ABSTINENCE
AND
HARD WORK.

A Manual Descriptive of Various Trades and Occupations, Designed to Assist Lecturers and Speakers in Proving that Hard Work of all kinds can best be performed without Alcoholic Drinks.

BY
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PREPARED AS A TEXT-BOOK FOR THE SERIES OF TEMPERANCE PICTORIAL DIAGRAMS, ENTITLED "ABSTINENCE AND HARD WORK."

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INTRODUCTION.

THE object of this little manual is to furnish general information as to the experience of abstaining workmen in various trades and occupations, and it is specially designed as a Text-Book for the series of Pictorial Diagrams entitled "Abstinence and Hard Work" issued by the Union (see p. 77). In these Pictures and in the descriptive matter every effort has been made to secure technical accuracy.

Three or four of the Chapters, with the accompanying Pictures, supplemented by the Lecturer's own additions, will generally be found sufficient for an hour's lecture. For the assistance, however, of those who desire to deal with the whole subject on one occasion—and especially those who illustrate it by means of the Lantern—the most important paragraphs are indicated by an asterisk.

As a rule, when used at the ordinary meetings of young people, at which the Address would not usually occupy more than twenty minutes, one Chapter and Picture will be sufficient. On these occasions the young people should be invited to commit to memory the quotation at the head, and the rhyme at the close, of each Chapter, for repetition on the occasion of the next following address.

CHARLES WAKELY,
Secretary, United Kingdom Band of Hope Union.

December, 1893.

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AND LIST OF TEMPERANCE PICTORIAL DIAGRAMS.

1.—THE BLACKSMITH.

"*From experiments most carefully conducted over large bodies of men, it is capable of proof beyond all possibility of question that alcohol, in ordinary circumstances, not only does not help work, but is a serious hinderer of work.*"—SIR ANDREW CLARK, M.D.

I SUPPOSE that all who will study these addresses will have to get their living by sweat of brow or toil of brain. All must work, from the boy at the school desk to the smith at the anvil; and we must not complain at this, for work is essential to health. Unused muscles shrink, and lazy limbs grow feeble. We must try to make work a pleasure, and whilst so doing must take care that the conditions of work are those most conducive to health, strength, and long life.

2. In the present series of addresses I shall show you, by facts relating to the experience of those living and working under the most opposite conditions, that under no circumstances whatever can alcohol help hard workers.

The testimony I shall put before you of those who are engaged in the most laborious occupations will teach you that alcoholic drinks are, in every form, hurtful and dangerous, diminishing strength and limiting people's powers of endurance; whilst for every form of hard work, such as some of you will be called upon to perform when you grow to be men, total abstinence will be shown to be a helper, and not a hinderer.

3. You will all, I am sure, be curious to know something special about those workers who cultivate our fields, draw treasures from the mine, make the busy hives of industry rattle with a thousand machines, and fill our homes with the conveniences and comforts of life.

4. It is my object in these addresses to furnish you with a little of this knowledge. Time will not allow me to say much, but I will tell you all I can, and try to make it plain and easily understood. This will not be difficult, for we shall have beautiful pictures to look at, which will assist our explanations and greatly help our memories.

THE BLACKSMITH.

5 Now the first question is: Where shall we begin? Can we do better than commence with the first trade—followed by Tubal Cain—mentioned in Scripture (Gen. iv. 22)? Let us have a little talk about "The smith, that bloweth the coals in the fire, and bringeth forth an instrument for his work" (Isa. liv. 16). First, then, we step into the smithy. How cheery a place it is! especially in winter, with its "noise, blaze, and bustle." How pleasant to hear the sounding hammer, and to see the sparks leaping out! And then to look at the blacksmith himself:

> "The smith, a mighty man is he,
> With large and sinewy hands:
> And the muscles of his brawny arms
> Are strong as iron bands."

A NOTABLE SMITHY.

*6. The smithy before us is "classic ground" by reason of its chief occupant; but before talking about him, let us look round a bit. The first thing that strikes us is the cheerful *forge*, which the smith must have to heat his irons, and at the end, there, is the *trough* of water where he cools them when necessary.

*7. Behind, and up above, are the *bellows*, worked by the hand of the smith's boy, a jolly, well-fed looking fellow. Then comes the *anvil*, a block of very hard iron, with a smooth top, on which the smith hammers his red-hot metal, beating it out into any shape he likes to give it. At one end of the anvil is a hole into which can be placed a strong steel chisel, so that when a piece of hot iron has to be cut, it can be laid on and severed by a stroke of the hammer.

*8. Close by is the *vice*, the sides of which screw tightly together and immovably fix any iron placed between them that has to be filed or worked. We note, too, the hammers of various shapes and sizes, and especially the ponderous *sledge-hammer*.

*9. Finally, our attention is called to the rows of horse-shoes hanging all about the place, and we realise that our smith is also a *farrier*—that is, he makes, and puts on, these horse-shoes, heating them first in the blazing furnace, curving them with his hammer to the shape of the horse's hoof; then perforating them, and nailing them on.

"THE LEARNED BLACKSMITH."

*10. And now a word or two about the illustrious occupant of this particular smithy, Elihu Burritt. An American by birth, youngest of a family of ten, he apprentices himself at seventeen, his father being dead, to a blacksmith, having previously had no education

beyond three months' tuition in the District School, and what he could pick up from the Parish Library—contained, we are told, in one small cupboard—and at his work in the fields. At the anvil, whilst the iron was being shaped to the music of his hammer, Burritt had plenty of time to think, and he exercised his brain by writing out intricate mathematical problems, and especially by the study of languages.

11. Thus, for a moment or two, at every time of waiting for the hot iron, he would bend his mind to the declension of a noun or the conjugation of a verb; and so, at the age of twenty-seven, we are told he could read about *forty* languages and dialects, many of which he had thoroughly mastered.

*12. Here we see him, as a young man of thirty, hammering away at iron and Hebrew at the same time, his anvil before, and his grammar behind him. Not usual, you will say, in a smithy, but Elihu knows well how to combine mental and physical labour, and does not in any way neglect the one for the other.

13. This will be made clear by what Burritt himself writes just at this time (1840) to the poet Longfellow, who has invited him to his house at Cambridge: "I have a job of work," says Burritt, "which I hope to complete in the course of four weeks, when I shall be at liberty. There is one thing, though—may I bring my hammer with me? My physical constitution will admit of no suspension of athletic exercise, which, in whatever situation I may be placed, I could never resist my inclination to seek in honest and honourable manual labour."

14. Further on he says, "I assure you I am not an *amateur* working man. With my own hands I earned last year nearly one thousand dollars." What a sum for a blacksmith to get in twelve months! And all for the

sake of acquiring knowledge. How did he do it? Why, simply by undertaking the work of two men, spending sometimes as much as fourteen hours a day at the forge in addition to the hours devoted to study.

A HEAVY WEEK'S WORK.

*15. Just look at the following *week's* work, copied from Burritt's diary:

MONDAY, June 18th.—Headache; forty pages Cuvier's "Theory of the Earth," sixty-four pages French, *eleven hours forging.*

TUESDAY.—Sixty-five lines Hebrew, thirty pages French, ten pages Cuvier's "Theory," eight lines Syriac, ten ditto Danish, ten ditto Bohemian, nine ditto Polish, *ten hours forging.*

WEDNESDAY.—Twenty-five lines Hebrew, fifty pages of Astronomy, *eleven hours forging.*

THURSDAY.—Fifty-five lines Hebrew, *eleven hours forging.*

FRIDAY.—Unwell; *twelve hours forging.*

SATURDAY.—Fifty pages of Natural Philosophy, *ten hours forging.*

BURRITT AN ABSTAINER.

*16. Is it a wonder that so hard a worker should turn out to be an ardent abstainer? As a water-drinker, when but thirty-two years of age, we find him, besides attending to his manual labour, translating the Icelandic Sagas, as well as a series of papers from the Samaritan, Arabic, and Hebrew for the *American Eclectic Review*, and during the winter of the same year delivering no less than sixty-eight lectures. Two years later he commenced a weekly newspaper, *The Christian Citizen*, in which were eloquently advocated the abolition of negro slavery, the principles of international peace, and the claims of temperance.

17. Would any one like to dispute the title of "learned" with such a student—one who, besides the knowledge of his craft, and a good deal of science, had acquired so large a number of languages and dialects, and was besides an eloquent speaker and powerful writer? Amongst Burritt's literary productions may be specially mentioned the volumes entitled "Sparks from the Anvil," "Voices from the Forge," and "Peace Papers for the People." In "Sparks from the Anvil" is found that recital so popular amongst British audiences, "The Natural Bridge of Virginia."

TOTAL ABSTINENCE AND HARD WORK.

18. The wonderful experience of this staunch teetotaler shows us that work of the most arduous nature, whether mental or physical, can be best performed without alcohol, and Elihu Burritt's long life, so full of toil, is also full of valuable lessons. *Labour* was the talisman that raised him from the lowliest condition, and made him a king amongst men; and so it may be with us.

19. Let us, like the "learned blacksmith," make the most of our gifts and opportunities, labouring ever, as he did, not only for ourselves, but for the good of others. May we especially, like him, always look upon pure water, God's gift, as our best drink, and may we take his life-motto for ours: "*Touch not, taste not, handle not anything that can intoxicate.*"

20. We have learned in this address that total abstinence is compatible with hard work both of brain and muscle. Let us fix this fact in our minds by a memory rhyme:

"When the Anvil speaks out it says, 'Work without beer!'
Whilst the Forge echoes hotly, 'Pray, drink water here!'
All strong liquors are bad, both for muscle and brain.
Would you emulate Burritt? Then, like him, *abstain!*"

2.—GLASS-WORKERS.

"The habitual use of alcohol lowers the power of resistance to cold or heat, and so works mischief."—DR. GREENFIELD.

OUR picture represents an important branch of British industry, and our little talk about glass-blowing will, I hope, prove both curious and interesting, whilst teaching us that alcohol does not quench the thirst of the hard-working class of men pictured before you, ward off the extreme heat to which they are exposed, or check the diseases induced by their trying occupation.

DISCOVERY OF GLASS.

1. History says that a Phœnician ship, containing a cargo of salt or soda, was wrecked on the shores of the Dead Sea ; that the sailors, taking shelter, and lighting a fire on the sand, used portions of the wreck, and also blocks of the soda ; and that by and by, after the fire had been for some time fiercely burning, a transparent

stream of fused sand and soda ran out, forming *glass*, a product still made by the fusion of sand, lime, clay, marl, &c., with various salts and metallic oxides.

VISIT TO A GLASS FACTORY.

*2. In order that you may understand the process of glass-blowing, I will introduce you to some of the men whom you see before you so hard at work. The factory we visit is that of Ayre's Quay Bottle Co., of Sunderland, who employ about three hundred hands.

*3. As we enter, we at once see the *Glass Furnace*. This is a large circular melting tank, many feet across, having work-holes at equal distances, so that you can look through on one side and see the men dipping out the molten glass on the other. Just inside the work-holes are the *melting pots*, from which the men take the glowing " metal," as the molten glass is called. In the factory we are visiting there are forty-eight holes, with four men and a boy working at each hole.

GLASS-BLOWING AND BOTTLE-MAKING.

*4. The men's labour is divided as follows: The *furnace-man*, who stands by the work-hole, takes the warm blow-tube or "*puntil*" from his assistant, whose duty it is to keep a stock of tubes clean and ready. He thrusts the pipe into the molten glass, and turns it steadily round until he has collected the required quantity on its end.

*5. When this has been worked, by twisting and rolling, into a pear-like form, on an oblong table of stone or iron called the "*marver*," it is taken in hand by the "*blower*," who by continued blowing and turning of the glass, obtains an enlarged shape, which is then placed into a mould. This is closed down, and the workman blows sharply through the tube till the glass fills out the mould and takes the required shape.

*6. The "*wetter-off*" then receives the bottle, and de-

taches the blow-tube from its neck by touching the glass with a piece of cold wetted iron, and by giving it a smart stroke. The bottle passes once again into the hands of the furnace-man, who applies more melted glass to form the rim, and the mouth is finally moulded by a simple process, after which an assistant carries the bottle away into the "*annealing oven*" to cool.

A TRYING OCCUPATION.

