"SEA LAND and AIR"

THE AUSTRALIAN NATIONAL MONTHLY

— OF —

TOPICAL INTEREST

Edited by M. DIXON.

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Month by Month

Why Not a New Industry?

A FEW weeks ago a three-line paragraph in a Sydney daily newspaper chronicled the interesting fact that two "right" whales, each worth about £150, had been captured in Twofold Bay by local whalers. Probably of the thousands that read the item few gave a second thought to the matter. But those few lines, hidden obscurely in an out-of-the-way column, contain the germ of marvellous possibilities.

Whales are captured each year at Twofold Bay. The whalers, who are equipped with pulling boats and hand-wielded harpoons, merely wait upon the caprice of the killers to drive the mighty cetaceans into the harbour, and then gather what the Fates have sent. They do not fare out into the open sea to intercept the blowing mammals as they wallow north or south on their annual migration. And so their score is an insignificant one each season. Yet, nearly a century ago, whaling off the Australian coast attracted adventurous mariners from the seven seas, and wealth untold was won from the blubber rendered in the bitter nights of the Antarctic, when the smoky fires gleamed fitfully on the frozen decks of American and Norwegian whalers. To-day there are but two small stations in Australasia, one in New Zealand, and one in Western Australia. Nigh upon a century ago Ben Boyd commanded a fleet of whalers at Eden, and Mosman's station nestled in the bay of that name in Sydney Harbour. In 1913 a Norwegian ship, inadequately equipped, netted £47,000 worth of oil on a four months' cruise, and these Vikings would have probably established themselves permanently in our southern waters but for the war. Australia is seeking new industries. The whales still range the coast ready for the harpooning. Each year the signalmaster at South Head tallies them in their hundreds as they roll and wallow, blowing and splashing, from the Antarctic to the tropics, and back again. There is an alluring arena of profit, adventure and romance for the enterprising right at the gateways of our coastal harbours, and unless Australians exploit it the questing foreigners will claim it for their own.

—*G.B.*

"Smoke-oh."

Professor Christopher Brennan, M.A., genius and poet, and Professor of Modern Languages at the Sydney University, does not confine his interests in life to the narrow precincts of scholarship.

He has his club, at which he is a regular habitué on a certain night each week, where other *beaux esprits,* such as Lionel Lindsay, a boon companion of his, foregather.

When Friday night comes "Chris" heaves a mighty sigh of relief, locks away offending French and German proses, and hies him away happily to his Newport home, surrounding which are several acres of cultivated land and the proverbial cows and chickens.

From Friday night till Tuesday morning he labours contentedly beside his fauna and flora.

On Tuesday morning he goes back to the city and his books.

His constant companion on all occasions is a pipe of extra large calibre, the smoke-stack of which is usually kept well in blast.

Smoking is a crime strictly prohibited within the precincts of the lecture rooms, as neatly framed placards hung conspicuously on the walls testify, but the men students usually prove short-sighted just before and after lectures.

One day "Chris" unexpectedly fell upon a whole batch of them going for their lives under the very shadow of a placard.

Making a great fuss, he demanded prompt regard for the regulations, and in double quick time all the pipes and cigarettes were put out of sight.

And now, gentlemen," he remarked blandly, "will one of you oblige me with a match"?

And he proceeded to burn tobacco.

—*B.L.*

Have You a Hobby?

The man or woman who has a hobby is a more lovable creature than the one who has not. Ask the woman whose husband plays golf. She knows! Golf gives a man a chance to take his ill humours out of the ball instead of—to use the best Australian slang—"roaring them up at home." A long day spent in the open makes a man appreciate the comfort of a cosy armchair close to the mantelpiece his feet can just reach.

Golf is a life sentence. Those who shoulder a mashie and get over their first embarrassment at hitting at balls in the presence of caddies are slaves of the Nine Holes for the term of their week-end lives. They think in niblicks, sleep in bunkers, and dream of a paradise where they can putt on to the green in two and have the laugh on Bogie. Golf is the true solution of many a man and woman's marital troubles. Women should try it as well as men. If your man can just beat you at the game he won't want to look at another woman. The ball will be your only rival, and most women can manage to hit a ball —hit it not quite so well as a husband, of course. There are fewer divorces in England than any other country, for the simple reason that golf is the national sport of the great middle classes. Common interest!

Do you garden? The startling habits of aphis and ants will provide you with a life interest—if you haven't one already.

As a hobby, there is quite a lot to be said for gardening..

Perhaps you jazz, or surf, or pick winners and come home with your tickets. These are not hobbies, however; they are pastimes—a different thing altogether. They do not help to develop your own individuality, merely breaching the gap of boredom, and they depend entirely on time and place and opportunity. A real hobby is as a dumb but sympathetic friend, ever on hand when you want him; ever ready for your mood. Even golf may be practised on the hearthrug.

A new hobby that is growing in popularity is the breeding of dogs; another is squab farming; but the latter has not been found satisfactory on a small scale. The study of Braille is an excellent hobby for women, who are then able to be of genuine use to the blind by translating books or other reading matter into the Braille language; this may be done in the home, and teachers are provided gratis for those who care to study the system. House decorating as an acquired art has its fascinations; poster work is another absorbing and, if talent is shown, remunerative hobby.

Perhaps your hobby is collecting things. Then there is no more to be said to you. You are already in the grip of your possessions, the housemaid hates you, and there is no way out but death or cremation.

—*M.M.*

Surfing and Health.

To-day the surf is thundering on scores of beaches around Australia to the accompaniement of the merry laughter of thousands of happy bathers who bask on the golden sands or disport themselves in the sparkling waves. It is, comparatively speaking, but a few years since surfing became what might well be termed the national pastime of Australia. During those years countless thousands have cast aside the mock modesty which stamped mixed bathing as a crime in the eyes of some people, and have found renewed health and untold enjoyment in breasting the flashing waves.

It is true that practically every departure from the well-worn track has to face strenuous opposition at the outset, and it is just as true that once that opposition breaks down the tide of popular feeling swings over to such an extent that one sometimes wonders how the opposite practice ever boasted any adherents. So it is with surfing. He would be a brave man who would come forth to-day and seek to restrain even the most casual surfer from having his week-end dip. The fierce heat of our Australian summer is tempered and made bearable for thousands of men, women and children who live near the sea coast and are able to don a neck-to-knee costume and respond to the insistent call of Nature's invigorating bath. Those who are fated to spend the trying months of summer in the blazing heat of outback, where the music of the surf and the gentle ocean breezes are unknown, envy, more than words can say, their more fortunate brothers and sisters who live within easy reach of the blue Pacific. But it must not be thought that the inhabitants of the inland districts are strangers to the delights of the surf. To very many an annual visit to Sydney or some other coastal town at Christmas or Easter enables them to forget for a brief space the heat and discomfort of life outback. And, even in the seclusion of their own districts, one will find at the close of a long, hot day the favourite nook in river or creek liberally patronized by the male population from miles around. This has been the practice from time immemorial, and is just as keenly prized by the country toiler as the beach is by the most inveterate surfer around Sydney.

In the meantime the surf keeps on thundering in, and the worshippers at its shrine grow more and more as the years roll on.

—*M.D.*

What of Our Language?

At a social function in one of Sydney's suburbs a few evenings ago the happy participants, ere the last good-byes were said, sang in chorus that sweet old ballad, "Home, Sweet Home." But they sang it thusly:—

Oh Moam, sweet, swee toam,
There sno play sly co-o-um.
There sno play sly coam.

And I vaguely wondered what is happening to our language when such slipshod pronunciation fails to excite even the most fugitive comment. It cannot be gainsaid that our spoken language is being so marred and mutilated by absurdities of euphony, ridiculous short-cuts to vocal speed and meaningless slang phrases imported from America, that the purist in speech is becoming as rare as the bunyip. Young girls and men revel in the slangy, slurred style of speech that passes current for simple English. One need but listen on tram or ferry to the merry chatter of the "flappers" to detect the hideous travesty of a dignified language. It is omnipresent. One need not seek far for the reason. Australia is flooded with American literature, flickered on by American films, and generally subjected to an Americanising propaganda campaign. Our own comic papers teach the lisping children that "gonna" means "going to," and that "wanna" means "want to." Some of the daily papers teach their parents other absurdities of language corruption. Surely it is time when those responsible for the education of youth should inaugurate a campaign to restore the purity, beauty and dignity of the English written and spoken language.

—*G.B.*

The Scope of Woman.

In the very beginning of things woman was placed in the same category as goods and chattels. In fact, she was not supposed to possess feelings or brains at all in comparison with the omnipotent male.

Gradually, however, Woman awoke from her lethargy—her uncomplaining acquiesence brought about by thousands of years of overburdened slavery—and began to discover that she, too, had a brain, and was able to use it almost as well as the men, if not better in some cases.

To-day Woman stands supreme.

Her scope is illimitable; all fields are open to her. The shackles of convention and narrow prejudice have been slowly but firmly swept aside, and the woman with the brain has come into her own.

There are still people who think that a woman's métier is the home—and the husband. But these, fortunately, are in the minority.

An interesting example of how far brains will carry a woman endowed with a determined will and soaring ambition is evidenced in the career of Miss Persia Campbell, M.A. Still in the early twenties, she can be remembered by contemporary school fellows trudging up the old hill to Fort Street School. By sheer ability and determination she swept all before her. Prizes, scholarships and all the good things dropped into the lap of the clever Persia, and as fast as they came others followed. Winning a travelling scholarship, she went to Europe, visited some more universities, and was humbly presented with more degrees than she can add after her name.

For a while she was on the staff of the Agent-General's office in London. News has reached Australia, however, that Miss Campbell has been offered a Resident Fellowship in one of the American universities.

To such great things can brains lead us, oh, my sisters!

You and I who possess only the average amount can but sit back and admire, and wish her, if possible, more success.

—*B.L.*

A Timely Protest.

One does not need to be a purist to join hands with the State Governor, Sir Walter Davidson, in condemning the too-free use of coarse and obscene language in Australia. The male population have a reputation for being indifferent as to the class of language in which they express themselves, even under the most ordinary circumstances. And the unfortunate part is that many people openly regard this reputation as something to be proud of. Let it be said emphatically that it is *not*. Some years ago navvies, shearers and bullockies were looked upon as the coarse language exponents of Australia, and it was an unwritten law that a follower of any one of these avocations was allowed a certain latitude in the language he used if circumstances demanded it. But times have changed, and to-day there are callow city youths who, in the use of coarse and indecent language could put the most hardened "bullocky" to shame. It is against this growing tendency to resort to the use of filthy and objectionable language in the course of every-day conversation that Sir Walter Davidson uttered his timely protest.

