languid and unable to give close attention to the work he has hardly begun, that feeling becomes a symptom of some disorder which may require prompt treatment.

Again, we hear of the eyes being tired after working

in a bad light, the hand is tired after a long spell of writing, the brain is tired after long concentration on some difficult subject. We have only one word to express all these different feelings, and it is to show upon what the differences depend, that I write this paper.

Let us first consider the ordinary healthy tired feeling due to a day's hard work. The body is a machine for doing work, and it obtains the energy to do this work by burning up (or oxidising) the food, just as a steam-engine gets the energy which pulls along a train from the burning (or oxidation) of coal. We cannot push the analogy very far. The food is not directly burned up, as if it were so much fuel. It is subjected to many and elaborate changes. It is first dissolved by the action of the various digestive juices, and then passed into the blood. By the blood it is carried to the liver, where much of it is profoundly modified, and various new substances are carried to the different parts of the



body, including the muscles which we are now especially considering, as it is by means of them that we "work." In the muscles the food is gradually built up into a complex substance (probably closely resembling living matter), and the muscle is then ready to do "work." Oxygen is brought to it from the lungs, and the complex body is burnt up. Various products result, just as when we burn coal. In the latter case we get gas, smoke, tar, and various other substances. When the muscle does "work," we get first a large quantity of gas (carbonic acid gas), also an acid (which is very probably closely allied to the acid in sour milk), and a number of other bodies. These substances (waste products, as they are called) are carried away by the blood. When the muscles work for a considerable time, two things happen. First, the material by which work is done is used up faster than it can be again manufactured; and secondly, there is an accumulation of the waste products in the blood. And for these two reasons we begin to feel tired, and if rest be not taken we get more and more tired, until finally we become exhausted.

The feeling of tiredness is Nature's method of indicating that we have done enough work, and need rest. If we persist in working, it is by an exercise of conscious effort—by will power—and excessive fatigue is induced. The impure blood affects the nervous system, and after a while it will affect it injuriously, causing headache and sleeplessness, and other symptoms of extreme fatigue. Therefore, we see overwork really acts as a poison. If when the muscles become tired rest is taken, the waste products are gradually got rid of by the lungs, kidneys, and skin. All living things require rest—plants as well as animals; and during rest two processes go on. There is a formation of new plastic material, as it may be called, by means of which work is to be done, and there is an excretion of the worked-out matter, which hinders the full activity of the body. I may mention another danger of over-fatigue. The minute organisms which cause many diseases, as scarlet fever and other fevers, always seize most readily on a body exhausted by overwork. Various explanations of this fact can be given, but it is enough to say here that exhaustion greatly lessens the resisting power of the body to disease.

We are now in a position to understand more clearly the various tired feelings which do not result from active useful exercise of the various organs, but from disorder or disease. They depend either upon an excess of waste products in the blood, or upon an insufficient supply of store material which supplies the energy for doing work. If anyone feels tired early in the day, the feeling may be due to a variety of causes. He may not have slept well. We never rest so completely as when we are asleep. It is obvious that the muscles of the limbs are then almost completely at rest. The heart, lungs, brain, and other organs have their activity greatly lessened, so that there is opportunity for them to build up the material by which a new day's work is done; and at the same time (as there is only a small production of waste products) time is given for the removal of the products of activity. But if sleep is absent, broken, or disturbed, these

healthy processes are only incompletely performed, so the new day is begun with a balance against us, and speedy fatigue results. Again, the healthy nutritive processes of the body may be disturbed, and the waste products which fatigue the muscles and brain may be formed, not as a result of bodily activity but of a disordered state of some organ. Indigestion is the most frequent cause of lassitude and chronic weariness. The food may be insufficient or improper. The body cannot possibly do its work without an adequate supply of nutritious suitable food; and if the food is deficient, so also will the work done be deficient, and the body will soon become exhausted. Everyone knows how important it is to begin the day with a good breakfast. No work is so exhausting as that done before breakfast. Serious work of any kind should never be attempted before the first meal is taken.

Another kind of fatigue is local fatigue—fatigue of particular organs or muscles. The most important muscular structure in the body is the heart. It is always at work, day and night, and it requires care if its work is to be well done. It snatches a brief rest in the interval which ensues between each two beats. This interval is lessened by great exertion, by worry, by various emotions; and if these are prolonged, they tend to exhaust it and cause disorder. The prolonged exertion which is demanded by what are called feats of endurance, fatigue it unduly: and athletes are very frequently affected after a time by a weak heart. We may instance the disordered heart which results from prolonged exertion on a bicycle. Record-breaking and long rides against time are stupid, wasteful exertions. They are frequently punished by subsequent ill-health, and therefore tend to bring into disrepute a form of exercise which, wisely practised, is deservedly popular and healthful. This leads me to mention another mistake that many people make. When the summer holiday is taken, the benefit which ought to be derived from it is often lost. Men who have been, for the previous eleven months, leading sedentary lives, suddenly embark on all kinds of physical exertion. Mountain climbing, long walks, and other forms of exercise are indulged in by those quite unfit for them, and the holiday is spent without any benefit accruing. Positive harm may result. For those who live in towns and take very little exercise in their daily life, the change and rest of a quiet seaside place, with as much out-door life as can be managed, is sure to do good. Bathing, boating, and walking, in moderation, are forms of exercise which almost everybody can enjoy with benefit, and the body is thereby rested in the fullest sense of the word. Unaccustomed exercise soon leads to fatigue, and if this be persisted in, the holiday may result in the ill-health due to over-fatigue—the very evil it was hoped to avert.