7. Glass-blowers are exposed to intense heat and light: they work immediately around the open-mouthed furnaces, and close to the pots of molten glass, from which they take their supply of "metal" for blowing. Strong draughts of cold air from without blow upon the men, who are continually bathed in perspiration, and in addition to this exposure there is the effort involved in forcibly blowing out the glass vessels—this effort sometimes actually causing the cheeks to split.

8. The "expiration" required for glass-blowing interrupts the circulation; and this is shown by the suffusion of the face in the act of blowing, whilst the bulging out of the cheeks, that look like an inflated bladder, shows how the muscles are weakened by over-use.

MEDICAL OPINIONS.

*9. Dr. Arlidge, in his recent work on the "Diseases and Mortality of Occupations," tells us that glass-blowers suffer from headache, giddiness, great prostration, occasional faintness, and rheumatism. He says that the workmen met with at glass works are young, and for the most part, when still under forty years of age, are pale and sallow and thin, looking prematurely old and worn out.

*10. Dr. Cheyne, of Dublin, as the result of a visit to a glass factory, gives similar testimony, but says that he found the men who were abstainers were exceptions to the rule, appearing to be about their proper age, whilst

the rest, with scarcely an exception, seemed ten or twelve years older.

EVIDENCE BEFORE PARLIAMENT.

11. The late Sir Edward Baines, M.P., was member of a committee of the House of Commons before which valuable evidence was given to show the value of abstinence amongst glass-blowers. He said, "One witness mentioned that he was accustomed to stand right in front of a glass furnace, and that as an abstainer he had carried on that work for thirty years, that he knew many others who had adopted the same practice, and that those who enjoyed health and long life were abstainers, whilst those who died soonest were the drinkers."

GLASS-BLOWERS AND STRONG DRINK.

12. A visitor to a large bottle manufactory states that the overlooker, pointing to a row of men who were engaged in blowing bottles, said to him, "Those men never earn less than three pounds a week, and very frequently they receive as much as five pounds." "How many of them," said the visitor, "do you suppose have got fifty pounds put by in the savings-bank against a rainy day?" The overlooker smiled at the inquiry, and said, "I do not believe that one of them has got even fifty shillings put by. They spend nearly all they get in drink. *Drink, sir, is their great curse.*"

ABSTAINING WORKMEN.

*13. We find in the factory we are visiting that a goodly number of the workmen are abstainers. James Hart, who shows us round, a healthy-looking and most intelligent man of forty, who is presently to take his night "shift" of ten hours, tells us that he has been five years an abstainer, that he is now a better man than ever in his life, and that he weighs a stone heavier than when he signed the pledge.

14. He says : "I can stand the heat of ten hours a day at the 'work-hole' better than when I took the drink, and so can any man. When men are upset they cry out against the *heat* when they should really be blaming the *drink*. Those who drink say it *stimulates*; in my opinion it makes them *helpless*."

*15. William Mustard, fifty years old, tells us that when he drank intoxicants he could not keep to his work. "Now," said he, "I can't tell you how much better a man I am without the drink. I take nothing but pure water. I find it more refreshing and reviving than any liquor, and I have drank as much as any one—in the old times as much as eight pots in two hours. I can go longer on cold water than anything.

*16. Allen Ure, a hale man of fifty-six, tells us that he was formerly a hard drinker, but that he has now been an abstainer for twenty years. He says he drinks nothing but water, tea, or ginger ale. He adds that if he were to take to the drink again, he is sure he could not do his work.

A GLASS-WORKER WHO BECAME AN M.P.

15. The testimony of these men is borne out by the experience of Mr. Joseph Leicester, late M.P. for West Ham, who started life as a worker at a glass furnace, and who testifies as follows :—

16. "The 'House' I worked in forty-two years (Powell's, in White Friars) was notorious for its extreme heat ; yet I worked there as an abstainer and secured the highest wages of any man, scarcely having a day's illness during the whole time. I also earned the greatest honours as a workman, twice gaining the first prize from the Society of Arts, and securing the Paris Gold Medal of 1867.

17. "During this time I managed to save enough to contest the constituency of South-West Ham, and was

returned to the House of Commons, whilst five of my mates, with equal opportunities, got landed in Lambeth Workhouse, and many others died in penury and want. I have outlived all my companions but one, and he is fourteen years my junior. The fact is that drinking glass-workers invariably die in middle life, while the teetotalers remain.

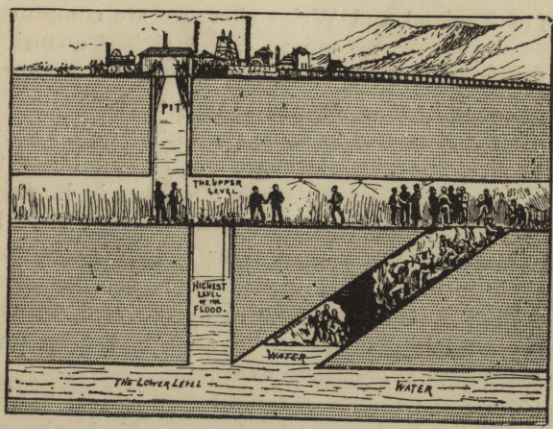
18. "In proof of this I know five teetotalers who have outlived all other glass-blowers of their age in Great Britain, Joseph Leicester and John McIntosh, of London, R. Leicester and A. McIntosh, of Manchester, and James Butler, of York, all hale and hearty men, and all, through their thrift and sobriety, have saved enough to keep them in independence in their old days. On the other hand, as I look over the history of hundreds of men I have personally known, it is like looking into a hideous charnel-house strewn with the victims of the awful vice of drunkenness."

ADDITIONAL TESTIMONY.

The testimony of two other glass-blowers, Mark Littleton and Mr. M'Lachlin, at public meetings in Newcastle and London, is equally conclusive. Mr. Littleton said he had seen many drinking men run away from their work, whilst those who took water remained at their posts. Although he had a large family, they were, as teetotalers, remarkably healthy, and during ten years he had not paid over £2 for doctors' bills. Mr. M'Lachlin said he had been an abstainer for six years; but he worked harder and for more hours now than he ever had done. He did not wish to make a boast, but he would state the fact that since he had been an abstainer he "*had worked sixty hours at a stretch, without once laying his side upon a bed.*"

From the glass-worker's furnace, so lurid and hot
Comes a note full of warning, "Beware of the pot."
Ale and beer are deceivers, and "spirits" are worse,
And to hard-working millions a bane and a curse.

3.—THE COAL MINER.



"*Take the broad general average of ascertained facts; take men anywhere and everywhere using and not using alcohol, and there we find that alcohol does not conduce to physical health, and is in no sense an accessory food.*"—DR. SINCLAIR PATERSON.

DOWN amongst the coal! This sounds rather dismal and uninviting; and those of us who have the courage to venture into a mine will, I am sure, after a brief sojourn underground, be glad to step out into the sunlight and breathe the fresh air once again.

OUR COAL SUPPLY.

1. I suppose you already know that coal is composed of vegetable matter—trees, shrubs, ferns, &c.—that has been buried for ages, the luxuriant tropical growth of the antediluvian world—"bottled sunshine," as Stephenson aptly called it.

2. Coal not only gives us light and warms our houses, but it is used in almost every branch of industry. With-

out it we should have no railways, steam vessels, or great factories, and should cease to be of importance as a nation. It is therefore encouraging to know that in the coal fields of England and Wales alone we are computed to have some 70,000,000,000 tons, a sufficient quantity to last some hundreds of years, seeing that the total "output" of coals in 1892 was 154,483,067 tons.

3. The coal is said in some places to "dip" as low as 20,000 feet, but the mines are not carried lower than 2,000 feet. The coal beds are often nearly horizontal, but sometimes, through geological changes, they have been made to take a vertical or sloping position. In some places the coal is 30 feet thick, in others hardly more than a foot; in some easily obtained, in others powerful machinery has to be used, and deep pits or "shafts" sunk at enormous expense.

4. These shafts intersect several seams of coal, hence the many ways, galleries, and levels met with in the mine. The coal seams are separated by beds of shale, sandstone, ironstone, and sometimes limestone; and when the coal has been dug out this mass of rock and earth must be kept up, which is done by leaving square pillars of coal, called "stoops," and by employing baulks of timber.

5. The passages, called "stalls" or "rooms," are usually about twelve feet wide, and for the ventilation of these passages, as well as for affording separate means of entering and leaving the mine, there are the "downcast" and the "upcast" shafts.

A VISIT TO A MINE.

*6. There are upwards of 3,500 coal mines in Great Britain, one of which is represented in our picture. This, for your convenience, is represented only a few feet instead of many hundreds, deep; but it will help you to understand the toils and dangers of the "pitmen."

The train brings us from Cardiff into the Rhondda Valley, and, getting out at Porth Station, we soon see the tall chimneys of Tynewydd sending out their black columns of smoke, and hear the shrieking and puffing of engines pumping the water from the underground workings, winding up the coal, forcing air into the shafts, and bringing up the "cage," into which we presently step with half a dozen grimy miners, to be whirled down with frightful velocity to the bottom of a black gulf, 1,300 feet deep.

7. Arriving at the bottom, we find ourselves in the streets of a dismal subterranean town—here, a broad thoroughfare with tramways, upon which the waggons of coal are rushing towards the shaft; there, at regular intervals, and running at right angles, narrow passages, termed "head-ways," where we hear the incessant clatter of pick and spade, and find the miner, sometimes standing, more often kneeling, sitting, or lying on his back, hewing away with monotonous regularity at his wall of coal.

8. In mines not endangered by explosive gases or "fire-damp," the "pitman" is lighted at his work by a small candle stuck in a piece of moist clay; but where fire-damp is feared the "safety lamp" is used, the flame in which is surrounded by a cylinder of wire gauze, which prevents the external gas catching fire.

9. It will be seen that the miner's life is a very hard and dreary one, and we should hardly expect it to be healthy. The coal dust enters the lungs, often causing bronchitis and consumption. Miners suffer from rheumatism, lumbago, or sciatica, and the screwed-up position in which they often have to lie to work is the cause of other complaints. They are, besides, beset with many perils; nevertheless, we are told by the Registrar-General that their death-rate is below the average, two-and-a-half times less than that of public-house and hotel servants—

whose mortality is increased by close proximity to the drink—the miners' mortality being represented by 891; the average by 1,000, and that of the public-house servants by 2,205.

DANGERS OF THE PIT.

*10. Explosions of fire-damp are, unfortunately, of frequent occurrence, suddenly enveloping the miners in flame and scorching them to death, or, by the violent concussion of the air, dashing them to pieces against the sides of the passages. Too often this sad havoc of life is caused by the carelessness of a workman, who thoughtlessly opens his lamp to light a pipe.

*11. In addition to these explosions, which, after all, furnish only the smaller proportion of fatal accidents, there may be suffocation from "choke-damp," the roof of the pit may give way, and the miner may be entombed or crushed to death, or the mine may be flooded by an inundation. Now the ordinary water that leaks into the mine from springs is pumped to the surface by an engine at the top, which will raise as much as 3,000 gallons a minute; but sometimes an abundant unknown spring is "tapped," or the waters may rush in from the surface through the subsidence of the soil, and thus the mine may be "flooded."

INUNDATION OF THE TYNEWYDD COLLIERY.

*12. At Tynewydd, in the Rhondda Valley, such an inundation took place in April, 1877, when the waters rushed into the mine like a sea, and the men fled for their lives. Many succeeded in reaching the surface, but it was found that fourteen men and boys were missing. Of these five escaped next day, four were lost, and the rest, four men and a boy, were driven by the waters to take refuge in Thomas Morgan's stall, where—as represented in the picture—they were entombed, and from

vhence "knockings" were heard through the intervening nass of coal.

*13. Many volunteers went down to the rescue, but it vas found, on the one hand, that all the workings within a few hundred yards of the bottom of the shaft were filled with water to the roof, and on the other that thirty-eight yards of coal separated the explorers and the imprisoned men. Two brave divers offered to grapple with the first difficulty, and, tied by a line, actually went forward 500 feet through the sea of vater, but could get no further; then the men resolved to cut through the thirty-eight yards of coal. They vorked by "shifts" of three hours, day and night, for eight days, all the time in the very jaws of death. Their bravery and endurance were wonderful, and they were at length rewarded.