—*M.D.*

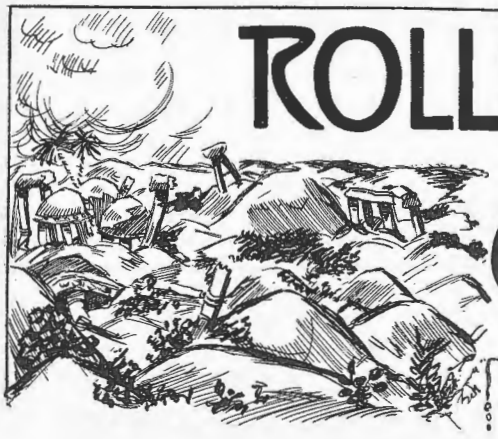
Our Great Inland Lakes.

How few people there are in this great city of Sydney who know anything of our great inland lakes? Within the past few months members of Parliament have taken the opportunity of visiting the outback to investigate the lands capable of being settled, and their itinerary on each occasion has taken them to the shores of some of the great inland seas. The largest sheet of water in the interior is Lake Victoria, on the western side of the Darling River, in the corner of the State. Set in the majestic loneliness of saltbush plains, it glistens and gleams like a radiant jewel. Twelve miles long it is, and seven across; but no sail flashes on its placid bosom, no frail canoe floats about its sandy foreshores. Utter loneliness embraces it entirely. The wild fowl breed and live there unmolested, seldom seen. The few who gaze upon its beauties are the wandering shearers, the untidy Afghans in charge of the wool-laden camel trains, and the solitary mailman questing further out. But the hand of man is set upon it, for Lake Victoria is now to become the adjunct of an immense irrigation scheme for the southern Murray lands in South Australia.

Then there are other great inland seas in the Murray Valley. Fletcher's Lake, on the eastern side of the Darling; Lake Gol Gol, a vast expanse of shallows, and Lake Benanee. Nowhere in Australia is there a fairer vista than that of Benanee, the Beautiful. Waters of crystal clearness, shimmering in the sleepy noons, it is a thing of rare and exquisite beauty. Were it accessible to the tourist the people of Australia would make pilgrimage to it each season when spring has gemmed the plains with flower and blossom. Further to the east, and in the Murray Valley, lie Lakes Yanga and Taila, broad, deep stretches of magnificence slumbering undisturbed through the centuries.

And right in the middle of New South Wales is Lake Cargellico, the "Coodgelligong" of the long-forgotten aborigines. Nestling on its western marge is a tiny township that is becoming the watering place of Riverina.

—*G.B.*



ROLLING BACK the CENTURIES

by I.L.I.

The following narrative was written by a member of the Mounted Column which did duty in the Sinai Desert during the Great War. The graphic manner in which the history of centuries ago is linked up with happenings of recent years makes the article of more than ordinary interest to the average Australian reader.—Ed.

IT was at Serapeum, on the banks of the Suez Canal, that the first treasure-seekers commenced digging. Those curious, hump-backed mounds that projected over so many acres of barren desert covered the remains of a once great city.

The inquisitive Anzacs, digging down, discovered that each mound hid the wrecks of mighty buildings, huge masoned stones and great columns of polished granite.

Then the burrowing went on with a rush. The soldiers in their off-duty hours eagerly went to work in little parties, each to their own particular mound.

It was a great depth to the floor of the buildings, and all were covered many feet by the merciless sand. Soon the more advanced parties had opened up what appeared to be enclosed stone corridors.

What expectation, what questionings were in the air! Was this one of the buried cities of the Pharaohs, or was it a relic of the mighty civilization that existed thousands of years before the birth of Christ? Would jewelled gold, vases of precious stones, the mummies of kings, the hieroglyphic tablets of a dead and forgotten nation be underneath?

But the diggers were doomed to disappointment. A ferment arose among the native Arabs at this sacrilege, and our senior officers told us that on account of the feeling of the native population the excavations had to cease.

Shortly after the Infantry went to France, and the Light Horse, crossing the Suez Canal, marched into the blazing Sinai desert to crush the Turkish legions that for the second time in the Great War were pushing onward to overwhelm Egypt.

The next peep into the dead centuries we got shortly after the scrap at Bir-el-Deuidar. While digging a well in the oasis we came on another well, also dug by soldiers of a conquering army many centuries ago. It was a Roman well, and its massive stonework, still as intact as the day it was built, was a lasting relic of the once great nation that did all things well. As we dug out the sand from the old well we unearthed some Roman coins and the remains of several spearheads.

In the unchanging climate of Egypt all things are preserved from decay in a most remarkable manner.

A few miles across the desert from Bir-el-Deuidar lies that famous city of the Ancients, Pelusium, its once great palaces and stately suburbs now lying under many feet of sand. Some of us when off duty would sneak away from our lonely desert outpost, and, chancing the Bedouins, would root among the sand mounds of Pelusium in search of coins and any curios

that might speak to us in the voices of the past. For this was a battle-ground of both civilized and barbaric armies thousands of year before our own ancestors had learned to clothe themselves in skins.

Many copper coins we dug from the mounds, but most of them were so old that they crumpled to green dust in the pressure of our hands. Three mates of mine, in great excitement, sneaked back to camp one afternoon. They had broken into a stone-lined vault, and inside was a huge stone box. Their united strength had been insufficient to lift the lid. Next morning at "stand-to" they crept past our outposts, hugging to themselves an iron bar to use as lever.

At evening they returned with crest-fallen faces. The stone box was a coffin, and inside was a hideously ugly mummy. But as to treasure or curios, all they found was a handful of very curious beads and two queerly shaped earthenware jars.

Suddenly our treasure-hunting came to an end. The Turkish army, like a whirlwind in its suddenness, came out of the east and fell on Romani. During the furious attack and counter-attack that followed, our regiment, in company with other brigades, hurled themselves on to the flank of the Turk, who reeled from the attack and sought sanctuary in the great oasis of El Quatia. But he had grace of only a few hours. With his dead littering the scorching sands, he was pushed back into the open desert. Here, once again, with the crash of shells and the whirr of machine gun bullets crackling through the humid air, we caught another glimpse of the dead past as we galloped through the oasis. This was a very ancient burial ground, and the white domes of tombs, half buried in the sand, made the curious amongst us wish for a chance to again pry into the secrets of the past.

But the Turk fought a skilful, desperate rearguard battle. We pushed him from Oghratina, and he made forced marches and entrenched again at Bir-el-abd. After this battle the pursuit ceased for a time. In the oasis itself we again came on relics of our friends, the Romans, in the shape of everlasting stone wells and great stone troughs, which some amongst us said were Roman baths. The Turkish army had been using the wells, and the water in the troughs was not yet dry when we brought our own horses there.

For some time after this the Australian and New Zealand troops were spread over many miles of desert, inhabited only by fierce nomadic tribes. We came across half-buried cities and the huge mounds that we had grown to know covered cities far out from the ancient caravan route in the very heart of the desolate desert—cities that the most ancient of ancient historians never knew existed. What a field is opened up for the Egyptologist now that the desert tribes are cowered and a railway built and water laid across the great desert!

Our young army engaged a skilfully led and powerful force across over a hundred miles of desert, and at the same time built a railway line and waterworks under almost insuperable difficulties. In fact, it might reasonably be claimed that, all things considered, the work accomplished by the Australians in the Sinai campaign ranks close to that of Egyptians when they built the great pyramids. One of those old cities made a big impression on the few of us who saw it. It was south of the oasis of Hasanya. Half a dozen of the party were far from our outpost camp on a patrol on the night after a great windstorm had swept over the desert—one of those violent storms that sweep away sandhills, carry the whirling sand for miles, until, the violence of the wind abating, the sand falls and forms other hills where before was level, monotonous desert. In a few hours in the path of these storms the whole face of the desert is changed. It was the white columns glistening in the sun that first caught our watchful eyes. As we rode closer we saw that the storm had bodily lifted sandhills and exposed to the light of day countless ruined buildings of a buried city. Four-fifths of most of the standing columns towered high above the sand, many of them being of white marble, decorated with bas reliefs of animals with men's heads. Many of the columns still had the stone cross-beams firmly attached, almost all of which were carved.

Suddenly one of our patrol called out for help. His horse, struggling frantically, had sunk up to the saddle flaps in soft sand. Around him was stonework, and the sand was no doubt softened by

the storm. The horse and man had literally fallen into a house. We soon got our comrade on to hard ground, but it took two hours' strenuous work to rescue the horse.

We decided to go back, report the find, and ask permission to go out next day with a strong party for a good fossick around. Alas! When we rode back to camp everything was in a bustle for the stunt next day to Bir-el-Mazar.

Here again we struck the Roman wells. During the invasion of Egypt historians say the Romans kept a garrison of 200,000 men in this oasis. We repaired one of their reservoirs, and used it as a pumping station.

Later we occupied El Arish, that place of horrors to Napoleon's army. On his disastrous retreat from Egypt three thousand of his sick and footsore men lay down here unable to march a yard further. The doctors reported matters to the great general. He gave the one order, "Poison!" It was far better so—far better than to leave them in the hands of the merciless Arabs.

Shortly after we were riding through the desert night to the battle of Rafa. That same desert route has witnessed the march of countless armies since the dawn of mankind. The ancient Egyptian armies trod it thousands of years before the birth of Christ, and the armies of Babylon, the Assyrian armies, the hordes of Arabia, those of the dead nations beyond count; in modern times, comparatively speaking, the Roman armies, only yesterday Napoleon, and to-day the army of the youngest nation on earth.

Shortly after Rafa we went along the coast of the Mediterranean, and here, in the great mounds, dug up many curious coins and imperishable earthenware jars.

Looking through Nature's tranquil casement on to the ancient port of Smyrna.

These old cities on the coast were no doubt great commercial cities, with the merchandise-laden fleets of the Phoenicians doing roaring trade on their shores.