In modern times there is a tendency to overwork another organ—the brain. Many people fail to see the great distinction between hard work and overwork, and fancy that there is danger in any work which demands great mental activity. Mothers especially are apt to fancy that close attention to lessons at school involves imminent danger of brain fever,



insanity, or premature death, and are only happy when their darlings are at play. They are making a serious mistake. Mental exercise is good for young and old, and freedom from it means either arrest in development or decay. I do not refer to very young children, who are best out of the schoolroom; but mental exercise is as necessary for older children as the physical exercise involved in any game, as tennis, cricket, rowing, football, etc. It is only excess which is harmful. Trying to do six months' work in a week is the cause of "breaking down," not six months' steady work. And those who are familiar with school and university life know that it is not the steady workers who break down, but those who attempt to get through arrears of work under the stimulus of a rapidly-approaching examination. The causes of over-fatigue of the brain in older people are similar. It is impossible to emphasise too strongly the fact that deliberate patient effort with due regard to the maintenance of bodily health, results in more work—and work of better quality—being accomplished, than results from sudden and spasmodic fits of industry at high pressure.

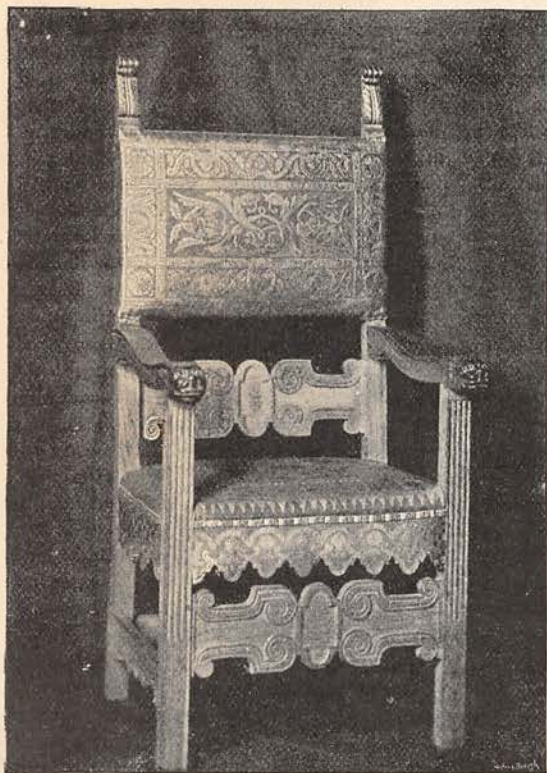
The treatment of fatigue consists in rest, which must sometimes be long continued. Change of scene is often desirable, and even change of occupation (temporarily, at least) may be necessary, more especially for the recovery from certain forms of local fatigue involving a particular set of muscles. For recent physical over-fatigue, much benefit is derived from a hot bath. The feeling of fatigue is at once diminished and recovery is hastened, as the bath tends to expedite the removal of the waste products by producing free action of the skin and kidneys.

Lastly there is a feeling of weariness which is due to altogether different causes. I refer to *ennui*, which arises from satiety and an incapacity to be entertained. It is almost a disease. Those who suffer from it are irritable, their memory is defective, they lose their power of application, they are restless and dissatisfied, they are always tired. They have neither employment nor useful occupation. The treatment of this form of weariness is very simple. The tonic required is neither quinine nor iron—nor any other drug, in fact. It is work.

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## LEATHER WORK, OLD AND NEW.

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CHAIR IN SPANISH LEATHER WORK.

(Photographed at the Chiswick School of Arts and Crafts, Bedford Park, W.)

HERE is but a limited number of antique specimens of the beautiful decorative art, known as Spanish leather work, in England.

A few country houses can boast of some panels on their walls that have been treasured for generations; but, as a rule, the English know very little of the charms of the old art work, which there is a decided inclination now to revive amongst our artists here. South Kensington Museum includes in its delightful hoard of examples of the productions of foreign artists some panels of furniture richly tinted. There is a lovely curtain which in its best days must have been a perfect gem of decorative colouring. It dates from the sixteenth century, and time has mellowed the many hues that were laid with so lavish a hand. Subdued in tone as it is now, its noble owners, could they see it once more, would hardly recognise it as the same brilliant curtain that hung in their castle, but for the coat-of-arms that forms the centre decoration. This shows a lion rampant on red ground on half the shield; on the other half are roses, with three stars above on dark ground. The foliated pattern which surrounds the shield is mostly wrought out with gold and silver, relieved with touches of red on a ground of very dark green. It is a fine bold design, with free curves, which show a master hand. Many of the gold portions of the design are diapered.

Totally different in effect is a furniture panel with pale green ground, the decoration consisting of diapered scrolls and medallions of gold, red and dark blue. On another panel is a rococo scroll and flower