*14. A breach was made, through which the rescuers heard the voices of those within. The imprisoned men were in what is called a "rise" and the air being driven in before them by the rush and weight of water, they were in comparative safety; but when at last an opening was made, the rush of compressed air caused the death of one man who incautiously approached the hole and was hurled with violence against the opening. This escape of air caused the water to rise in Morgan's stall, and the piteous cry was raised, "We are up to our middle in water; it is almost over with us." This cry roused the rescuers to more energetic action; the remaining wall of coal was soon broken down, and the entombed miners were saved.

THE VALUE OF WATER.

*15. But you will ask, How did the men live all those ten days? "Oh," said some people, "if they had only a little brandy, or wine, or beer, they might be saved."

They were not, however, saved by the presence of any of those things, but by the water which was at their feet, and by means of which, with two pounds of candles, they lived all these days. Sir B. W. Richardson, F.R.S., says: "*So thoroughly do I stand by water in such a case as this, that I would assert that if there had been present flasks of brandy or any other alcoholic compound, they would not have lived.*"

ALCOHOL AND WORK UNDERGROUND.

16. And now, under severe labour, depressed by darkness and a continual sense of danger, do miners, generally, look upon alcohol as a friend or a foe? Let us see.

*17. The author of "Bacchus Dethroned," speaking of a visit to the Ryhope coal mine, Sunderland, says: "The pit is one of the deepest and the temperature in the workings very high. We made extensive inquiries amongst the hewers as to how they managed their hard work, and if they did not drink plenty of beer and whiskey to help them through. To a man they informed us that they could not work on beer or whiskey, and that the only beverage they took down with them was a *bottle of weak tea or cold water.*"

18. This, we are told, is the common custom amongst coal miners; and such was the practice of Thomas Burt, who, at ten years of age a "trap-door" keeper in the Haswell coal pit, became M.P. for Morpeth, and a responsible Minister of State. The secret of his success, apart from his persevering industry, lies in the fact that *as a boy he took the pledge of total abstinence, and has faithfully kept it ever since.*

Again we have evidence—plain as can be—
Strong drinks won't compare with milk, cocoa, or tea.
From the depths of the mine comes the verdict quite clear,
"Work is much better done without whiskey or beer."

4.—WORK IN THE HARVEST-FIELD.

"*It is far too favourable a view to treat the money spent on drink as if it were cast into the sea. It would have been better if the corn had been mildewed in the ear.*"—THE TIMES.

HOW beautiful is harvest-time, and what a cheery sight it is to see the reapers gathering in the golden sheaves! What delight to those of us who are dwellers in smoky towns to escape from the crowded streets, and to wander where the busy mower whets his scythe, or where the ripe grain falls under the reaper's sickle! How pleasant, too, is the thought of barns brimming with plenty, and of busy mills, with their "clicketty clack," grinding the ripe grain into flour and meal for our loaves and cakes and puddings!

"AMONGST THE YELLOW CORN."

*1. Reaping-time is the farmer's delight, the great event of the year, especially if his harvest is a good one.

Judging from the pleasant picture before us, our farmer there, mounted on his good horse, has no cause for complaint this harvest, and the workers below, who are now resting for awhile from their toil and taking refreshment, appear contented and happy.

THE AGRICULTURAL LABOURER.

2. We are apt, in calling up pictures of country life, to regard the labourer's work as so much pleasant pastime. We almost envy him as his ploughshare turns back the brown clods, or as he flings the golden seed into the waiting furrow; and when the harvest comes, and we see him cutting and binding and threshing the ripe corn, we feel that no life can be compared with his. But there is a reverse side to the picture, telling of a ceaseless round of toil, of scanty pay, and sometimes of bitter privation.

REAPING.

3. It will at once be seen by the attitude of our friend out yonder, who talks to the farmer while he wipes the sweat from his brow, that the weather is hot and the work hard. In this field, bright with the golden grain and the blazing sunshine, there are no drones, and the reapers who are resting awhile will soon be at their toil again, labouring beneath the broiling sun, till the tired limbs ache and tremble from the weary day's exertion.

4. Although reaping is now largely done by machinery, which gets through the work quickly and well, in many places, as in the barley-field we are visiting, manual labour is employed. The "*sickle*," or reaping-hook, is in this case used for cutting the corn, but in others the "*cradle scythe*" is employed. This cuts the wheat closer to the ground, and saves more of the straw.

*5. The work of the *reapers* is divided amongst those who cut the corn, those who make the bands for binding,

those who bind the corn into "*sheaves*," and those who pile the sheaves into "*shocks*." The corn is gathered into the sheaves by means of "*bands*," which are made by tying a few stalks of corn together below the ears.

*6. The sheaves, ten or twelve together, are piled up, leaning against each other, and forming the "shocks," which are placed in rows till the straw is fully dried by the air and sun, and the corn quite hard. The sheaves are afterwards "*carried*"—that is, piled up in the waggons to be built up in "*stacks*" or "*ricks*," or stowed away in barns.

AN OLD SUPERSTITION.

*7. The farmer in our picture is a sensible man, who discourages the use of strong drink amongst his labourers. On many farms, however, this is not the case, and there is a great deal of drinking. The ignorant superstition that beer is good food has been, in past times, the curse of the harvest-field.

8. Employers, on every occasion when there was a little extra work to be done, used to bring out the beer, and who can wonder that growing lads and lasses should suppose that it was a real necessary of life—that, besides giving pleasure to the palate, it would yield them health and strength and length of days? Happily this superstition is passing away. A large number of employers, like the good farmer before us, give extra pay instead of beer, whilst many supply their men with non-intoxicating drinks.

DRINKS FOR THE HARVEST-FIELD.

*9. And now, as we turn again to our pleasant picture, and whilst some of you are wondering what the reapers are drinking with such relish in the midst of their hard and hot work, let us hear what Dr. Parkes, the eminent physician, recommends under the trying fatigue of the

harvest-field. He says: "When you have any heavy work to do, do not take either beer, cider, or spirits. By far the best drink is thin oatmeal and water, with a little sugar.

10. "The proportions are a quarter of a pound of oatmeal to two or three quarts of water; it should be well boiled, and then one ounce, or an ounce and a half, of brown sugar added. Shake up the oatmeal well through the liquid. In summer, drink this cold; in winter, hot. You will find it not only quenches thirst, but will give you more strength and endurance than any other drink.

11. "If at any time you have to make a very long day, as in harvest, and cannot stop for meals, increase the oatmeal to half a pound, or even three-quarters, and the water to three quarts. If you cannot get oatmeal, wheat flour will do, but not quite so well. For quenching thirst few things are better than weak coffee and a little sugar. Cold tea has the same effect, but neither are so supporting as oatmeal. Thin cocoa is very refreshing and supporting, but more expensive than oatmeal."

"STOKOS."

*12. You may like to know that the men represented in our picture are enjoying their draught of "stokos," a drink said to be the best for hard work. To make it put ¼ lb. of fine ground oatmeal, about 6 oz. of sugar, and half a lemon cut into slices, into a pan; mix all together with a little warm water, then add a gallon of boiling water; stir thoroughly, and use when cold. Cost, 3d. a gallon.

13. The name "stokos" was given to the drink by a lady who, when going abroad, observed that this was the drink the stokers used on board the steamers. "It would never do," she said, "to call it simply oatmeal and water. So, as it was stokers' drink, I thought I could not do better than call it 'stokos.'"

HARVEST WORK WITHOUT BEER.

*14. Only a few years ago it was the almost universal custom to provide beer in part payment of work done by harvesters. This is now, since the passing of the "Truck Act," illegal, but whilst the law has not entirely banished strong drinks, yet many reapers, of their own accord, carry tea, coffee, "stokos," or other non-intoxicating liquor into the harvest-field, whilst thousand of acres are reaped every year without so much as a pint of beer making its appearance. It has been shown that in these cases the work is done quicker, and therefore cheaper to the farmer, whilst the men are gainers by receiving their earnings in cash.

15. The late Joseph Tucker, J.P., of Pavenham, near Bedford, referring to the disuse of beer in his harvest-fields, wrote: "The result has been most satisfactory, both to myself and the men. Many, who at first declared it to be impossible to mow or reap without ale, have, after trying, declared that they can do either as well, *or better*, without. These men have also said that they *sleep much better* after a hard day's work, with tea, &c., than with beer, and that they are much *fresher* and better able to begin again in the morning."

16. A Gloucestershire farmer says: "I have had the greatest satisfaction in looking back on the ten years past, in having gathered about 130 acres of corn and hay without giving my men any intoxicating drinks. If the men are fairly paid, and provided with cocoa in the hot weather, they will work as long and better to themselves than the cider or beer drinkers, and be as cool and as free from bad language (a rare thing where intoxicants are used) at eight p.m. as at eight a.m."

17. A Warwick farmer writes: "Our parish contains over 3,000 acres. All the farmers, except two of the smallest, give cash instead of beer. At my own harvest supper this year 26 sat down, 16 were Total Abstainers."

WHAT THE PAPERS SAY.

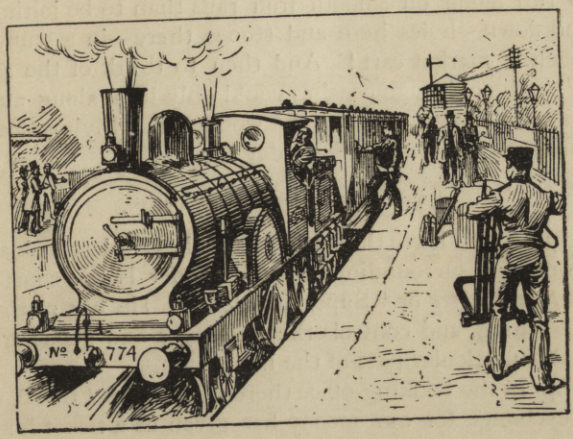
18. The Royal Agricultural Society's Journal says: "There is no doubt that cider-drinkers are more subject to rheumatism than others." A writer in the *Morning Post* says: "The fact is, the more one drinks of any alcoholic beverage the more does the hot sun affect the body, and drowsiness and inability to work ensues. I have long advocated and practised the rule that no beer shall be given in the harvest-field."

19. In conclusion, let me tell you what the *Times* newspaper once said about the bad use to which the precious harvest is put by turning it into beer and spirits—food into poison: "There is something exceedingly irritating that a great part of a harvest, raised with infinite care and pains, instead of adding to the national wealth, and bringing rich returns, is poured, in the shape of liquid fire, down the throats of the nation that produced it, and, instead of leaving them wiser and happier, tends to impoverish them by vicious and debilitating indulgence." The corn used in the manufacture of beer in the United Kingdom in 1892 amounted to 55,852,570 bushels. Thus the liquor trade, in addition to the harm referred to by the *Times* newspaper, raises the price of our bread by wasting much valuable grain, and compelling us to draw largely upon foreign countries for our supplies.

20. I hope the present address will confirm you in the view that the practice of abstinence and the avoidance of strong drink is not only the best economy, but productive of health and strength.

He who works in the cornfield and gathers the grain,
From beer and from cider does best to abstain.
Lighthearted he toils, the long day, in the sun,
And peacefully rests when his labour is done.

5.—RAILWAY MEN.



"If all railway companies would do away with the sale of drink at their stations they would be best consulting the interests of the shareholders and the welfare of the travelling public."—GEORGE STEPHENSON.

WHAT is pleasanter in the beautiful summer time than to be off by rail for an excursion to the country or the sea-side. Let us suppose ourselves in for such a trip to-day. We have taken our tickets, jumped into the train, and are looking out on to the platform as the engine, panting and puffing—impatient like ourselves to get away—waits for the guard to shut the last door, and signal the train off. Don't we feel happy!

OLD TIMES AND NEW.

*1. A whistle, and away we go! First our fiery snorting *Engine*, then the *Tender* with its black cargo of coals, then a long line of *First*, *Second*, and *Third-Class* carriages, and finally the *Guard's Van* or "brake."

2. How we pity the old fogies of the middle ages with their pack-horses and sleepy waggons! How much nicer to run along on smooth iron rails than to be jolting up and down—holes here and stones there—in a stuffy old coach or market cart! And then to think of the *speed.* Why the old stage coaches could only limp along at four miles an hour, and even the wonderful "Flying Coach" could only do forty miles a day!

THE MEN AT THE STATION.

*3. As we leave the station let us have a last look at its people and surroundings. Over yonder is the courteous *Station Master* or "Superintendent." He has charge of everything, and controls the passenger and goods traffic at this particular part of the line.

*4. In the booking-office there is the *Ticket Clerk*, who in exchange for our money has given us a ticket for the journey.