Then suddenly the desert ceased, and before us spread the green fields of Palestine. We looked towards Gaza, the city of Samson, beyond which stretched the fields of the Philistines and of the Israelites, and beckoning us was the rugged mound of Fara, once held valiantly by the Crusaders, but now swarming with the overwhelming Turks, who watched us across the plain.

But the shades of the Crusaders were beckoning. A boyish-faced British army joined hands with us, and we marched on.

AFTER leaving the Queensland border I decided to make across country towards Woologarang. Reports were bad about the Gulf niggers, and I had to guard against surprise. My usual custom was to have tea late in the afternoon, and then go on till dark. Leaving the bike against a tree, and making a rough camp, I would get away a few hundred yards and quietly "turn in."

Here, on the fringe of this mighty northland, I could not help reflecting on how little we know about our own country. In my travels I have had it brought home to me that the north does not know the south, nor the south the north—that wonderland of primitive life and mystery.

One drover I met said he had had a lot of trouble with the natives. Once he found them killing his horses for their tails, which they wanted for fishing lines. Crocodiles are numerous along the way, too. They say that those found in fresh water are harmless, and that one can swim amongst them in perfect safety, but I doubted the story, and was not prepared to put it to the test. These reptiles live principally on water grasses, roots and fishes.

The country here in places was poor and uninteresting, melancholy tracts of stunted gutta-percha at last giving way, on the tableland side, to the vast plains of the "Never Never Land." Further on the coastline became park-like in appearance, but very sandy, and in its present state unfit for stock. Along the back fringes of the sandhills are numerous salt pans, which when dry would make good landings for aeroplanes.

Near Woologarang I met the first party of Gulf niggers. They were a skinny, degraded lot, and I had no wish to stay too long amongst them. They were friendly enough, so I went and had a look at their camp, which appeared like a museum of ancient weapons, some of flint or quartz. Stone spear heads, stone knives in possum fur sheaths, and stone axes set in crude wooden handles lay about. One of their most prized possessions was half an old horse-shoe sharpened at one end and the other set into a hard piece of wood. This was the tribal battle axe. The Gulf native has in appearance something of the Jew about him. Some of the customs also are Hebraic. The gins as usual do all the work, such as hunting, fishing, making nets from grass and vines, carrying the swag when on tour, and tracking up offenders against tribal laws. Of course, the "lord of the land" does a little when

it pleases him—which is seldom. The native women are smart at tracking. I met a small tribe, and told them that I had shot an iguana some miles back. By the time I got to the water-hole before mid-day they were there, having gone back, found the reptile, and had it already half cooked.

Here is a characteristic native menu: A big grey lizard, an iguana, a half-starved bandicoot, a native cat, half a dozen fresh water mussels, and, to keep it all together, several knobs of a clear-looking gum that had been lying out in the hot sun (112 degrees in the shade). All these had been hanging up on a dead tree the previous day. I watched them cook this meal. A stick of flat, soft wood was laid on the ground. Between the palms of a nigger's hands another stick of hard wood was rapidly revolved, the point twirling and twisting into the flat piece of tinder. In a few minutes smoke arose from pieces of dry grass, which were laid on, and a little later it burst into flames. A big fire was then made, on top of which stones were laid. When thoroughly heated these were dropped into a small sand pit, water sprinkled in, and all the above delicacies (?) laid gently to rest, and buried for about an hour. The buck niggers had first feed, the gins and picanninies next, and the dogs were treated to what was left. I gave each of this small tribe a piece of tobacco, about the size of a pea, which was eagerly accepted and stowed away in their hair behind the ear for future use. They make up a mixture of their own for smoking from various twigs, and also from an intoxicating plant called "pituri." This plant grows hundreds of miles southward from here. When ready the "smoke" is buried in a small hole in the ground, a hot cinder alongside of it. A hollow reed is then shoved down, and on bended knees the native takes a draw. It is surprising the amount of work that a myall (wild bush) nigger will do for a bit of tobacco. A couple of tons of firewood will be carried to a station perhaps half a mile away for about two sticks, of which sixteen go to the pound.

Pittwater, Manly District, N.S.W.

After leaving Moonlight Creek I travelled along the scrubby foothills of the ranges. Here I struck the first heavy rains of the wet season. The wind blew

with cyclonic force. Crouched down in the shelter of a log, I felt as if the whole earth was about to be rooted up. The trees seemed to be fairly stretching and bending earthwards in the tremendous gale. The rain came down in blinding, smothering sheets. Its density was so great that I could scarcely breathe, and I was chilled through and through. Dry creeks, where a few hours before I could not get a drink, were soon running bankers, so I decided to camp for a few days. The creeks behind and ahead began to join together, forming big rivers, which not only made progress impossible, but forced me to retreat. Food was scarce, so to eke out my flour supply I made a paste of it, eating water lily seeds between meals. My retreat soon became a race for life, and in my haste I drove and dragged the machine along through water, scrub and rocks, sometimes hauling it across streams on a floating log. Mosquitoes tormented me day and night. My precious tabloid bottle of matches I managed to keep dry, and these were as good to me as life itself. I lost all bearings, my only thought being to get to the higher country inland. If I did not get there speedily the upper flood waters would cut me off, and I would either be marooned on a sandbank and starved, or washed out to sea. Knowing this, I did not rest. Even after I got out of the sweeping waters I still kept on, following the ridges due east along the foot of the cliffs, knowing that by so doing I would eventually strike cattle tracks leading to a station. After more than a week of weary tramping my hopes were realised.

In the still flood waters in the mangrove swamps the alligators have a peculiar way of rounding up propoises from the sea. Several alligators will gather in a semi-circle about a porpoise, and gradually drive him inshore, up the tidal streams, and into the backwaters. Here the porpoise is at their mercy, stranded on the mud. He cannot get away, and falls an easy prey. Pelicans also adopt similar operations in rounding up fish. I have seen them travelling inshore, the noise of their bodies swimming through the water sounding like a falling stream.

A Blackfellow's Curse.

Near the Calvert the natives of the mountains are treacherous. I found deserted camps, sometimes with the fires still smouldering. The niggers were afraid of and mistrusted me. Unexpectedly I came across a mob camped in a mountain gully. A group was sitting around the remains of a kangaroo, parts of which, including the entrails, were roasting on the fire. Lying about were stone knives, long reed spears with flint heads, and devil-devil sticks made of a kangaroo bone sharply pointed. These are used by the "doctor" when he utters a curse against another member of the tribe. Another way of getting a curse in is to hold a corroboree and "sing" any form of disease or sickness down upon the victim. The men had their tribal marks on. These are made by cutting the fish on the breasts and filling the wounds up with special kinds of clay.

The niggers here gather a kind of manna, which grows on the gum leaves. Boughs are gathered and shaken on to a flat hard piece of ground. The manna scales are then gathered up into "coolamons," a kind of hollowed out piece of wood, looking like a large toy boat. This is then kneaded up with kangaroo blood, and during the process of kneading, if required for a sick person, spittle is also used. The mixture is regarded as a great luxury, and is bartered amongst other members of the tribe. If feeling unwell, or "training" for a fight, a nigger will pay visits to where one of his relations is buried up a tree. Under this he stands, and prods a spear into the body above. With this "juice" he anoints himself, and thus becomes "strong fellah."

The natives of the Territory use white for their mourning colour. I came across a party of gins covered in "copai" (a kind of white clay). They were seated in the shelter of a gum-bough breakwind. Every few minutes one of their number would chant a few words, and then the lot would set up a most unholy howling. The bucks had gashed their own thighs open to the bone. I have seen wounds that would put a white man in hospital for weeks. The niggers do not seem to mind

Travelling along the Calvert, and shooting "squatter pigeons" for meat—this country is teeming with these birds—I came out on to fast-flowing creeks, full of

Picturesque scenes near Kiama, South Coast, N.S.W.

magnesia and lime, the more of which one drinks the more one wants. A little pinch of tea goes a long way with this water. In one big creek I spent an afternoon fishing. This place is one of the best for sport (and food) that I have ever come across. Fish of all kinds are plentiful. Down in the clear water one can gaze into a natural aquarium. Big rock cod, black bream, garfish, barramundi, catfish, trout and perch abound. A splendid sporting fish is the black bream, the largest of which would weigh from four to six pounds. There is no lazy, lying-down-on-your-back style of fishing out here. The finny denizens take the bait with a rush. Sometimes a crocodile will shove his ugly eyes and head above water to have a look. The waters are clear, and his whole body shows as well. It is then time to go home.

The lagoons and overflows abound with small fish, and black duck and teal are also there in thousands. A shot will make them arise and blacken out the sky. There is no need to waste ammunition, however. Underneath those broad waterlily leaves on the placid waters ducks are plentiful. Having fed too long on underwater weeds and mussels, their feathers have become too wet to allow them to fly. When the alarm is raised they take shelter. With sharp-pointed spear I used to wade out knee-deep, and with half a dozen jabs would have six ducks. Under the rocks and up the trees are giant frogs, nearly as big as ordinary frying pans. They have voices which can be heard miles away. In the darkness of night before a tropical storm the booming and croaking are deafening. Then there is a tree cricket that keeps up a racket which sounds like a buzz-saw at a timber mill. Sometimes I earnestly sought this big insect with a 22 pea rifle.

The country is swarming with grasshoppers—much the same type as the African locust. They do great damage to the foliage. When a swarm is sighted on the skyline it looks like the smoke of an advancing bush fire. Riding on the bike I often get a sudden irritating slap in the eye or face from a stray locust. If I open my mouth to say what I think of it another will probably try to jump down my throat. Flies will do the same trick. Perhaps that is one reason why "bushmen are so silent."

SUNNY SOUTH AUSTRALIA

THE STATE OF WEALTH AND BEAUTY

By VICTOR H. RYAN
Director, Government Tourist Bureau

IT is but fitting that South Australia, as one of the younger States of the Commonwealth, should also merit the distinction of being one of the fairest of the countries glorying in allegiance to the British Crown. Though the State cannot boast of many mighty rivers, awe-inspiring waterfalls, or stupendous chasms, it is replete with examples of the handiwork of Nature when in her most pleasant and happy mood. From Cape Northumberland in the south to Wilpena Pound in the north there are features that compel the attention and admiration of the lover of the beautiful in land and seascape, while over and above all is the bracing climate, which for health and enjoyment is unexcelled anywhere in the world.

Situated on a fertile plain, midway between the sea coast and the Mount Lofty Ranges, Adelaide, the capital, will forever stand as a tribute to the ability and foresight of its designer, Colonel Light. With its encircling belt of park lands and public gardens, aggregating in area 2,000 acres, wide thoroughfares, and avenues of trees, it well deserves its title—"The Garden City." "Adelaide," said the late Viscount Bryce (ex-British Ambassador at Washington), on the occasion of his visit in 1912, thoroughly deserves all, and more than all, that travellers have said of its beauties and charms. It stands upon a rich, fertile plain, like my own beloved Oxford, and reminds me much of that place. Oxford, however, does not possess the lovely mountain ranges, holding in its recesses such a beautiful variety of entrancing scenery. What a pleasure it must be to have those hills so close at hand and to be able to commune with Nature in her inmost secrets! What delight it must be to be able to view from the summit those exquisite lights and colours stretching down to the blue expanse of ocean in the distance. Adelaide people are, indeed, fortunate in the situation of their city."

Mount Lofty Ranges.

The advantages arising from the near situation of the Mount Lofty Ranges to the city are almost inestimable. Hidden in their recesses are flourishing orchards and gardens, fairy dells, where maiden hair and other ferns luxuriate; everywhere the exhilarating atmosphere is filled with the delicious scent of sweet briar or other flowers, and here and there charming townships invite the tourist to stay awhile and revel in the beauties of Nature, and enjoy at the same time all the conveniences of modern civilization. The view of Adelaide and its environs which may be obtained from any of the vantage points in the ranges has been characterized as the best of its kind to be obtained in the British Empire. Mount Lofty, the highest peak, is by road about 12 miles from the city. From this eminence, 2,334 feet above sea level, a magnificent panorama is afforded, it being possible on a clear day to see 60 miles in nearly every direction. Of historic interest is an obelisk erected on the reserve in honour of Captain Matthew Flinders, commander of the ship *Investigator*, who, from Kangaroo Island, on March 23, 1802, discovered and named Mount Lofty.

Recognizing the value to the community of open spaces amidst beautiful surroundings, the Government has reserved areas at various places in the ranges as public pleasure resorts. The most extensive of these is the National Park, comprising 2,000 acres, situated at Belair, about 14 miles on the Interstate railway line from Adelaide. Nearer the city, almost at the foot of the ranges, are the Waterfall Gully and Morialta Falls reserves. At all of these facilities for the enjoyment

and convenience of visitors have been provided, while care has been taken to preserve the native flora and vegetation.

The South Coast.

Situated on the southern coast, and connected by rail with the metropolis, Port Elliot and Victor Harbour are deservedly the most popular watering places in the State. During the summer both these resorts are crowded with visitors. Portion of the coast is fringed with huge granite cliffs, and the unceasing roar of the mighty breakers of the Southern Ocean as they dash with impotent fury against the rocks is a never-failing attraction. Here and there among the rocks charming bays with clean white sand provide sheltered nooks for picnic parties and safe bathing, while conveniences for boating and fishing are at all times available. Granite Island, which lies a short distance from Victor Harbour, and is connected with the mainland by a causeway, abounds in pleasant walks and boulder-shaded retreats. In the vicinity of Port Elliot and Victor Harbour are a number of attractive places. These include Middleton, with its charms for the conchologist; the Murray Mouth, reached by driving along a fine stretch of beach; Hindmarsh and Inman Valleys, with their gardens and waterfalls; Hindmarsh River; and the Bluff (Rosetta Head), at the western extremity of Victor Harbour. From the summit of the Bluff, nearby which a whaling station existed in the early days, a splendid view of the coast reaching to the Murray mouth and seawards almost to Kangaroo Island may be obtained.

The South-East.

The south-eastern district is of special interest to the tourist. In this well-favoured portion of South Australia is Mount Gambier, with its wondrous crater lakes, many curious caves, and typical English scenery. The town is most pleasantly situated, and a drive along any of the good roads, for which the whole district is famed, is of more than passing interest. The Glenelg River, a beautiful stream 26 miles from Mount Gambier, is much favoured by sportsmen, whether gun or rod. In the south-east also are the world-famed Naracoorte Caves, with their marvellous treasure of stalactites and stal-

Victor Harbour, from Granite Island.

This is a popular seaside resort on the South Coast, 80 miles by rail from Adelaide.

View on the River Murray.

agmites, which for beauty of form, variety of colour, and transparency can hardly be excelled. Commenting on these caves, the Rev. Julian Woods, F.G.S., said: "In point of magnitude and splendour, and in a scientific view, they do not yield in importance to the Adelsberg Caves, the caves in the Peak of Derbyshire, the Guacharo Caves, and those in New South Wales and Tasmania. Other noted holiday and health resorts in this pleasant district are the attractive watering places, Port MacDonnell, Beachport and Robe, and of special interest is Dingley Dell, at one time the home of Adam Lindsay Gordon, the talented poet, whose romantic career is well known to the majority of Australians.

The River Murray.

The River Murray—Australia's greatest waterway—flows through South Australian territory for nearly 400 miles. Of the many opportunities for enjoyment available in the Commonwealth few can vie with those afforded by a trip on one of the well-appointed pleasure steamers which traverse its peaceful waters. Whether it be the world-wide traveller seeking acquaintance with sights and scenes unique to Australia, the seeker after lazy enjoyment under the most healthful of conditions, the inquirer for information respecting scientific irrigation and fruit-growing, or the sportsman eager to prove his prowess, a trip up the Murray should satisfy all requirements. A few miles from the Murray mouth Goolwa, one of the oldest towns in South Australia, and where some of the most interesting events connected with the early days of the State happened, commands the traveller's attention. It was near Goolwa that, as far back as 1830, Captain Sturt and Sir George MacLeay, the first white men to navigate the full length of the Murrumbidgee and the Murray from its junction with that stream, landed, and it was there also that Captain Barker, some 12 months later, met his death at the hands of the natives. The journey from Murray Bridge to Renmark is of unfailing interest. As the bends of the river are rounded fresh prospects are presented, and the flourishing irrigation settlements which are passed en route furnish a striking tribute to the fertile nature of the soil when scientifically irrigated.

North of Adelaide.

North of Adelaide are many thriving districts, each of which has its particular attractions for the tourist. Gawler, 25 miles by rail from the metropolis, is most pleasantly situated, and on the journey a glimpse of the State railway workshops and the city abattoirs is obtained. Seven miles from Gawler, at Roseworthy, is the Government Agricultural College, the first institution of its kind in the Commonwealth, and an important factor in bringing the practice of agriculture in South Australia to its present high standard. Angaston, 26 miles by rail from Gawler, and Clare, 65 miles from the same place, are both centres of districts famous for orchards and vineyards. Port Pirie, the chief outport of South Australia, is a busy shipping centre, the silver-lead smelting works of the Broken Hill Associated Smelters Propy., Ltd., located there being the most extensive and complete in

the world. Port Augusta, at the head of Spencer's Gulf, near by which is an ostrich farm, is the junction of the transcontinental railway line to Perth and the proposed line to Port Darwin, is destined to have an important future.

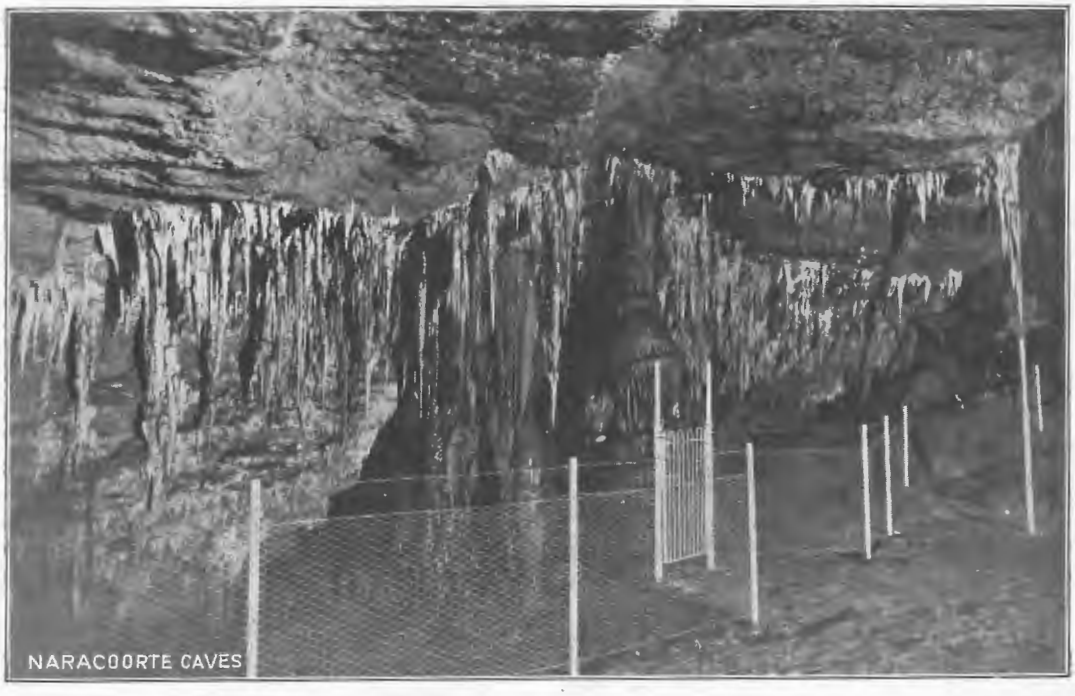
Port Lincoln.

Port Lincoln, the chief port of Eyre's Peninsula, was discovered and named by Captain Matthew Flinders in the course of his historic voyage on H.M.S. *Investigator* in 1802. For many years a popular holiday resort, the town, owing to the rapid settlement of the surrounding mallee country during the past decade, is now also an important commercial centre. It is served by lines of well-appointed steamers, the trip from Port Adelaide occupying about 12 hours. On account of its magnificent harbour Port Lincoln has been selected as a sub-base for the Royal Australian Navy. Railways run inland from the port in several directions, and the task of transforming virgin mallee land into profitable wheat-growing areas is still proceeding apace. The native flora a few miles distant is of great variety and beauty, and the abundant opportunities afforded for boating, bathing, fishing and shooting add to the delights of a visit to the port.

Kangaroo Island.