*5. Then there are the *Porters*, dressed in corduroy, who take charge of the luggage of passengers arriving and departing, and who render such other assistance as may be required.

*6. Lastly there is the *Signalman* away in his box yonder, who receives and sends telegrams from station to station along those wires overhead, who works the *levers* which "shunt" the passing trains, and who, by the same means, signals to the drivers of the engines.

RAILWAY SIGNALS.

7. The three signals in use indicate (1) "*Danger*," to stop; (2) "*Caution*," to go slowly; and (3) "*All Right*," to go on. Some of the signal-posts have two arms, one on each side, one to give signals to the *down*, the other to the *up* train. The *All Right* signal is shown by the left-hand side of the signal-post being clear; *Caution*—to slacken

speed—by the arm being raised half-way to the horizontal position; *Danger*—to stop—by the arm being raised to the perfectly horizontal position.

8. By night, *Danger* is shown by a *red* light, *Caution* by a *green* light, and *All Right* by a *white* light. Besides these signals, there are *Flag Signals*, like the one our guard has in his hand, *Whistle Signals*, and *Fog Signals*, which, at times when the lights cannot be seen, are placed on the lines, exploding as the engine passes over them, and indicating safety or danger as the case may be.

MEN ON THE TRAIN.

*9. And now let us think about the railway men who are with us on the train. First, there is the *Engine Driver* in whose hands our lives and those of hundreds of passengers are placed. He must work his engine, get up and shut off steam, watch and return signals, ply lever and whistle, and do everything to keep his train up to time and to avoid accident. To do this on approaching each station and level-crossing, and on entering a tunnel he makes the engine give a long whistle. Two short whistles signal the guard to be on the look-out. Three show danger ahead, and signal him to put on the "*brakes*."

*10. The *Guard*, whose place is in the last van, holds a most important post. In his compartment is a wheel connected with a "brake"—usually worked by compressed air—by means of which he can help the driver of the engine to regulate the speed, or, if necessary, to stop the train. He has the train under his charge from the moment of starting until it arrives at the "*terminus*." Each guard wears a uniform with a whistle hanging at his breast for signalling.

THE DANGER OF "TREATING."

*11. It sometimes happens that there are people in the trains, who, wanting to show their kindness to the guards

or engine-drivers—sometimes, perhaps, to show *themselves* off a little—offer the men strong drinks. I need not say how foolish it is thus to "treat" railway servants. To give brandy to Drivers, Guards, or Signalmen, is to paralyse the eyes and the hands upon which the safety and even the lives of hundreds of human beings may depend.

*12. The chairman of the London and South Western Railway recently stated that there were 3,000 accidents and 500 deaths on our railway lines every year, and said that if temperance prevailed, these figures would be greatly reduced.

*13. Mr. Glyn of the North-Western Railway said: "It is not when a man is drunk upon the train that he does the mischief, for he is seen and taken off; but it is when he gets just a glass in his head that he becomes reckless and venturesome."

RAILWAY SERVANTS AND TOTAL ABSTINENCE.

*14. The *Daily News* tells us that out of the 600 railway companies in the United States, 375 absolutely prohibit the use of intoxicating liquors by their employés. Quite recently the Directors of the Delaware and Lackawanna Railway, one of the leading roads of the country, discharged a number of men from their employ for the simple act of signing the petitions of saloon keepers for licences. The company gave as their reason for the discharge of the men that the lives of thousands who trust themselves upon their trains depended upon the sobriety of their employés; and that no man found giving active and moral support to saloons near his home is a fit man to care for the safety of others.

15. In the State of Michigan no man but a total abstainer is allowed to be employed as engineer, train despatcher, fireman, brakeman, or other railway servant. Any rail-

way company violating this law incurs a fine of 500 dollars for each offence. It would be well if such a law were in force in our own country, for how many a train has been wrecked and precious lives lost through the carelessness or recklessness of drinking railway servants. It is satisfactory, however, to learn that temperance principles are gaining ground in our own country amongst railway people. The Railway Temperance Union comprises nearly 15,000 pledged abstainers whilst there are many thousands of teetotalers not enrolled.

*16. It is pleasing to learn from a recent number of "*On the Line*" that the whole of the eight foremen at the city depôt of the Great Northern Railway are total abstainers, also that at a recent "outing" eighty foremen of the Great Eastern Railway, at Stratford, dined together without consuming any intoxicating liquors, and that no less than 4,750 men on the Midland Railway are pledged abstainers.

CONSIDERATE EMPLOYERS.

17. British railway companies are seeing the advantage of employing sober men, and of making provision for the wants of such men at meal times. Thus the North Eastern Railway Company have a Workmen's Breakfast and Dining Room at their Shildon Works, where there are seats for 180 persons.

18. At first the men brought their own tea or coffee, but after consultation they resolved to have it fresh made, two large urns being provided. They are now supplied with tea or coffee, with sugar and milk, for 2d. or 3d. per week, according as one meal or two per day are taken; and it is found that this sum meets expenses and leaves a balance. If this system were generally followed, few men would take their meals at the public-house.

DRINK AT RAILWAY STATIONS.

19. How nice it would be if the railway companies would go further, not only protecting their own men from the temptations to drink, but reducing the facilities for supplying strong drinks to the passengers at their stations, as is done on the railway lines of the United States. What we want the companies to do is to provide an abundant supply of pure drinking water at every station, and to give increased facilities for the sale of cheap non-intoxicating refreshments. If this were done we should travel with greater safety, and be in no anxiety as to the guards being tempted to drink at almost every stopping-place.

A NOBLE GUARD.

20. Lady Hope tells us of a railway guard who was asked no less than seventeen times on one journey to take strong drink. Refusing, one of the passengers asked him whether he claimed to be better than they were, and they all laughed and jeered as they heard his "Oh, certainly not; but I don't drink." This, it seems put the man on his mettle, and he set to work amongst his companions, and in five months won over no less than 250 of the men to total abstinence.

21. A splendid example of pluck and zeal for every one of us! May we all be as true to principle, and as earnest in getting others to join the ranks of Total Abstinence as this noble Railway Man.

> The things we have learned make abundantly clear
> The fact that there's evil in brandy and beer.
> Then for signalman, guard, engine-driver, and porter,
> Let us hold forth the virtues of honest cold water.

6.—MEN OF THE PRINTING PRESS.

"Temperance puts wood on the fire, meal in the barrel, flour in the tub, money in the purse, credit in the country, contentment in the house, clothes on the back, and vigour in the body."—FRANKLIN.

EVERY boy and girl who can read should know something about the art of printing, which gives us not only our grammars and geographies, but also our beautiful story and picture books, and especially our precious Bibles.

1. The origin of printing lies far back in history; indeed it is known that the Chinese practised the art earlier than the date of the Christian era. Still, that ancient printing was not of much use, and to Europe belongs the credit of having first employed movable types.

2. The early printers on the Continent used wooden blocks, in which letters were cut, much in the Chinese fashion. Authorities differ, but probably Laurentius of

Haarlem first employed these wooden types about 1430, and it was fifteen or twenty years after that Gutenberg, Faust, and Schoeffer seem, at one and the same time, to have brought metal types into use at Mayence.

3. You all know, of course, that Caxton, a Kentish man, introduced the art of printing into England about 1470 ; it did not reach Scotland till 1500, and Ireland, it is said, fifty years later.

IN A PRINTING OFFICE.

*4. Our picture carries us back a hundred and seventy years, to a time when all the appliances of the printing art were slow and clumsy. It relates to young Benjamin Franklin, who was born in 1706, at Boston, in the United States. He had as a boy but very little schooling—only from his eighth to his tenth year, after which he went to help his father in his business as a soap-boiler. When twelve years old he was bound apprentice to an elder brother, a printer ; and later, at nineteen, we find him in London at Mr. Watt's printing office, Lincoln's Inn Fields. A peep into this office will enable us to explain not only what was done in the old times, but what takes place in the printing offices of to-day.

THE COMPOSING FRAME.

*5. Looking to the left of our picture you will see the cases where the "type" used by the printer is kept. This is where the "compositor" works.

6. When a person has written anything he wants printed, the "copy" is placed into the hands of the compositor, who "sets it up" in type selected from the cases, which are divided into 151 boxes, containing all the letters, figures, signs, &c.; the "*upper case*" is divided into 98 equal spaces or "boxes," the 49 on the left con-

taining LARGE CAPITALS, figures, &c., whilst those on the right contain SMALL CAPITALS.

7. The "*lower case*" is divided into fifty-three boxes of various sizes—the biggest for the letters most often used—and contains the small letters, the spaces necessary to separate the words, stops, &c. Other cases contain "*italics*" and fancy letters.

HOW THE COMPOSITOR WORKS.

*8. When the compositor has any "*copy*" to set up he places it before him, and takes in his left hand a "*composing stick*," which is a little iron or brass frame, about six inches long, with a slide which can be adjusted and fixed to the width of the page to be printed. Holding the "stick" in his left hand, and reading a few words of the copy he lifts the letters one by one from their boxes, and places them in the stick till the line is complete.

*9. When the stick is full it is "*emptied*" on to the "*galley*," a slip of zinc with two raised wooden sides, and finally, when the "*galley*" is filled, the whole is firmly secured by means of a "*sidestick*" and "*quoins*," and is then put into a "*galley press*," and a first print, or "*proof*," is obtained. This is handed to the "*reader*" for correction, again "*pulled*" at the press, and the "*revise*" is sent to the author for final correction; after which the whole is made up into pages, and is "imposed"—that is, arranged in regular order, and fastened firmly in an iron "*chase*" ready for the machine.

WHAT THE PRINTER DOES.

*10. These pages of type, now called a "*forme*," are placed into the hands of the "*pressmen*," who "work it off." The type is rolled over with a roller—made of glue, treacle, &c.—smeared with printers' ink, which covers and sticks to the projecting parts forming the

letters. The printing paper is then placed on a frame turning upon a hinge, and is secured in its place by another frame brought down upon it.

*11. The paper is now turned down upon the blackened surface of the type and the whole—paper and type—passed under the printing press, where, by the working of a lever, a block of iron is caused to descend, and press evenly and with great force upon them. On being taken out the paper is found to have received a perfect impression, in ink, of the type ; and this process can be repeated till thousands of impressions have been produced. While one "*pressman*" puts the sheet in its proper position another is employed to ink the surface of the type.

ANCIENT AND MODERN PRINTING MACHINES.

12. The contrast between the clumsy press Franklin worked and the great cylinder presses of the present day is amazing. Thus we are told in the preface to a volume of 598 pages, issued from *The Times* newspaper office, that the whole was set up in type by four lads, working at two composing machines, in ten days of eight hours, at the rate of 2,150 lines a day. The printing was done from stereotype plates, each *forme* containing 128 pages, at the rate of 12,000 per hour! Why, the thought of such a thing in Franklin's time would have made the printers' hair—long as you see it was worn—literally stand on end.

PRINTING AND DRINKING.

*13. I need not tell you that the printer's business requires great care. There must be no smudging or blurring, but all must be kept very trim and clean. The printer ought to be strong, industrious, and sober, and Franklin, who was a "*pressman*," was all these. In order to keep healthy and free from debt he determined to do without strong drink of any kind. He had daily a penny

roll and a glass of water for lunch, while his fellow-workmen had each a pint of porter. These men sneered at Franklin, called him the "*American aquatic*"; but he proved to them that water-drinking was best for body, brain, and pocket. He could set up more type a day, and, generally, beat his fellows in trials of skill and strength.

BEER *versus* BREAD.

*14. He says in his autobiography: "I drank nothing but water. The other workmen, to the number of about fifty, were great drinkers of beer. I carried occasionally a large forme of letters in each hand up and down stairs, *while the rest employed both hands to carry one.* They were surprised to see by this and many other examples, that 'the American aquatic,' as they used to call me, was stronger than those who drank porter. I endeavoured to convince them that the bodily strength furnished by the beer could only be in proportion to the solid part of the barley dissolved in the water of which the beer was composed. I said *that there was a large portion of flour in a penny loaf, and that consequently if they ate this loaf and drank a pint of water with it, they would derive more strength from it than from a pint of beer.*"

THOSE WHO DRINK CAN'T SAVE.

15. We are told that while the beer-drinking workmen were daily becoming poorer and poorer, and no doubt while their wives and children were suffering great privations, Benjamin Franklin, in the short space of one year and a half, saved money, bought books, improved his mind, was able to lend twenty-seven pounds to a friend, and generally typified in his personal experience and behaviour the truth of his own wise maxims.

16. Franklin, whilst an abstaining working man, was a diligent student, stealing his hours of study from meals

and sleep, and for years, with unbroken determination strove to save, for his own instruction, every minute that could be won. His researches in science are well known; for it was he who first "robbed the thundercloud of its lightning," and this by the simple means of a kite and silk pocket-handkerchief.

17. One of Franklin's most important literary efforts was the publication of an almanack, in which are found a large number of proverbs on honesty, industry, and temperance, one of which is quoted above. The following also are worth remembering: "Beware of little expenses: a small leak will sink a great ship." "Diligence is the mother of good luck." "He that goes a borrowing, goes a sorrowing." Franklin finally became so useful to his country and so highly honoured and respected that he was appointed American Ambassador to Paris.

TOTAL ABSTAINING PRINTERS.

18. You will like to know that thousands of modern printers are, like Franklin, water-drinkers. The old trade traditions, with their evils of "treatings" and "footings" are dying out. The head of a leading London printing firm says: "In recent years the habits of printers in regard to drinking have very much changed for the better. I don't remember for many years having had a toper in our employ. I remember my father saying how, when he was a lad in his father's printing office, he would have to stand at the foot of the stairs with the office key in his hand, while the pressmen would beg of him to allow them to go out and get beer. Such incidents never occur now. Of course, we do not allow intoxicants on our premises, and I suppose quite half our people are abstainers."

The old superstition that strong drink was best
For printers at work, Franklin put to the test,
And he proved—just as each of us can if he tries
That abstaining makes "healthy, and wealthy, and wise."

7.—IRON-WORKERS.

"*We know now, scientifically, that alcohol reduces the muscular power, and though it may for a passing moment give a flash to the muscular energy, it lessens the value and shortens the duration of the labour.*"—SIR B. W. RICHARDSON.

ONE of the busiest spots on the banks of the busy Thames, and one to which we now propose to pay a visit, is the Thames Iron Works, where the ground trembles with the thunder of huge machines, and where mighty ships spring into being at the touch of a thousand hammers.

A VISIT TO THE THAMES IRON WORKS.

*1. The works employ 4,000 men, and cover many acres of ground on the river's bank, and as we wend our way through yards and sheds, many marvels claim our attention. Looming up in the stocks, ready for launching, is a great warship, which will cost the nation £500,000;

and again a peaceful-looking but magnificent merchant vessel of 5,000 tons burden.

2. Passing along we see immense hydraulic cranes, capable of whisking up a hundred tons without effort, and in the great sheds huge hydraulic shears that will cut thick sheet iron as easily as your scissors will cut cardboard. Here are engineers' shops with lathes and drills and steam rollers, and there foundries, gloomy and sultry, with travelling cranes overhead, bringing the liquid metal in great cauldrons to be poured into the moulds below.

THE HAMMER SHED.

*3. We at last find ourselves in the hammer shed, represented in our picture, where the huge "Nasmyth," weighing many tons, and which is capable of doing its thirty to fifty strokes a minute, is forging into shape an immense piston rod. At every thud the ground shakes, and a deep dent is made in the glowing mass.

4. It is *steam* which lifts this monster up, and drives it down, and the power of the steam, added to the weight of the hammer, gives a blow that is tremendous. How wonderful is this mighty instrument, which can crack a nut without breaking the kernel, or imprison your hand without crushing it!

IRON FORGING.

*5. You will notice that the piston rod is hanging on to the hydraulic crane which has just brought it from the fire, and is being moved and turned about by the men, who, with long capstan-bars, thrust into the ponderous "carrier," turn and twist the glowing mass as they please. We are far away from the hammer, and out of the way of the men, who are intently watching the signals of their foreman; but even at the distance of many yards we can feel the fierce glow of the metal.

*6. The foreman, Mr. Dixon, is close up to the hot iron, and the intense heat brings out beads of perspiration upon his genial face. A movement of his hand, a thud of the hammer, and the mass is shaped as if it were of putty, whilst a bright glow fills the shed, and the sparks fly like so many meteors. Every now and then a man leaps forward with a broom, and sweeps the metal free of scale—a warm job—whilst the foreman, with "callipers" or rule, measures the glowing mass to determine what further "forging" it requires.

THE FURNACE.

*7. When a big piece of work is in hand the mass of iron has to be put back into the furnace over and over again to be re-heated and have additional "plates" set on, and while this is being done the furnace-man has a lively time of it. As we are watching him and the other men the furnace door is lifted and we are compelled to raise our arms to our eyes to shield them from the intense heat of the fire, fifty feet away, and we wonder how these modern Vulcans, with bare arms and bosoms, can endure the scorching glow and spiteful blaze to which they are exposed. We especially wonder at the endurance of the furnace-man, who is "bricking up" the mouth of the furnace, notwithstanding the tongues of fire that leap up almost into his face.

TEETOTAL IRON-WORKERS.

*8. Realising the great endurance required in a place so intensely hot, and one where there is such hard manual labour, we ask the foreman of the gang, consisting of eleven men, if any are teetotalers. "Oh!" is the reply, "seven out of this shift are abstainers. First, there's myself; I am now fifty, and have been in the works since I was between six and seven years of age, so I have had forty-three years of hard work, and I am all the

better for my abstinence. Then there is the furnace-man and the crane-man, and three of the men that work the block, besides another, all exposed to fierce heat and heavy work, and all teetotalers.

*9. "The fact is, these men do the same kind of work as others, but with less fatigue and greater regularity than those who drink, and the most healthy people among us, and those who live longest are the abstainers. My experience is that teetotal forgemen don't perspire so much as drinkers, and so they don't get so tired or thirsty. If you want a good man, especially in the iron trade, you must get an abstainer, for the rest drink heavily, and so are not fit for their work."

IMPORTANT TESTIMONY.

10. The late Sir Edward Baines said: "I went once to the great iron works of Merthyr Tydvil, where about 700 men were employed, and I asked if any of them were teetotalers. 'Oh!' was the reply, 'there are several hundreds of teetotalers here.' I said to the foreman, 'You have had hard work for them to do, and they must be exposed to the heat of the blazing furnaces, and can your men bear all this heat without drink?' 'They not only bear it, but if you asked who were the healthy people among us, and those that live long, I would reply they are the teetotalers.' Some of these men's skins were as hard as parchment, by reason of the intense heat they had to endure, and yet they were abstainers. I have visited other great iron works, such as those of Aberdare, Lowmoor in Yorkshire, and Middlesborough, and have found the same thing."

11. "There ain't many men as work harder than we do," said a fine, cheery iron-worker in another factory to the visitor, who was on a tour of inspection. This man's work consisted in holding and turning and twisting great

masses of iron heated white hot under a heavy hammer worked by machinery. It is very heavy work indeed, and requires great strength, and is all the more trying, as in order to be protected from the showers of sparks the men have to wear iron masks and heavy iron leggings and boots, besides a stout leathern apron. The heat is very great, and makes it all the worse for them. "Well," said the visitor, "which pays best, drink or no drink?" "Oh," the man answered, "I've tried both, and I know a bit about both sides. I used to say, and tell every one, that a man could not do my work and live without taking a gallon of ale a day, besides extras, and these came pretty often—but then I was often ailing, and I carried a lot of useless fat about with me every day. Now, for the last two years I have not had a drop, and I am healthier, wealthier, and wiser in the bargain, and can do my work three times as easily as I used to do. I feel sometimes as if I had got a new body, I'm so well."

12. Dr. Beddoes, at Portsmouth Dockyard, selected a dozen anchor-smiths exposed to great changes of cold and heat. He proposed that six of them should drink only *water* for one week, the others taking their usual allowance of beer. On the first day the two sets of men were very much alike; the second day the water-drinkers complained less of fatigue than the others; the third day the advantage was obviously in favour of the teetotalers: the fourth and fifth days it became still more so; and on the Saturday night the water-drinkers declared that they never felt so fresh in their lives as they had felt during that week.

13. *The Times*, speaking of the rolling of a fifteen-inch armour-plate at the Atlas Works, Sheffield, says: "Sometimes we came on groups of men who were saturating in water the rough bands of sacking in which they were enveloped, before going to wrestle with some white-heat

forging; sometimes on men nearly naked, with the perspiration pouring from them, who had come to rest for a moment from the puddling furnaces, and to take a long drink of *thick oatmeal and water*, which is all that they venture on during their labour, and which long experience has proved to be the most sustaining of all drinks under the tremendous heat to which they are subjected."

IMPROVED HABITS.

14. We learn from our guide at the Thames Iron Works that the habits of "forge-men" and of iron-workers generally, have greatly improved of late years, and that much less time is lost by the men than formerly. "This place is as different as possible to what it was when I was a boy," says he. "Then drinking was regularly allowed about the place. Now the men, if they want drink, can only get it at breakfast and dinner, between eight and nine, or between twelve and two o'clock. In my younger days there was hardly a tee-totaler here; now there are quite *five hundred*."

15. As a sequel to Mr. Dixon's statement, we find on leaving the works the following notice posted up near the entrance: "After the August Bank Holiday, the sale of alcoholic liquors will be discontinued in these works. The canteen will, however, be kept open for the provision of more wholesome refreshment.—By order. A. F. Hills, Managing Director, May 30, 1891."

16. It will help us all I am sure, to be more firm and faithful abstainers to have learned what this address has taught us, that our hardest toilers, both at Forge and Furnace, are stronger and healthier without strong drink.

What good witnesses here! With the steel all aglow—
Hot furnace, and "Nasmyth" just striking the blow;
To learn from these men, with their muscles astrain,
That at Thames Iron Works full five hundred abstain.

8.—ABSTAINING NAVVIES.

"I have no hesitation in saying that if a man has the courage to cast aside the imaginary difficulties that surround the experiment of doing his work without alcohol, and to say, 'I'm not a coward and I will try it honestly,' he will succeed."—SIR ANDREW CLARK.

IN the present address I have to tell you about a most remarkable piece of work—the alteration of the "gauge" of the Great Western Railway—which took place in May, 1892. This triumph of forethought and engineering skill was accomplished by the aid of some five thousand "navvies" and "platelayers," such men as you see represented in our picture, and I should like at the outset to put before you the fact that the arduous work of these sons of toil was done, not by the help of intoxicating drinks, but of simple *oatmeal and water*.

THE BRITISH NAVVY.

1. The British navvy has a world-wide reputation; and some of the stout fellows employed on the special

piece of work to which we are referring could hardly be matched the world over. Their muscles are, veritably, hard as steel, and it is a fine sight to see them at work with their crowbars and barrows and trollies, lifting and balancing and carrying heavy masses of metal, or wheeling away ponderous loads of clay or gravel, as if it were all "child's play." In our present picture the hammer and crowbar are principally at work, and you will realise how hard is the labour, taxing as it does every muscle of the body. Whilst the leg and foot must be firmly planted, the arms, back, and shoulders are, as the knots and bands of muscle show, brought well into action.

2. When it comes to digging, the work is, if possible, harder, and he must needs be a strong man who can thus toil for seventeen or eighteen hours at a stretch. It is calculated that a good navvy in the course of an ordinary day of ten hours, does work equal to lifting from twenty to five-and-twenty tons of clay or earth to the height of his own head.

3. We could not get on at all without the navvy. There is no building a house until he has dug out the place for it to stand, no drainage until he has opened the ground, no railway until he has made the cuttings, the tunnels, and the embankments; and, in the particular case before us, the skill of the architect and the engineer would be of but little use without his strong arm.

ALTERING THE "GAUGE."

*4. To explain our picture fully I must tell you that up till May, 1892, the Great Western Railway, unlike other lines, had its rails 7 feet instead of 4 feet 8½ inches apart, called the "broad gauge." After working on this system for many years, it was found desirable to bring the Great Western line into uniformity with those worked on the "narrow gauge" system, and in 1872 the Welsh portion

of the line, from a place near Gloucester away to Milford Haven, was converted from the "broad" to the "narrow" —and this on the non-alcoholic plan.

*5. In 1892 the same company wanted to do the same work over another part of their system, some two hundred miles long, between Exeter and Truro, including branches, and in order not to keep passengers waiting whilst it was being done, they made arrangements for getting it through very quickly, closing the whole of the line for traffic on two days, May 21st and 22nd.