Kangaroo Island, about 70 miles distant by steamer from Port Adelaide, is, because of the salubrious nature of its climate, frequently termed "The Australian Isle of Wight." Even in the middle of summer the atmosphere on the island is almost invariably cool and refreshing, and this, combined with its many other attractions, has gained for it a high reputation as a sanatorium and holiday resort.

There are many other places in the State which, by reason of their natural beauty, deserve to be particularized did space permit. Included in the above, however, are those more easily accessible and which, mainly through the agency of the State Tourist Bureau, are becoming better known and appreciated, both by local residents and interstate and oversea visitors.



Naracoorte Caves, South Australia.

XMAS on the ROAD

BY E. S. SORENSON

WE left Kihi, on Koopa Creek, in early summer with 700 bullocks, and on Christmas Eve were drawing toward Mitchell, on the Maranoa. We had good country, but we also had a wilting heat wave and a plague of flies. We were wearing veils, and had veils also on our horses. The pest had reached the joking limit.

"They've been terribly bad along the river since the rain," said a traveller. "I was ridin' across a low sandhill a few miles above Mitchell when I noticed a big kangaroo sittin' in a clump of cypress pine, all alone an' very busy. For a while I couldn't make out what he was at. I was swingin' a little bush all the time to keep the flies off my face, an' when I got up close I saw the kangaroo was doin' the same. He had a pine branchlet in his hand, an' was usin' it like a lady uses a fan."

The previous day a boy rode up to our camp with a huge plum duff, which Boss Swiker had purchased at Donnybrook Hotel. In the exuberance of his feelings Wire Whiskers, the cook, greeted us with a burst of song:

Christmas-time is coming and the geese are getting fat—
Please put a penny in the old man's hat.

The spirit of Christmas dwelt even on the overland. Well I remembered the morning that our second-in-charge left to catch the mail coach for some little selection place four hundred miles away. His departure had filled everybody with a strange unrest. There was nothing around us but the virgin bush, not even a boundary fence as an outward symbol of civilization; but the season had its pull there on the roving camp the same as in well-settled districts. It was partly the result of custom, for Christmas time for country families was generally marked by the homecoming of the scattered flocks. The boys, on account of the distances between places, usually became more widely scattered than was the case with those who lived in cities. They visited home at intervals, and more or less regularly; but there were many, such as drovers, who worked so far away that only an annual visit was practicable.

Every bush mother looked for the chickens that had left the nest to return to her at Christmas time. Whether they were married or not, it was all the same, she liked to have them around her then. Thus some of the family reunions when they all rolled up made a considerable gathering. Sometimes there were friends as well as relations, so that the old house had to stretch a point, and miracles had to be performed with bedding to accommodate everybody. And how had the hostess worked in those festive days, how strenuous was her "Happy Christmas"!

About the time that the second-in-charge left us we knew she would be making preparations for the return of the wanderers —turning things out, putting things in order, white-washing, polishing, papering the walls, and summer cleaning in and out. She had more scrubbing and washing to do in that December week than in any other week in the year. There was a keg or two of hop beer to make; or perhaps honeymead would take its place if a wild bee's nest had been discovered and robbed about then. There was usually a hunt for sugar bags in mid-December, and when the boys reached home a couple of days before the 25th there were shooting expeditions also. The scrubs, lagoons and swamps supplied the Christmas game where settle-

ments were not too close together. Girls occasionally took a hand in shooting when the scrubs and swamps were near, or shared the thrills of a wild chase with reckless hunters.

Now and again as our mob moved slowly down the Maranoa a homing rider passed, with pack-horse jogging by his side, and evoked a laugh with the old, familiar greetings of the season. But we watched him wistfully till he had faded in the distance, thinking of other years and other places when we, too, had turned our horses' heads for home.

The incidents threw on the mental screen the picture of a quiet home away down east, where no near neighbours lived, and only winding tracks suggested other habitations somewhere along the creek or over the silent hills. Just a rough bush domicile, with mulberry and peach trees about it; but it was snug, and dear with childhood memories, and the inmates were happy and content with their own little circle. Always had it been the boy's haven with the fall of night—until the boys went droving. There was nothing to take them out after dark, except to hunt for 'possums. They played or read or yarned by the fireside, and so the hearthstone and the old roof were full of meaning to them. The bush home had an individuality, and the capacious fireplace, with its big back log, was an indoor sample of the roominess and freedom that was everywhere about it.

In the great, silent spaces, following the cattle from dawn to dusk, and watching them from dusk to dawn, memories of old Christmases came flocking back, and found expression when the yarns were going round the camp fire. Some pertained to wild days at a western caravansary, where drovers tarried while a lonely policeman kept an eye on the browsing cattle. The policeman would be sympathetic when the cattlemen made merry for a brief space at that rugged haven after weeks or months on the outer fringe. No doubt, their jamboree relieved the dull monotony for him. But we had drifted into a region where the shanty-keeper's daughter only beckoned from the back of yesterday. We picked up some liquid refreshment where we got the pudding, and with that had to pass on to Nowhere. We had days of good travelling, lazy days through glorious open forests, where the wild dog was a close companion, trotting round the cattle as indifferent to our presence as the cattle were to him.

We made an early camp on Christmas Eve, in a sweet position near the head of a long lagoon. The spare hours we spent in cutting one another's hair, in washing clothes and swimming.

Darky Lane, a bow-legged nugget from Langlo River, had already sampled his Christmas cheer, and roused the ire of Wire Whiskers by draining the yeast bottles. He was a rough stick; most of his years had been spent on the long trails; but he had a soft heart for girls.

At sundown he was sitting on an oil drum, gazing moodily at the dead road, when a shapely girl in a pink dress and pink hat, and carrying a pink parasol, stepped into view from no one knew where. His head went up with a jerk, and two admiring eyes swept her from her ankles to the heavy pink veil that hid her face and strapped down the sides of her broad hat.

"That's what I call sweet," he said to Wire Whiskers.

"Sweet's no name for it," said Wire Whiskers. "She's voluptuous. If I knew where she lived I'd go an' buy some eggs for the brownie."

Darky was musing over a proposition that had suddenly struck him. "A nice little haven to drop into, an' Sweetness to give you a smile an' a kiss after a long trip would be just the thing. Strike me lucky, I'll go an' marry her."

He jumped up at once, dabbed on his hat, and went briskly after her, whilst Wire Whiskers stood, with a big wooden spoon in his hand, staring in an attitude of petrified amusement.

In a few minutes Darky was alongside the pink attraction.

"Good afternoon," he said, beaming on her with all the ardour of a hungry soul.

She looked at him sharply. She had never seen him in her life before, and her response was frigid. But Darky was used to making love to strangers and meeting with rebuffs.

"Nice day for walkin'," he remarked.

"Yes," she answered. "That's why I'm walkin'."

That was better. "I'll see you along a bit," Darky volunteered. "There's some

wild cattle in this mob. Dangerous beasts."

"They won't catch me," said the girl. "I can get up a tree quicker than you can."

"Well, that's exercise!" Darky exclaimed. "Strike me lucky, girl, you're just the style that suits my stipulations. Bush-bred Australian, eh?"

She laughed softly, looking down at the road, and punching it with her parasol as she stepped along.

"Look here," he continued, "I've been years an' years on the overland, an' I want to make a cosy little shack in Mitchell, where I can have a spell an' the comforts of a home between trips. Will you marry me?"

Something like a gasp came from behind the veil. "I don't know you," she said bashfully.

"Darky Lane's my name," he returned, clapping a heavy hand on her pink shoulder. "I'm better than I look, I promise you. Give me yourself for a Christmas box, an' I'll get busy right away with a cosy to keep you in."

"You go too fast," she answered. "You don't know me yet." She slewed away from the arm that was stealing round her waist, and, untying her veil, turned towards him and threw it back.

The action was like an electric shock to Darky. He stopped, and stared with parted lips. She was handsome, but her face was black, with a little touch of ruby showing in the cheeks. She was an aboriginal girl, who had been reared and educated by white people.

"I think you'd sooner have your Christmas box whitewashed." she said, and went on, whilst Darky stood, as if struck speechless, staring down the road till she had vanished in the falling night. Then, with a sour grin on his face, he turned and slouched back to camp.

The other men were having tea.

"Well," said Wire Whiskers, "are you married yet?"

Darky picked up a pannikin and filled it from the bucket standing by the fire. "You can have her, Jim," he replied, "I'm not the right complexion."

Some ducks had been shot in the afternoon, and they were plucked in the firelight, whilst a big brownie was baking in the ashes. Things were assuming a Christmas-like aspect, and those travelled sons of the open were in high spirits. One man sang a comic song, and commenced a step-dance on a sheet of tin which was used to protect the fire in wet and windy weather. The unusual spectacle and clatter startled the cattle into a mild rush, which brought vociferous protests from the man on watch. It was not the (purple) place for pantomimes and comic operas; so the entertainment ended abruptly.

The cook set off very early next morning with the waggonettte to get into camp in time to cook dinner—his masterpiece for the trip. The mob was off camp before the morning star had disappeared, dawdling along in the dim light to meet the dawn. Only about four miles were travelled, the cattle being turned then into a bend of a big lagoon.

Wire Whiskers had already pitched his tent, the front of which was decorated with green bushes. The "table," set between two broad-topped trees, had a large bunch of wild flowers in the centre. The vase was a piece of a small hollow log, set in the ground through a hole in the bag table, and partly filled with water. Overhead, suspended from a low branch, was a mistletoe for flies to settle on.

There the drovers sat down to their Christmas dinner of roast duck, potatoes, tinned peas, plum pudding and red-currant sauce, topped off with a gallon of draught beer. With a grin quivering his wiry whiskers, the cook poured the liquor from the oil drum, which Darky had used for a seat, and the contents of which he thought was water for camp use.

We were playing cards in the afternoon when a well-dressed, good-looking half-caste rode up with a big cardboard hat-box in front of him.

"Man here called Darky Lane?" he asked.

"That's me!" said Darky, jumping up.

"Mrs. Naylor sent you this for a Christmas box," said the visitor.

"How did she know me?" asked Darky, taking the gift as if he suspected it of being an infernal machine.

"My wife told her," was the reply. "You know, the girl in pink."

The cook lay back and roared. "A pink hat for Christmas!" he spluttered.

Darky looked sheepish, and with somewhat vengeful fingers he snapped the strings and hauled out a bundle of paper ribbons. Then he paused and smiled. In the box was a beautifully decorated Christmas cake.

"Well, strike me lucky," said Darky. "Pinky's a jewel after all!"

RANDOM VERSE

INDECISION.

Two visions lie before me—
  An open road to roam;
A little patch of garden
  About a little home.
And in my heart two forces
  Are stirring every day—
One voice that urges "Wander!";
  And one that whispers "Stay!"

And should I tramp the wide road,
  The high road or the low,
  East where the gay sun rises
  Or west where it sets slow,
My heart would miss the glory
  Of perfumed trees and loam
In grief for ties unbroken—
  The little lure of home.

And should I never wander
  Ever would stir the fret
Of longing for the wide road,
  The trail I can't forget.
For in my heart two forces
  Are stirring every day—
One voice that urges "Wander!"
  And one that whispers "Stay!"

EDMUND LEAMY.

WHEN I GROW OLD.

I.

I would that every friend of mine
  Had need of me;
While kindly thoughts still intertwine
  Each memory.
I would not find one heart more cold
  When I grow old.

II.

I would that every face I know
  Should wear a smile;
Nor, passing, wish too soon to go,
  But stay awhile;
For what I have I fain would hold
  When I grow old.

III.

I would that you, my dearest friend,
  Remember, too;
I shall not fear the very end
  If there be you
To linger near, uplift, enfold,
  When I grow old.

E. NORMAN TORRY.

GUIDANCE.

Follow the stars; they will lead you far,
Over the swamps where the goblins are,
Into the lands where the young gods dwell—
Follow the stars; they will guide you well.

Never look down; like the withered leaf,
Doubt and Dogma and Disbelief
Cover the snares that bewitch the eyes—
Follow the stars; they will make you wise.

Shoulder it lightly, your pack and load—
Many are treading the self-same road;
Though they seem endless, the days you roam—
Follow the stars; they will lead you home.

GWEN NISBET.

THE HAND-CAR GANG

By GEORGE RANDOLPH CHESTER

Author of "The Dutchman," "The Open Track," etc.

A YELLOW flare from the mouth of the deserted lime-kiln streamed out upon the railroad-track and across to the marshy lowland beyond, glowing with a particularly lurid brightness because of the darkness of the early autumn night, and foretelling to the lone wayfarer who trudged round the curve of the railroad that company awaited him. One just behind him would have seen that his shoulders were exceptionally broad, and that his arms hung tensely as he swung them. His gait had neither the stoop nor the slouch that belong to the habitual criminal class; though, silhouetted against the flood of light, the outline of his hat and coat and trousers suggested the well-known wrinkled, rusted, and worn variety that is found upon the felonious tramp.

As he neared the lime-kiln, and entered the first yellow tinge of its illuminatoin, a sprawling blue scar could be distinguished upon the man's left cheek—so prominent a disfiguration that it gave to his face a most sinister aspect, and made one overlook the broadness between the eyes, the strong chiseling of the nose, the firm, clean cut of the lips, the determined jaw, and the square, dimpled chin.

He paused, for a moment only, before turning from the track toward the lonely retreat, in order to inspect the place and get an estimate of its occupants. The kiln had been a small one built into the side of a hill, and was a yawning, fireplace-like structure, built up of rough stones, about ten feet square inside, with its front now entirely open. The opening was arched over at about seven feet above the ground, and a little higher up the entire structure began to draw in until it terminated in a chimney, coarsely constructed of flat stone. This had been disintegrated by wind and storm until its top now came but a little above the ridge of the hill, which, extending out in a straight arm, had formed an admirable support and protection for the whole. The chimney, indeed, now projected so little above the ridge that a man who clambered up the steep slope could place his hands upon the top of the stack and look down into it.

The picturesque ruin had but little interest for the man with the blue-grey scar upon his face, for he had seen it before, both by day and by night; but the five men it at present contained were an absorbing study to him. The fire had been built just underneath the arch, and by its glow two men were silently playing cards. A third, with a broken nose, and with eyes set villainously close together, was watching them with indifferent interest as he smoked a short, black pipe. The two others of the party were lying upon newspapers spread above the floor of lime and detritus, which, from long weathering, had been washed down to an even slope from back to front. One of these men was asleep, with his hat down over his eyes; while the other, a bloated and dissipated-looking ruffian with a grizzled moustache, had his hands beneath his head, and was gazing moodily upon the two or three brighter stars which, low down toward the horizon, had managed to peep beneath the misty curtain that dimmed the sky.

The five men were a rough-looking set,

and one who was used to paths of guarded safety might have hesitated to venture among them. The man outside, however, was apparently satisfied, for, with a slight shrug of his shoulders, he suddenly wheeled from the track and strode up the embankment.

"Hello, bo's!" he saluted them.

The response was slow. The man lying awake on the ground elevated his head somewhat and looked at the stranger surlily. The three about the card-game bent upon him the same uncordial gaze. One of the players, dressed comfortably in corduroy and rather foppish for his class, was the first to break the silence.

"Hello, pal!" he grudgingly returned.

The newcomer, waiting for no better invitation to join them, strode in beneath the arch, and, taking a newspaper from his coat pocket, laid it flat upon the sloping ground, a little to the rear of the card-players, and pulled out his pipe. Scraping up some loose tobacco from his pocket, he stuffed it into the bowl and puffed at it dry for a few minutes, apparently too indolent to get up for a light. No one made a move to offer him one, but he seemed in nowise disconcerted, and after a while took a pint bottle from his inner pocket. It was full of whisky, and he took a very small drink from it.

The man in corduroy saw the bottle, but turned his head quickly away, bending his attention stolidly to the game, which had been resumed. but his companion, a square-built fellow with extraordinarily undersized ears laid lightly against his head, allowed his perpetually bloodshot eyes to linger questioningly upon the liquor.

The newcomer noted the look, and immediately proffered the flask.

"You'd better oil up a little, Jack," he suggested.

The man took it eagerly, and gulped down a stiff drink. The older man upon the ground slowly raised himself.

"Hello, pal!" he said huskily, with a burlesque of sudden hearty friendliness. "I been lookin' fer you all the evenin.' You'd ought t' got her sooner;" and he reached out for the bottle.

"Dig in," invited the stranger. "Gurgle and pass it along."

The man in corduroy intercepted the bottle, suddenly yielding to the temptation, and took a drink of the liquor; then he quietly picked a blazing twig from the fire and handed it to the stranger.

"Which way?" he asked, as he passed the bottle on.

The stranger, busied in lighting his pipe, jerked his thumb in the direction for which he was headed.

"Flat track here, though," he observed, when the pipe was properly working. "They'll go by here like a slug from a smoke-waggon. How far is the next up grade?"

"About a mile," responded the veteran, taking the bottle for his second drink from the man with the broken nose.

"You'd better hurry," suggested the man in corduroy. "There's an up passenger due before long;" and he glanced significantly at his companion.

The hint was lost upon the stranger. He drew up his knees and clasped his arms around them.

"Reckon we'll all hit the grit pretty soon," he observed.

The man in corduroy cast a sharp glance at him.

"We're going the other way," he said gruffly.

The conversation came to an abrupt halt, and the cold antagonism that had at first greeted the stranger was again made apparent. A crunch of footsteps on the road-bed suddenly attracted their attention, and the man in corduroy swore under his breath, while the others frowned savagely and glared at the man with the scar as if he were in some way responsible for this new intrusion. Evidently additions to the camp were not wanted on this particular evening.

Before he slowly trudged up the embankment, the latest arrival hesitated longer than the man with the scar on his face had done. Half-way up he stopped and once more considered. The man who had been lying asleep suddenly sat up, wide awake, revealing himself as quite the youngest member of the party, though by no means the least depraved. Something in the tension of his companions might have imbued him with the alertness habitual to those who are constantly scenting danger. He rubbed his eyes hastily, and then called out:

"Why, hello, Red!"

At this the fellow shook off all his hesitation.

"Hello, Kiddo!" he answered.

Taking off his hat, he shook his round head, with its mass of crisply curled black hair, and advanced familiarly to the group. The man addressed as Kiddo set up a hilarious shout.

"Cripes, look at the mop!" he exclaimed. "And the glad rags! Think that carrot-top o' yours could be hid by a little stove blackin', Red?" He turned to his companions. "Chicago Red," he explained, and the others looked again at the newcomer with quickened interest. "Gun man. Got lagged for a peter job, and cut his lucky."

"Uh-huh," grunted the man in corduroy, nodding his head. "I read about it."

The man with the scar on his face, as soon as Chicago Red stepped into the edge of the circle of light, had lowered his head so that his hat concealed his features; but he raised his face to the light now, and Red, studying with speculative curiosity every figure in the group, started as if he had been stung.

"Blue Pete!" he ejaculated.

II

The effect upon the rest of the gathering was instantaneous.

Blue Pete! This was more than a mere name. It was a title, a pair of words, with which to do miracles in any gathering of yeggs—those outlawed travelling gentry who range from sea to sea over the shining tracks, and whom the most stringent laws have not yet made to pay toll.

Blue Pete! Why, the man's deeds were in every newspaper in the land. He was the bravest, the most daring, the most sensational of all the modern desperadoes who shoot in the back and kill in the dark. In a word, he was, by reputation, king of the yeggs!

The man in the corduroys alone preserved a trace of his surliness. He aspired to be king himself, and he was not one who in any walk of life would have chosen to bend the knee! "Corduroy" they called him, and it chafed him to think that the name could not as yet inspire sudden respect in any strange crowd of yeggmen.

One other in the group seemed angered by the magic of the two words, and this was Chicago Red. As he saw the instant awe which had dropped upon the others a flash of wrath came over his face and a vicious oath escaped him.

"Why, bo's," he exclaimed, advancing and clenching his fists, "this Blue Pete—"

"Red!" warned Blue Pete sternly, and Red stopped short. "Come outside a minute. I want to talk with you."

He was a power among these fellows, and he strode out from among them, wearing his authority and fully conscious of it. Red looked around upon the group uncertainly, and then, dominated by the very coolness with which Pete walked down to the track ahead of him, he turned and silently followed. When they were a safe distance away from the kiln Pete suddenly turned on him.

"Look here, Red," he began. "Remember our last tie-up, only a few nights ago, when I had you to the bad and gave you your life as a gift?"

"Y-e-s," admitted the other.