*6. Five thousand skilled workmen were drafted from all parts of the Great Western Railway system, or borrowed from other companies, and stationed at various points where they were to begin work. About sixty men, under three "gangers," had been allotted to each three-and-a-half miles of road, and these were in charge of one sub-inspector of permanent way. Every one of the five thousand men knew what work he had to do, and was in readiness to begin; and all were animated with a friendly rivalry—a desire to have their particular "section" done well up to time.

*7. Between three and four o'clock on the morning of May 21st the men began their labours, and worked till about nine in the evening (some seventeen or eighteen hours), with but three half-hours' rest during the day for meals. They were, as you may imagine, all ready for a night's sleep, and suitable arrangements had been accordingly made for their accommodation—two thousand slept in tents, a large number were lodged in goods sheds and waiting-rooms, while some went to private residences, over four thousand straw mattresses and double that number of rugs being provided. Early on May 22nd the work was again resumed, and within the time allotted—thirty-one hours—the task had been accomplished, and before dark the line was in readiness for the ordinary service of trains to be resumed.

8. Some idea of the hard labour entailed may be gained from the knowledge that the rails used on the longitudinal permanent way weigh 68 lb. to the yard, and are laid in lengths of 32 feet. These rails, with the heavy lengths of timber upon which they are fixed, had to be severed from each other, and then moved with huge levers to the proper distance to make a four-foot way. After adjustment, the "transoms" which fit in between the two rails to keep them from slipping inwards had to be replaced; the "tie bolt" (which prevents the rails from slipping outwards) had to be fitted in and screwed up, and there was the process of "packing" under the rails to be performed.

NO STRONG DRINK.

*9. Of course this army of workers had to eat and drink well to keep up their strength. The company, on this, as on the former occasion, in 1872, told the men to bring their own food, but said that drink should be supplied to them free. Now some might have imagined that beer or cider would be provided, but the officials responsible for this great undertaking were too wise to follow such a course. The managers of the railway resolved that temperance should be the order of the day, and the experiment they carried out was eminently successful. The principal drink supplied was simply oatmeal and water, or "Stokos," but coffee was in some places also provided.

*10. To ensure a good supply of drinking water ninety tanks were set down near the tents, and at various points "fire-devils" as they are called, were placed, and by means of these a plentiful supply of hot water was provided, into which oatmeal was put and well stirred about, and this drink when cool and sweetened was supplied without stint, in all about *ten tons of oatmeal* being used. The men got to like the drink, upon which they

were well able to compass their gigantic job, without any drunkenness, without any quarrels, and without any accident worth mentioning.

A CHANGE OF OPINION.

11. It is quite certain that, say, fifty years back, before the temperance reformation had begun, if such a job had been on hand, the railway company would not have believed that it could have been got through without the help which beer was supposed to give. But they have learned better since then, and their last great experiment has shown the world in a most striking manner the superiority of non-alcoholic over alcoholic beverages.

12. When the eminent physician, Sir Andrew Wilson, was told how well the men had been able to work on oatmeal and water, he said: "This is not wonderful, inasmuch as any one possessing the slightest knowledge of the composition of foods knows that oatmeal is one of the most nutritious of common articles of diet. It is rich in starch, has a fair quantity of nitrogenous matter, is supplied with minerals (including the bone-building phosphates), and also shows a fair percentage of fat. *Now these things, needless to remark, you do not get in beer, which is chiefly water, of course with a small percentage of alcohol and other constituents.*"

ADDITIONAL TESTIMONY.

13. There have been many other experiments of a similar kind on various railways. While the Inner Circle (London Underground) Railway was being completed, involving the employment of two thousand men, no intoxicating liquors were allowed to be sold or brought upon the premises, and the results were shown in the quiet, orderly, and contented way in which the navvies and platelayers carried out their work. The chairman of the London and North-Western Railway informed a

meeting of shareholders that 3,700 men on special duty during a season of fog were supplied with bread, cheese, beef-tea, and coffee, *but with no intoxicant of any kind.*

14. When the Canadian Pacific Railway was being constructed the promoters resolved that there should be no public-house, nor power of purchasing intoxicating liquors within ten miles of the line, during its construction. One result was that this gigantic undertaking, involving the construction of a railway four thousand miles long, in which thirty thousand men of all kinds of character, and of almost every nationality, were employed, was completed without the commission of a single crime or any breach of law, except of a trifling nature.

15. In conclusion, the testimony of Sir Thomas Brassey, M.P., constructor of railways, is worth mentioning. In his book on "Work and Wages," he says: "The taste for drinking amongst a large number of working people in this country has been excused on the ground that hard work renders a considerable consumption of beer almost a necessity. But some of the most powerful among the navvies have been teetotalers. On the Great Northern Railway there was a celebrated gang who did more work in a day than any other gang on the line, and always left off work an hour and a half earlier than any other men. Every man in this powerful gang was a teetotaler."

16. Let us, in view of the striking testimony given by these hardest of hard workers, resolve to abstain from those drinks which not only give us no strength, but also prevent us using to the best advantage the strength which we already possess.

When a hard toiler says, "I can't do without beer"
Quote these records of Railways, and make it quite clear
How five thousand men found that the best "strength supporter"
Was not beer, cider, brandy, but "oatmeal and water."

9.—OUR SOLDIERS.

"*There was formerly a superstition that Englishmen could do no hard work without a certain amount of liquor, but from the time we started until the time we got back, not a drop of grog was drunk.*"

"*About ninety per cent. of the crime in our army is owing to drunkenness, and when our men are removed from the temptation of intoxicating liquor crime is practically unknown among them.*"—LORD WOLSELEY.

OUR soldiers! How vividly these words call to our mind the roll of drums, the gleam of bayonets, the clashing of swords, the roar of artillery, and the hurried tramp of armed men! Happily, in connection with the present picture it is not my duty to tell you a story of lives sacrificed or treasures wasted, but to record the gallant march, under circumstances of difficulty and privation, of brave, strong, and loyal soldiers under a gallant and wise leader—a march the special feature of which was the entire absence of all intoxicating drinks.

THE RED RIVER EXPEDITION.

*1. You have probably read in your histories that in the year 1870 there was a military expedition to put down the revolt of the French-Indian natives in the Red River Settlement, on the annexation of that territory to Canada. General Wolseley, then Colonel Sir Garnet Wolseley, was in command, and had under him about 1,200 soldiers, two-thirds men of the Canadian militia and the remainder regular troops. This force was conveyed by steamers from Collingwood, across Lake Huron and Lake Superior, landing at Thunder Bay, whence they had to traverse six hundred miles of wilderness to Fort Garry, on the Red River, a stream which flows into Lake Winnipeg.

*2. The starting-point for the longest and most difficult part of the route was Lake Shebandowan, which is about fifty miles inland from the shore of Lake Superior. The troops used boats so far as they could find navigable water; elsewhere they had to make their way by foot over rough ground—rocks or forest—dragging their boats and carrying their stores by hand. They reached Fort Garry in five weeks, after, it is said, "prodigious labours, very skilfully directed and very cheerfully borne." There was, happily, no fighting to be done, the rebels having surrendered the fort and taken flight.

A TOILFUL JOURNEY.

*3. I cannot give you full details of the journey, but some of its difficulties may be realised from the picture before you, which represents the toilsome job of a "portage" as it is called, where the boats must be hauled upon log rollers, over a road cut through the woods from one lake or river to another. There were no less than forty-seven such portages between Lake Shebandowan and Fort Garry. The boats were stoutly built, 25 or 30 feet long, and 6 or 7 feet wide; the guns

weighed 200 lb. each, the barrels of pork 2 cwt., the flour barrels 120 lb., and the biscuit barrels 100 lb.; and these heavy burdens were carried on the backs of the men.

4. Some of the men used "portage-straps," made up of a band of leather 3¼ inches broad, which rested upon the forehead, while its two ends were fastened round the package behind, which was held in its place by the hands. Others preferred letting the burden rest on slings attached to a pole, which was supported by two men, each man either holding an end of the pole in his hand or resting on his shoulder. It will at once be seen that in whatever way the burdens were carried the task imposed upon the soldiers was very heavy and difficult.

HARD WORK AND NO DRINK.

*5. Now Sir Garnet Wolseley had long been aware, from his experience in the Crimean War and elsewhere, that the greatest enemy of the British soldier was strong drink. The result of inquiries made by military and medical men as to the health, discipline, and moral standing of the army showed that alcohol was dangerous and disastrous in its tendencies, causing numberless diseases, and rendering the men less able to resist fatigues and privations. Sir Garnet determined, therefore, in his Red River Expedition, upon the absolute suppression of all alcoholic drinks.

6. Describing this expedition, he says: "From May 25th (when the first detachment embarked at Prince Arthur's Landing) to July 16th, when the first brigade of boats made their final start for Fort Garry, the men were constantly employed in landing stores, road-making, and getting their boats up to Shebandowan Lake. During that time they also constructed a strong square redoubt for the protection of the storehouses, &c., at their base of operations, Prince Arthur's Landing.

During the thirteen weeks which elapsed between the disembarkation at that post, and our marching into Fort Garry, it rained upon forty-five days, and upon many occasions every one was wet for days together.

7. "Notwithstanding the magnitude of the labour, the exposure to inclement weather, and the great annoyance from mosquitoes thus endured, there was not, throughout the whole of this arduous operation, the least murmur of discontent heard from any one. From first to last there was a total absence of crime, and, I may add, of sickness also. Never has any body of men on active service been more cheerful or more healthy.

8. "This has been one of the few military expeditions where spirits have formed no part of the daily ration, and where no intoxicating liquor was obtainable. I consider that the above-mentioned happy results are in a great measure to be attributed to this fact. A large ration of tea was issued instead, and I found that the men worked better upon it than I have ever seen soldiers do upon any previous occasions where rum formed part of their daily allowance."

TEETOTAL RATIONS.

*9. No spirits or fermented liquors! Tea or coffee, with sugar, the only stimulant allowed! The daily rations of food were, of biscuits, 1 lb.; of salt pork, 1 lb.; and one-third of a pint of beans, or ¼ lb. of potatoes. Upon this fare, alike for officers and soldiers, and upon the teetotal principle with regard to drink, they worked fifteen hours a day, as hard as any men ever could work. The men were constantly wet through, sometimes for days together. Yet we are told "they looked as healthy and cheery as possible, and *there was not a sick man amongst them.*"

10. Lord Wolseley referring to the Egyptian War,

says: "Our men enjoyed splendid health in the Soudan, and this is due to the fact that from the time they entered the Soudan until they quitted it they were not supplied with spirits."

11. He further states:—"During the operations I conducted in South Africa in 1879, my own personal escort was composed almost exclusively of teetotalers. They had very hard work to do, but grumbling was never heard from them, and a better-behaved set of men I was never assisted by—a fact which I attribute to their being almost all total abstainers." Again he says: "The experience of our armies in Caffraria, India, and Canada, shows that both the health, character, and efficiency of the men are improved by substituting other beverages for strong drink."

WHAT GREAT SOLDIERS HAVE SAID.

12. Besides what I have told you, there is abundant testimony from other military commanders as to the value of abstinence amongst our soldiers. Sir John Hall, K.C.B., said: "My own opinion is that neither spirits, wine, nor malt liquor are necessary for health. The healthiest troops I ever served with had not a single drop of any of them, although they were exposed to all the hardships of Kaffir warfare at the Cape of Good Hope, in wet and inclement weather.

13. Sir James Dormer says that tea or coffee is preferable to alcohol under all circumstances of a soldier's life. Sir James McGregor, when speaking of the march from the Red Sea to the Nile, relates that the hardships were best borne, and the physical endurance was most marked when alcohol could not be obtained.

14. During the American War Lord Cornwallis marched two thousand miles under the most trying circumstances. His men had no spirits and consequently there was little

or no crime or sickness amongst them. The great Professor Parkes states that the courage and endurance which a true soldier should possess are always lessened by drink. He was once in medical charge of the 84th Regiment, which had over four hundred teetotalers in its ranks; and he tells us that the regimental records prove that long marches, tropical service, &c., were best borne by the abstainers.

15. Colonel Geary says: "During the Abyssinian campaign for six weeks advancing upon and retiring from Magdala, there was no alcohol, no crime, and the percentage of sick was less than in any part of the British Army, at home or abroad, while the troops performed arduous marches on scanty food, and often with bad water."