"And we agreed that night for me to let you alone, and you wouldn't queer my game. Isn't that so?"

Red grunted an assent.

"Well, the first chance you get you try to give me the throw-down. Cut it out! I have been in your house. I have seen your mother and your sister, and they look good to me, both of them—so good that I'm glad they don't know my way of making a living any better than they know yours. On their account I don't want any trouble with you, because, if we do have any, you'll get the worst of it. Now, this thing to-night is my game. I saw it first, and you've got to keep out. I know what this bunch is after. They're the hand-car gang that's had the country terrorized for the last month. I know them all except the one you called Kiddo. They've got their little old hand-car hid in the bushes on the other side of the kiln there. There's a raid on to-night, and let me tell you I'm going to have my share in it."

Red shifted uneasily from one foot to the other.

"Then I'm in too," he announced. "I'll keep to our bargain all right; but—well, you won't get away with it, so I'm goin' to take a chance myself. But I'll say this much—I'll have no hand in givin' you the

worst of it. That's as far as I go, and that's enough.

"Don't do it, Red," warned the other. "You're too near home, for one thing. I thought you were going to beat it to Chi for a while."

"I did," growled Red, "for a time, but now I'm under cover better here."

Blue Pete was about to remonstrate with him again, but the other gave an impatient grunt and stalked back toward the fire. A crackling sound on the rails warned them that a train was coming by. It was a heavy passenger train that slipped silently down the steep grade a mile to the right, and went tearing along the level stretch that intervened just here on the way to the heavy upward slope beyond.

As the two newcomers rejoined the group there were indications that the others were getting ready to move. Evidently they had been waiting for the passage of this train, when the track would be clear. All preparations, however, ceased as the two men rejoined them, and an undertone conversation, in which Corduroy had a leading part, suddenly stopped. Another couple started to play a perfunctory game of cards, while the remainder sat around, restless, alert, but trying to look unconcerned.

"Say, you fellows," said Corduroy suddenly, "it's your turn to get wood. We've been keeping this fire up ourselves, and you get the benefit. There's plenty of wood on top of the hill there."

"What's the use?" blurted Red. "We ain't goin' t' stay no longer. There's a job on to-night, and I know it. I'm in on it."

"Job? What do you mean by a job? Who said there was a job on?" growled the man in corduroys.

"The hand-car," answered Red, with a jerk of his thumb.

Corduroy laughed. His next speech, however, was not in accord with the laugh.

"You get that wood," he retorted with a sudden snarl, and at the same time he took a pistol from his hip-pocket and carefully turned the barrel round. It was a mere inspection apparently to see that all the chambers were loaded. He slipped it back into his left hip-pocket, and from his right hip-pocket drew another revolver, which he examined in the same way.

Chicago Red appreciated the joke. They were two against five.

"Oh, we like to get wood," he rejoined. "Come on, Pete," and he led the way out of the kiln and around to the hillside.

There were a few stunted trees and some underbrush up there, but there were also some weather-brittled boards which had apparently been used long ago in some structural operation for the lime-kiln. Red set to gathering up an armload of the fuel, but Blue Pete slipped cautiously along the ridge and looked down through the crumbling chimney. All the men were on their feet, and were buttoning their coats about them, settling their hats upon their heads, and picking up rapidly such loose effects as lay scattered about. Pete found that he could hear perfectly, the tunnel-like chimney acting as a natural megaphone.

"Nixie for them," Corduroy was saying. "They're great gun men, sure; but there's a lot of reasons why they can't drag in on this stunt. Blue Pete is buffaloed. Did you ever notice that while he always makes a grand get-away he never pulls out with the mazuma? Well, that's enough for me. Then this Chicago Red—they're after him hot, right in this neighbourhood. Another thing, Chicago Red and this other chap have got something kicked up between them, and that don't go. They don't dare blow on us, because they're in too bad themselves. Anyhow, too big a gang can't be managed. Five of us is enough to turn the trick, and a plenty to split the swag. All ready, bo's?"

They were all ready.

"Then move lively!"

The five men dashed out of the kiln and began jerking the hand-car down to the track. Blue Pete started to scramble down to where the kiln backed up against the ridge, but it was too steep for him. He slipped and fell, and found himself wedged in between two young trees. It was a moment or two before he could fight himself free; and meanwhile, with five strong men working at it and the natural slope to help them, it was no trouble to run the hand-car on the track.

Red, however, at the first sound had gone back where the slope was easier, and had run at a perilously high speed down the steep hill, keeping to his feet and reaching the car just as the five men had

taken their places. Two were at each handle, while Corduroy stood in the middle of the side nearest Red, who, just as they began straining on the handles, attempted to clamber on. The man in the corduroy suddenly let fly with his foot and kicked Red viciously upon the cheek-bone. He laughed as Red fell back with a roar and a thud, while the hand-car slowly moved off, gathering momentum with every hurried stroke.

Before they had gone twenty rods Red was on his feet again, venting himself of a stream of profanity so violent and vicious that even Blne Pete, coming down the slope with a limp, was shocked—and Blue Pete had held no small acquaintance with the masters of vile invective. Against the profanity he would have said no word, but against the pistol shot which rang out after the now rapidly moving hand-car he had a protest. Before Red could fire again Blue Pete had grasped his arm.

"Twenty-three for the gun play!" he warned. "I've got it in for them myself, but what's the use to croak one of 'em now? Help me, and we'll fix them right."

"Will I?" screamed Red. "Will I help? I'll get even with that bunch if it takes the rest of my life!"

He launched again into a stream of hideous oaths. Blue Pete turned away, smiling, to sit down by the fire for a few minutes while he thought matters over, and in the meantime he let Red swear. Until he "got it all out of his system" the fellow would not be much good for anything else.

III.

The village of Claypool, having waited of habit for the flight of number nine, the last passenger train until almost midnight, made haste to retire. Ten o'clock found its one street, leading up from the little shanty that served as a station, almost entirely deserted. Most of the houses were already dark, but a few of the late loafers were upon the much-whittled porch of the store opposite the bank. A few houses beyond a light streamed from the windows of the saloon where four of the town's few "horrible examples" were playing their last game of cinch for the night. Still a bit farther up the street was the tiny hotel, with its big headlight out over the porch, and here again were a couple of stragglers, yawning and getting ready to go home.

Suddenly pandemonium broke loose. A fusilade of pistol shots broke the silence, which was further shattered by a chorus of blood-curdling yells. Tearing up the street came seemingly a dozen, a score, a half-hundred of gigantic, dark, masked figures, yelling and shooting.

In reality there were only five medium-sized men, led by Corduroy. The whole thing was so easy that it was almost laughable. The loungers on the store- porch and in front of the hotel disappeared as if by magic. The four men in the saloon, having valiantly rushed to the door at the first sound, immediately rushed back in again, slamming and locking the door and hiding beneath the ice-chest. Men who had thrown open second-story windows slammed them shut with still greater haste, and cowered under their beds. It was not bravery, this raid, but a cowardly attack on men made still greater cowards by surprise. There was no risk in it whatever, unless one of the raiders should, by some accident, shoot himself or one of his fellows.

The five men swept the entire length of the village street, shouting and firing their revolvers; then they turned and came back again in the same noisy manner. The veteran and the man known as Nosey stopped to tear off the loose top rail of a hitching rack, and with this as a battering-ram they broke in the door of the bank and ran for the safe. These two were skilled operators in their line, and they made quick work of it, using the simple but effective plan that is put in operation behind the closed doors of safe salesrooms when "experts" have failed to open, in public, a recalcitrant strong-box. A blow upon the old-fashioned combination knob, a dexterous touch or two with a chisel, and the doors were ready to be swung open. The lock of the inner compartment containing the currency was but a joke to these men, and within five minutes from the time they had burst open the bank door they had stuffed the greenbacks and silver into a small bag that one of them drew folded from his pocket.

In the meantime the three other men, two firing while one reloaded the chambers of his revolver, raced up and down the

(*Continued on Page* 682.)

Fellow Sufferers

WERE you paying in or drawing out?" asked my wife, as I rejoined her outside the bank.

"Paying in," I answered reluctantly. Elinor has an awkward habit of putting direct questions which one cannot evade. She regarded me thoughtfully.

"Tell me the worst," I implored.

"Your hat is getting awfully shabby, dear."

I am never really comfortable in my clothes until they are almost rags, and Elinor only smiles when I tell her that authors have no right to look respectable. I sighed as we hurried into Whitebridge's, but consoled myself with the reflection that it might have been a question of a new suit.

In the Gentlemen's Furnishings Department a patient-looking man desisted from his task of sorting ties into boxes, and bowed politely.

"Good afternoon," I said.

"Good afternoon, sir," he replied.

"Nice weather—" I began, putting off the evil moment, but Elinor intervened.

"We want to see some soft hats, please," she said cheerfully.

"Soft hats, madam? Certainly, we have a wide range of very stylish models. Now, this is a smart hat. Try it for size ,sir, if you please."

He handed me a neat affair in grey with white edges. It fitted comfortably.

"Thank you," I said. "I will take that one."

"I think," said Elinor firmly, "we would like to see some others."

"This is a very popular style," he replied, taking up a greenish atrocity with a feather in the band.

"Horrible!" I said, rudely.

"Try it on, dear," murmured Elinor, sweetly.. Rising, she walked slowly round me, taking in the effect.

"Have you anything in brown?" she asked.

"Brown, madam? Certainly. This is the 'nigger' shade—goes perfectly with a brown suit and tie."

"The brim is rather wide," said Elinor, musingly.

"As you say, madam, it *is* a little wide for the gentleman's face," agreed the salesman smoothly.

"I can easily have my face altered," I remarked bitterly.

He chuckled, but, observing my wife's expression, hurriedly resumed his polite gravity.

"The grey—" I began after I had tried on seventeen hats of varying shades and shapes, but Elinor was thoughtfully inspecting a monstrous covering of a slaty-blue colour.

"This is rather striking," she said.

"Quite a new shade, madam," said the salesman. "We anticipate that it will become quite the rage—"

"I should think it would," I interrupted. "It enrages me even to look at it."

"Perhaps this fawn, edged with black—"suggested the salesman.

"Oh, *no*," cried Elinor. "The crown is so dreadfully high. I always think high crowns look so-so—"

"As a matter of fact," said the salesman confidentially, "I agree with you, madam. But some of our customers . . . . of course, it isn't every day we meet with really good taste, you understand. . ."