16. The late American General M'Clellan gave his testimony for total abstinence, from a military standpoint, as follows: "Would all the officers unite in setting the soldiers an example of total abstinence from intoxicating drinks, it would be equal to an addition of fifty thousand men to the armies of the United States."

ADVICE TO YOUNG SOLDIERS.

17. I cannot better close this address than by quoting what Sir Charles Napier said to his men when reviewing the British troops at Calcutta: "Let me give you a bit of advice—that is, *don't drink!* I know young men do not think much about advice from old men, they put their tongue in their cheek and think they know a great deal better than the old 'cove' who is giving them advice, but *if you drink you are done for!*"

What our generals say about drink is quite plain,
"Soldiers marching or fighting do well to abstain";
For endurance or courage strong drink won't avail,
Milk, tea, coffee, are better; and best *Adam's ale.*

10.—OUR SAILORS.

"*The truth is, alcohol is a deceiver. It makes you feel warmer, while it* actually *makes you colder. Dangerous as intoxicating drinks are everywhere, they are especially perilous in cold weather and cold climates.*"
—DR. NORMAN KERR.

THE traveller who winters in the Arctic regions must expect, under the best circumstances, great hardships and privations. His ship being wedged in, he is confronted with a wilderness of ice—a frozen ocean. He must fight against all the forces of nature; endure months and months of weary darkness, with cold that freezes mercury. How can the dismal winter be borne, even by the stoutest and bravest? Will alcohol prove a friend, relieving suffering, and giving cheerfulness, courage, and strength? It has so often been urged that strong drinks have power to keep out the cold, that it will be well for me to record the testimony of explorers who have experienced the severity of an Arctic winter.

IN THE ARCTIC CIRCLE.

*1. I suppose you all know that since the year 1845, when the ill-fated Captain Franklin and his crew endeavoured to find a north-west passage round the Arctic Coast of America, from the Atlantic to the Pacific, there have been many expeditions to the Polar Regions. The one to which I want specially to refer, started in July, 1875.

Thirty years having elapsed since the gallant Franklin sailed from our shores, nothing remained but a faint hope that some further relics might yet be found. With this hope, and for the purpose of making scientific investigations, as well as of getting nearer to the North Pole, an Arctic Committee of the Royal Society recommended the Government to fit out one more expedition at the expense of the British nation. Parliament readily sanctioned a noble grant of money, and eventually two ships, the *Alert* and the *Discovery*, were fitted out and despatched under the command of Captain Nares.

SLEDGE HAULING IN THE POLAR REGIONS.

*2. When these ships were "frozen in," they were nearly ninety miles apart, and sledge parties were formed, twenty-two in all, for exploring journeys. The extreme weight of the sledges when packed and fully equipped for an extended journey, on leaving the ship, was 1,700 lb., or at the rate of 220 lb. to 240 lb. per man to drag. In these sledge journeys the difficulties of the way were such, that in one case the party could proceed only at the rate of one and a quarter miles a day. The men toiled with bitten hands and feet over blocks and bergs, pick-axing their way through mountains of snow and ice, and although stricken with scurvy, frost bites, and snow blindness, struggled cheerfully, though painfully, on till exhausted nature compelled them to yield.

TOTAL ABSTAINERS AND THE ARCTIC REGIONS.

*3. Amongst the seamen belonging to the *Alert* the only men who did any sledge travelling worth speaking of, at the same time enjoying *perfect immunity from scurvy and sickness*, *were Ayles*, *Malley*, *Joiner*, *and Self.* Of these the first two were staunch abstainers, whilst Joiner had been an abstainer for eight years, and Self for twenty-one years, before they were tempted, in a moment of exhaustion in one of the sledge journeys, to take stimulants. All the rest, including Gore, an abstainer, who gave way in like manner after twenty-five days' severe sledging, and became ill in consequence, suffered greatly from disease and exhaustion. On the *Discovery* there was only one abstainer, Henry Petty.

TESTIMONY OF FOUR ABSTAINERS.

*4. Ayles, Malley, Gore, and Petty were Good Templars, and, with the exception of Gore—who, though he gave way, afterwards signed the pledge again—remained staunch to the end. Ayles and Malley had the hardest work of the expedition, Ayles being away in a sledge party, under the most distressing cold and fatigue, for 110 days, and Malley ninety-eight days.

5. **Malley** says: "After the sledging duties were finished we found that we two had outnumbered the remainder of the ships' company in the number of days sledging. Ayles had done 110 days, and myself ninety-eight, and it is a remarkable fact that neither of us were attacked by scurvy, but enjoyed good health. We established beyond the shadow of a doubt, that the intense cold of that frozen region can be endured better without stimulants than with them—thus annihilating for ever the old excuse for taking stimulants—'A drop to keep the cold out.'"

6. **Adam Ayles**, described by Captain Nares to be "as fine a fellow as ever stepped," not only endured 110 days sledging, but was away from the ship on one occasion no less than eighty-four days, well earning the title of "Champion Sledger." On his return from this journey, with Lieutenant Aldrich—whom Ayles describes as "next door to an abstainer"—the party were attacked with scurvy, and all, except himself and Aldrich, seven in number, were in a helpless and pitiable condition; four having to be carried and the rest hardly able to drag along. Aldrich urgently pressed him to take spirits, "or," said he, "we shall all be lost," thus showing the commanding officer's lingering belief in their efficacy. "No," said Ayles, "I promised my mother when a boy not to touch it, and if I perish in the ice I will keep my word." He did keep his word, and never suffered from scurvy, frost bite, or other sickness. Indeed he tells us that in this, and the whole of the sledge journeys, he ate and slept well, had no disease, and bore the cold better than those accustomed to take stimulants. Happily, a relief party came just at the nick of time, in which was James Self, another abstainer, to whose "valuable services," also, Captain Nares bears special testimony.

7. **Gore**, who, as I have told you, was induced to break his pledge, says: "I found under these circumstances my appetite was not so good, and I could not sleep as I used. I gave it a fair trial, to see if it was really the grog that was doing me harm, and, of course, I found it was."

8. **Petty**, steward on board the *Discovery*, the only total abstainer in that ship, was the most exposed to the frost of any of the men, as he had to be cook on the long sledging expedition of sixty days; yet he tells us that he escaped scurvy and frost bite, slept well, and relished his

food, throughout the campaign, attributing his immunity from disease entirely to his total abstinence.

HOISTING THE BRITISH FLAG.

*9. Our picture represents Adam Ayles, Lieutenant Aldrich, and others, who, on May 12, 1876, after pushing their way three miles beyond any point previously touched by the foot of man, planted the British flag in the most northerly latitude yet attained. The man who went farthest was to leave a token behind. Adam Ayles performed this feat, and buried a copy of the Good Templar's seal in a cavern nearer the North Pole than any other human being had yet gone. The men are here seen looking down from an elevated point across a solid sea of ice—a desert of silence and death.

TESTIMONY OF GREAT ARCTIC EXPLORERS.

*10. The testimony we have given goes to prove, not merely that the abstainers of this expedition were able to perform as much work, and to endure extreme exposure to cold, as well as grog drinkers, but that they were really much better qualified for hard work under the trying conditions named; and this testimony is borne out by that of other Arctic explorers.

11. **Sir John Ross**, referring to an Arctic sledge journey of nine hundred miles, says: "It was quite remarkable to observe how much stronger, and more able our men were to do their work, when they had nothing but water to drink." And again: "I was the only person who drank no spirits, and was the only person who had not inflamed eyes; and although I was very much the oldest of the party, I bore fatigue better than any of them."

12. **Captain Kennedy** stated that he and his crew, all abstainers, when on the search for Sir John Franklin,

were able to effect more than any of the crews of the thirteen vessels that went out in the same year. His crew journeyed on foot when others would not; they travelled more than others, and in the days of darkness when the sun was absent. They suffered from snow-blindness, lameness, and lack of food and water, enduring the most terrible hardships, and yet returned home with all hands, and in better condition than any crew that had ever returned from an Arctic expedition.

13. **Dr. John Rae** gives candid testimony when he says: "I am not habitually a total abstainer from the use of wines and spirits, although I, as well as my fine fellows, were so—not from necessity, but choice—on all the Arctic expeditions in which I was engaged. Although now about a quarter of a century older, were I going to another Arctic expedition, I should again be a teetotaler, so perfectly am I convinced, after many years' experience, of the bad effects of alcoholic drinks in a cold climate."

14. **Dr. Fridtiof Nansen,** a Norwegian, a few years ago, had occasion to cross Greenland on foot and, along with five companions, spent several weeks on floating ice. For forty days they tramped over frozen snow with eighty degrees of frost. The doctor says, in referring to this journey: "*The only spirits we took were as fuel for our stove to melt the snow, that we might have water to drink. I believe the use of stimulants to be a mistake.*" Dr. Nansen started in June, 1893, in the *Fram*, with a gallant crew, on yet another search for the North Pole, taking no alcoholic liquors with him, still believing them to be totally unnecessary.

Strong drink makes pretence, and, though ever so bold
At the start, will not serve us to ward off the cold.
Take good food, clothes, and exercise—these will give heat,
To hope drink will befriend is to trust to a cheat.

11.—OUR POSTMEN.

"Large numbers of Her Majesty's servants in the Post Office are annually ruined because of an evil, which is not only an unnecessary evil, but which can be easily and absolutely prevented."—THE LATE SIR ARTHUR BLACKWOOD, K.C.B.

IT would not be easy to find an occupation which more affects the business and pleasure of our daily lives than that of the postman.

> "Every morning, as sure as the clock,
> Somebody hears the postman's knock,"

and, for pleasure or pain, loss or gain, his visit is always keenly looked for.

POSTING IN THE OLD TIMES.

1. We have only to go back a hundred years to realise what wonderful advances have been made in sending messages from one part of our country to another. John Palmer, who introduced in 1783 the idea of mail coaches,

wrote : "At present the mail is generally entrusted to some idle boy without character, mounted on a worn-out hack, and who, so far from being able to defend himself or escape from a robber, is much more likely to be in league with him." Even when mail coaches were adopted the guards had to carry swords and pistols with which to defend their charge against highwaymen.

COSTLY CORRESPONDENCE.

2. The loss of time and the cost of letter-carrying was formerly very great. Even so late as 1839 the Post Office charges were as follows :—For carrying a single-sheet letter, under 15 miles, 4d. ; 15 to 20, 5d. ; 20 to 30, 6d. ; 30 to 50, 7d. ; 50 to 80, 8d. ; 80 to 120, 9d. ; 120 to 170, 10d. ; 170 to 230, 11d. ; 230 to 300, 1s. ; 300 to 400, 1s. 1d. ; and for every 100 miles beyond, or portion thereof, one penny more ; whilst the smallest sheet, if cut in two, was charged double postage.

3. The conveyance, then, of a letter in these old times was a serious matter, and we do not wonder when Robert Chambers tells us that he had conversed with a person who remembered seeing the letter bag from London to Edinburgh opened *which contained only one letter.*

A NEW ORDER OF THINGS.

4. The year 1840 was the commencement of a new era in the history of the Post Office. Postage for all distances in the United Kingdom was reduced to a uniform rate of one penny, and many abuses were swept away, amongst others the privilege Members of Parliament had of "franking," or sending their letters, and the letters of friends to whom they gave or sold their signatures, free of cost.

*5. On January 10, 1840 the Penny Post came into operation, and in the same year the Money Order system.

Twenty years later the Post Office Savings Bank was originated, and in 1870 the Postal Telegraph system.

*6. In more recent years the halfpenny post, sixpenny telegrams, postal cards, parcels post, and pillar letter boxes, have been introduced, yielding more work, and employing a continually increasing number, not only of indoor "sorters," "clerks," and "porters," but an immense staff of outside workers, including mail van "drivers" and "guards" letter-carriers, and telegraph boys, these public servants conveying in the year 1892–3 no less than 1,790,500,000 letters, 244,400,000 postcards, 535,200,000 book packets and samples, 162,800,000 newspapers, and 52,370,000 parcels, a total of 2,785,270,000, in addition to 69,007,848 telegrams.

POSTAL SERVANTS.

7. The total number of permanent officers connected with the Post Office was, on the 31st of March, 1893, 71,956. In this total are included 10,465 women, of whom 1,176 are employed in the chief offices in London, Edinburgh, and Dublin, and 4,526 as counterwomen, sorting clerks, and telegraphists throughout the United Kingdom. It will thus be seen that the Post Office furnishes a good means of livelihood for many who hitherto had a difficulty in finding suitable occupations. Besides the foregoing there are about 59,000 persons not on the permanent staff, and about 16,000 of these are women. The total number employed is 131,459.

POST OFFICE SAVINGS BANK.

8. The business of the Post Office Savings Bank has made notable progress from the first, the total number of depositors on the 31st of December, 1892, being 5,452,316 of which 5,027,431 were in England and Wales, 199,062 in Scotland, and 225,823 in Ireland. This would be 1 in 6

for England and Wales, 1 in 20 for Scotland, 1 in 21 for Ireland, or 1 in every 7 of the whole population. The total amount deposited in the year was £22,845,031, the average balance at the Bank for each depositor at the end of the year being £13 18s. 3d. This shows that the British people are not behind in the matter of thrift.

OUR PICTURE.

*9. Our picture, which introduces three branches of the Postal Service, does not look so romantic as would one showing an eighteenth-century post-boy with his bright red jacket and his letter-bags slung over his horse's neck, but it has an air of life and "business" about it contrasting favourably with the "slow old times."

*10. Here is our busy postman, true to the minute, making his periodical collection of letters at the pillar-box; yonder the telegraph messenger hurrying along with a "wire" that has possibly been sent hundreds of miles, and delivered within ten minutes of the time when the sender attached to the form his 6d. stamp; and there in the road, drawn by a fine pair of horses, is the Parcel Post Van, containing its hundreds of packages of all shapes, sizes, and varieties, this supplementing the Mail Van, which may contain tens of thousands of precious letters—possibly bank notes and cheques for as many thousand pounds—all safe and sound, and all, so far as they are properly addressed, sure of a speedy delivery.

POSTMEN AND TOTAL ABSTINENCE.

11. The daily task of the postman is very laborious, involving, as it does, the monotonous tramping over many miles of weary city streets or dusty country roads, and yet we learn that these heavy duties can be well performed without strong drinks.

THE POSTMAN'S TEMPTATIONS.

*12. It is a well-known fact that non-abstaining postmen in their daily rounds have strong temptations to drink, not only because of the many public-houses in their way, but by reason of the "cruel kindness" of the people at whose houses they call. These temptations are specially rife at Christmas-time, and the Postmaster-General yearly calls attention to the fact that the offer of beer, wine, or spirits to postmen whilst in the discharge of their duties is an act of mistaken kindness which is calculated to bring them into trouble and disgrace.

DISGRACE THROUGH DRINK.

13. The late Sir Arthur Blackwood, secretary of the Post Office, said: "During sixteen years, 1873–88, nearly 1,000 officers of the department—the actual number being 987—were either dismissed or compelled to resign in consequence of their intemperate habits. In the same period there were 138 cases of degradation, 64 of arrests of annual increment, and 1,864 of suspensions from duty, involving loss of pay." Mr. Fawcett, also, a former Postmaster-General, said: "Were it not for drinking and betting there would be very few cases of serious crime in connection with the Post Office."

TOTAL ABSTINENCE AND THE POSTAL SERVICE.

*14. In view of the above facts it is satisfactory to note that a Post Office Temperance Society for the whole kingdom has been started, which has already thirty-six branches in England, Ireland, and Scotland, with a total of 2,390 members. A pleasing feature is the association of many chief officials.

*15. Formerly the case was very different, and in the height of success of the "Blue Ribbon" movement some of the Post Office officials objected to the wearing of "the

blue" by abstaining letter-carriers. The matter was brought before Mr. Fawcett, the Postmaster-General, who sensibly observed that the men might wear "all the colours of the rainbow if it would only keep them from the drink."

TESTIMONY BY ABSTAINING POSTMEN.

*16. Thousands of abstaining postmen bear testimony to the value of total abstinence in their arduous work. One of these, who was asked how he got on in the hot months, said: "I don't know how I should get through if I were not a teetotaler. I take oatmeal and water by way of a 'cooler,' and you can hardly realise what a comfort it is to a poor thirsty fellow."

*17. Inquiries have elicited that many postmen, after doing their day's duty, commencing at five o'clock in the morning, take an active part in various works for bettering the social condition of their fellows. One of these, who has pursued his laborious calling for over twenty-six years, says:—

*18. "I have been during these twenty-six years at my work in all weathers and at all hours, and been able to attend to my duties without the use of any alcoholic drinks, and *I believe that any and every one can do the same.* Seldom has any one been dismissed from the service for any cause but drink, direct or indirect. Fortunately the temptations to drink are now fewer than they used to be, a chief reason being that there are more eating-houses about, and that in the larger offices kitchens are provided where men can get refreshments. Happily also there are many branches of the Postal Total Abstinence Society in active work."

"On Her Majesty's Service," from near and from far,
Comes the postman with mail cart or bag marked "V. R."
Who will doubt that each man will work best in his sphere
If he drinks Nature's drink, and shuns brandy and beer?

12.—IN THE LAUNDRY.

"*Health will not be clothed in dirty raiment. Those who wear such, suffer from a train of minor complaints—from dulness, oppression, nausea—which, though trifling in themselves, put together, greatly reduce the standard of perfect health.*"—SIR B. W. RICHARDSON, F.R.S.

OUR present address is specially intended for the girls, although the boys may, perhaps, benefit by a little talk about the use of soap and water, the virtues of which are many, for our bodies as well as our minds must be kept pure and clean, and we must always remember that "Cleanliness is next to godliness."

*1. "Washing-day" is a time-honoured institution, although a poet has sung—

> "There is no peace within the house
> Upon a washing-day,"

and I suppose the tub and flatiron, if not the mangle, do service, on a large or smaller scale, in most of your houses.

WASHING.

*2. Here in our picture are busy women, one in front, at the most important item, "the washing." You know, of course, that she must use soft water to get the clothes clean, or, if the water happens to be hard, that she softens it by using *soda* or *borax*. You know, also, that she must have hot water to get out the dirt, and that for washing linen the water must be hotter than for flannels; also that she puts the soda or washing powder into the water and stirs it well before the clothes are put in, having first steeped the linen all night in cold water to remove the worst of the dirt and stains.

3. Fancy how carefully she has soaped the linen, how vigorously she is rubbing each part till all the spots and stains have gone, and when the water has got dirty, how careful she is to take fresh water, and then to rub and rinse in warm water till the whole is perfectly clean!

AT THE COPPER.

*4. The clothes, already washed, have been put into the copper yonder, and allowed to boil briskly for half an hour, and now you see another woman is taking them out with a wooden stick, laying them in a tub of clean cold water, after which she will rinse and wring them tightly, shaking out each piece and dipping them into a tub of "blue-water," wringing them out again tightly through the wringing machine away there, and then they will all be hung out on the line to dry.

DRYING.

*5. The drying in our picture is done in the open air, which is best, as it sweetens the clothes, and keeps them a better colour. The clothes are always hung the wrong side out to keep the smoke and dust from the surface. Linen things that are going to be "mangled" or "ironed" have to be taken in while still damp, when

they are "folded" and placed aside to finish. If they are dried too much, it will be difficult to get them perfectly smooth and to remove the creases.

*6. On the other hand, things that are to be starched stiffly must be allowed to get quite dry or they will not soak up sufficient starch to stiffen them. If you were close to the woman hanging out the clothes through the door there you would see how carefully she places the garments with their thickest parts, bands, gathers, &c., uppermost, so that the water may drain out, and the thin parts not be torn by the weight.

STARCHING AND IRONING.

*7. One of our laundresses can be seen hard at work "ironing." She has prepared the shirts, collars, cuffs, &c., by starching them well, tightly wringing them, rolling them in a clean cloth, and pressing them, and now she is ironing them very carefully to stiffen them and smooth and brighten the surface.

8. Bed-linen, towels, toilet-covers, &c., she has put aside to be simply mangled. Body-linen, serviettes, d'oyleys, and handkerchiefs she carefully irons, the latter on both sides, ironing straight by the hem or selvedge, and not across from the corners. Fronts of shirts and prints she irons on the right side only, lace and muslin on the wrong side only, and collars and cuffs on both sides.

9. I need not tell you that all linen, whether mangled or ironed, must be well "aired" before being put away or worn, either in the open air or before a good fire. Starched linen is "polished" before airing by being first rubbed over smoothly with a damp rag, and then by being "rubbed and pressed by a well-heated polisher or glossing-iron."

LAUNDRY WORK WITHOUT ALCOHOL.

10. The work of laundry women is very hard and trying. The number of hours they are compelled to labour is often excessive, and this excess, we are told, is greatly aggravated by the irregularity with which the work is distributed over different days, the extreme pressure in many cases coming on the Saturday. The conditions of work are also unhealthy, by reason of the necessity for continuous standing and the extreme heat of such laundries as are badly constructed.

*11. It is interesting to learn that abstainers bear the pressure of these long hours and unhealthy conditions far better than those who take alcoholic beverages. Perhaps one of the oldest domestic fallacies is the one that "A woman can't work at the washtub without beer," and thus, in former times, washerwomen were a class much addicted to drink. A lady, visiting the home of a Band of Hope member who had six younger brothers and sisters, none of whom belonged to the Band of Hope, was told, "Oh, we're all teetotalers, *except mother*." "Is not your mother a teetotaler, too?" said the lady, in surprise. "Oh, no, Miss, mother's a *laundress*," the child replied, evidently convinced that beer was a necessary of life to a washerwoman.

OLD TIMES AND NEW.

12. The condition of things is much better now than formerly, when the women used occasionally to put their pence together and go into a public-house to drink, and when it was not at all an uncommon thing for employers to keep a barrel of beer on the premises in response to the cry, "More work, extra beer." In most of the great laundries a change has taken place, and in some cocoa and coffee can be had, though in others the women are not encouraged to drink at all between meals.

13. Laundry keepers state that it is unfortunate when women go home to dinner and take beer, for they show in their afternoon work that they are less capable of exertion, and more clamorous for an early tea. It is also said that where the appetite is not aroused during the day by "little drops," there is not the temptation to drink when the women leave work.

TEETOTAL LAUNDRIES.

*14. Of course the idea that beer helps work is easily disproved. Indeed, we have only to go into the laundries of our large women's prisons, where all the work is done without strong drink of any kind, to expose the fallacy. In some large unions, the Lambeth Workhouse, for instance, this is also the case, and a number of our great laundries are worked on the "teetotal plan," with excellent results both for the workpeople and the employers. One of these, "The Albert Laundry," London, is specially worth mentioning, as it has been worked for over forty years without the drink.

*15. The proprietress of this laundry, Mrs. Durrant, says, "My laundry, which was opened in 1850, was from the first conducted entirely on temperance principles—no intoxicants whatever being allowed to the women while at work. This was at first a difficulty, but it proved far more satisfactory to all concerned than where the drink is allowed, and that the women appreciate this is proved by the fact that they are always glad to return to the laundry after the slack season, because there is no temptation to drink, and their money goes farther.

*16. "My experience of forty years in a laundry enables me to say that, instead of beer being an advantage for work, it is much better done without. Some of the women have worked for me as long as eight or ten years; in fact, the mothers come and their daughters

follow them at the work, and some hundreds have been employed at our place. They have not all been abstainers, but they have done their work at the washtub for ten and a half hours a day, with an hour and a half for meals, without the liquor, and they all agree that they do their work better without alcohol."

CONCLUSION.

17. I have shown you in the foregoing twelve addresses—

(1) *That alcohol is useless as a food*, the experience of hard workers placed before you being supported by the testimonies of our best and most skilful medical men, which may be summed up in the one statement of Dr. Carmichael that "no amount of alcohol can form one single blood globule, one single muscular fibre, or one particle of tissue."

(2) *That the physical, as well as intellectual, wants of men may be satisfied without the use of strong drink.* This, too, may be summed up in one sentence, constituting a "declaration" of forty-three army doctors in India: "*There can be no excuse on physical grounds for rejecting the practice of total abstinence.*"

18. The whole purpose of these addresses has been to show *that health is improved, work better done, and life prolonged by abstinence.* Let us, in conclusion, sum up a few simple rules for securing what we are, I am sure, all desirous of attaining—"*A sound mind in a sound body.*"

"Abstain from strong drink, and tobacco and snuff,
Breathe pure air, eat pure food, drink pure water enough.
Take exercise, rest, recreation, and sleep,
Not too much nor too little. In watchfulness keep
The will and affections. Be cheerful and kind,
And secure, with God's blessing, 'sound body, sound mind.'"

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