"Quite," said my wife graciously.

"Well, I think, on the whole, the nigger brown—"

"Nigger brown? Very good, madam. A very smart hat, very smart indeed. Where may I send it to?"

Gloomily I gave him the address.

"You like it, dear, don't you?" added Elinor anxiously.

"My dear girl," I replied wearily, "that has nothing to do with it; the point is *you* like it."

"I only want to see you looking nice," she said, her lips curving ominously.

"Of course, dear," I said hurriedly. "And so you always do—I mean you're always right, of course."

She smiled happily.

"After all," she said, "I really believe the grey *suits* you best, dear."

"So do I," I replied.

"And if I may say so," added the gallant salesman, "I think your taste is admirable, madam."

On the way out Elinor stopped to glance at some rather sweet organdie on the next floor—not that she intended to buy any, she explained, only it was just as well to know what was going. I thrust a Treasury note into her hand, muttering something about having forgotten my gloves. I ran back to the hat department and found the patient salesman. Murmuring incoherent words of apology for the trouble we had given him, I forced upon him one of my own private cigars. A tear stood in the honest fellow's eye as he gripped my hand.

"Don't apologise, sir," he begged. "You have my sympathy—*I am married myself!*"

FRANCIS D. GRIERSON.

REPATRIATION

AN EPISODE OF THE SOUTH SEAS

SCANNING a large scale map of the Northern Pacific, the name "Souserol" caught my eye and recalled a pathetic glimpse of that far-away islet. One wonders, indeed, how it ever came to be on the map; it is so tiny, far from any beaten track, and divided even from its nearest neighbour, Mariere, by nearly a hundred miles of lonely seas. What forgotten buccaneer or whaler first charted it? How, indeed, did it come to be inhabited? Perhaps it was the natives of Souserol who pursued Drake's caravel four days in their canoes ,offering fish and fruit for barter, or Drake may have passed far to the northward and touched at any of these tree-crowned coral fragments. As one voyages day after day without sight of land or even of scudding foam bearing witness of hidden peril, respect for the pre-historic navigators of the South Seas increases. After all, pre-historic times in these waters are not so very long ago. Some islands are shrouded in them yet. Magellan, Drake, Tasman and others sailed, albatross-like, across these seas, but never fathomed the secrets of this greatest of oceans. One still meets with tall bronze mariners in big canoes under home-made matting sails, with the heads of their totem animal rudely carved on the prows, much as our own Norse forefathers sailed behind their Long Serpents, and the realisation comes that the white man has only furrowed the surface. There may still be undiscovered Edens in the Pacific.

But tragedy fell on Souserol. Somewhere in the first decade of the present century a typhoon struck the island, and in less than an hour had stripped the cocoanut trees of every vestige of green, razed the huts of the natives, and hurled banana trees and all lesser vegetation into the sea. By some rare chance news of the catastrophe was carried by a trading schooner, and a paternal government despatched a steamer to rescue the six hundred starving inhabitants of Souserol and Mariere. Land was allotted them in the Palaos group, and every assistance given in founding new villlages with liberal largesse in tobacco and trade goods. Well-meaning officialdom could do no more, but the islanders pined. The birth-rate fell to vanishing point; their numbers dwindled yearly from sheer despondency and homesickness. A Pacific islander possesses the strange faculty of dying at will, despite doctors, from no tangible cause, unless it be a mingling of fatalism and will-power. It was a persistent case of race-suicide.

In vain the authorities pointed out that

the new homes were better than the old, that Souserol and Mariere would be incapable of supporting a population for many years to come. How could they live with no cocoanut trees? "Me make him." asserted the chief stolidly. That would take time, and how could they exist meanwhile, when every taro plantation, every banana tree had been swept into the ocean? "Me make him!" came once more the confident, child-like reply.

The authorities yielded. After all, the race would undoubtedly become extinct if not allowed to return, and as six years had elapsed since the typhoon it was possible that the islands could support a limited number. Two young couples were selected for each island, and their kinsmen buoyed up with the promise of being able to follow them next year if conditions proved favourable.

Two days steam from the Palaos islands brought the voyagers in sight of Souserol, a dark streak against the pearly sky. The moon, a few days past the full, had risen and lit up the sombre expanse of sea with glittering opalescent radiance. It was one of those clear tropical nights which bring no darkness but only the negation of colour, in which the eye seems to distinguish objects more sharply than by the garish brilliance of day. Only Souserol was veiled in darkness with its gaunt cocoanut palms, bare of leaves, silhouetted sharply against the sky like telegraph posts, a gruesome reminder of the havoc wrought by the typhoon. But dense vegetation clustering about their stems spoke of the marvellous recuperative power of the tropics and promised shelter and the means of existence to the returning exiles.

The four pioneers scrambled silently into the cutter, which was gently heaving at the steamer's side, their faces tense with excitement, their eyes fixed on the island. The white men had loaded the boat with taros and cocoanuts for planting, axes and such things as these children of nature could use. How little, after all, the white man with all the resources of civilization can do towards supplying the needs of his coloured brethren!

The oars swung out; the cutter headed towards the moonlit beach. Adam and Eve had returned to Paradise and asked no more.

HELEN MOELLER.

By D. G. SOUTAR

Form of Play.

THE phenomenal increase in the number of players within the past few years has brought in its track the inevitable new suggestions to make the game more attractive. The rules have been altered to meet the new conditions, and many innovations have been introduced in the various form of competitions. For many years the form of play was either medal or match play. That was in the early history of the game, before the "wave" which has flowed all over the world set in. With the game embracing, as it does, players of every class and creed, male and female, young and old—not forgetting the very young and very old—it was to be expected that all sorts of ideas and suggestions would be forthcoming.

Bogey Play Popular.

The first departure from the old order of things was in the form of "bogey" competitions. Many explanations have been put forward as to why that name was adopted, but we need not trouble about which is correct. It is sufficient to say that this form of competition has become immensely popular. For a long number of years the ruling body in golf—The Royal and Ancient Golf Club of St. Andrews—set its face against the innovation, and would not recognize it as a form of competition. Old customs die hard, but the pressure from clubs outside became too strong, and the new form of golf was given official recognition, and rules drawn up accordingly. Besides creating an interesting form of competition, as essential in creating interest amongst club members, bogey has proved a very fair—in many respects the fairest—form of handicapping, so that even from that point of view alone its introduction has been beneficial to the game. Another point, and a most important one in these days of crowded courses, is that this form of competition can be carried out with less friction, thereby making the game more enjoyable to those players who can only find the time to play at week-ends. Although "bogey" has become so popular, it is to be regretted that its popularity has been achieved at the sacrifice of the best form of the game, match play. Many players are under the impression that "bogey" competitions are match play competitions, but that is not so. In the "Rules for Bogey Competitions" it is clearly stated that "a bogey competition is a form of stroke competition, in which play is against a fixed score at each hole of the stipulated round or rounds. The reckoning is made as in match play, and the winner is the competitor who is most successful in the aggregate of holes. The rules for stroke competitions shall apply, with the following exceptions:—

(1) Any hole for which a competitor makes no return shall be regarded as a loss. The marker shall only be responsible for the marking of the correct number of strokes at each hole at which a competitor makes a score either equal to or less than the fixed score.

(2) Any breach of rule which entails the penalty of disqualification shall only disqualify the competitor for the hole at which the breach of rule occurred; but a competitor shall not be exempted from the general disqualification imposed by Stroke Rules 2 (par. 1), 4 (par 2), and 5 (pars. 1 and 2)."

The Stroke Rules mentioned are as follows:—

Rule 2 (par. 1): "Competitors shall start in the order and at the times arranged by the committee. They shall not discontinue play nor delay to start on account of bad weather or for any other reason whatever, except such as the committee may consider satisfactory. The penalty for a breach of this rule shall be disqualification."

Stroke Rule 4 (par. 2) reads: "On the day of the competition before starting no competitor shall play on, or on to, any of the putting-greens, nor shall he intentionally play at any hole of the stipulated round which is within his reach, under penalty of disqualification."

Stroke Rule 5 (pars. 1 and 2) reads: (1) "The score for each hole shall be kept by a marker or by each competitor noting the other's score. Should more than one marker keep a score each shall sign the part of the score for which he is responsible. The scores should be called out after each hole. On completion of the stipulated round the card shall be signed by the person who has marked it, and the competitor shall see that it is handed in as soon as reasonably possible. The penalty for a breach of this rule shall be disqualification. Scoring cards should be issued with the date and the player's name entered on the card." (2) "Competitors must satisfy themselves before the cards are handed in that the scores for each hole are correctly marked, as no alteration can be made on any card after it has been returned. If it be found that a competitor has returned a score lower than that actually played he shall be disqualified. For the additions of the scores marked the committee shall be responsible."

Stroke Play.

It is, therefore, quite clear that a "bogey" competition is to all intents a stroke competition, the principal difference being that a bad mistake may only mean the loss of a hole, whereas in stroke play it might mean losing the competition. Stroke play demands that a player can never let up, as he is playing against the field, and he does not know what the other players are doing. It is more nerve-racking, and from that point of view might be regarded as a better test of the game. On the other hand, it creates a selfish atmosphere, which should not be encouraged in any sport. Golf is certainly a game in which success or failure depends entirely upon one's own efforts, but stroke play encourages the spirit of self to the elimination of everything else. At the conclusion of a round in an ordinary club event one frequently hears a conversation something like this: "How did you get on to-day, Jones?" "Oh, I did an 80." "And Brown, your opponent, how did he get on?" "Oh! I haven't reckoned up yet; about 85 I should say." Later on when he discovers that Robinson has beaten him by a stroke he will give a detailed account of every stroke of the round, and make a general nuisance of himself with his "I should have had a 4 at the sixth" or "I had bad luck at the

D. G. Soutar,

Amateur Champion of Aust., 1903; Amateur Champion of N.S.W., 1903-4; Open Champion of Aust., 1905; Professional Champion of Victoria, 1922.

ninth, where I had to wait while old Smith holed out,'' and so on and on and on. We all know the type, which is becoming as common as weeds on a badly kept putting-green.

Match Play.

Match play creates a different at mosphere altogether, and brings out the best that is in a player. He is playing against an opponent, and shapes his game accordingly. He is on the look-out for opportunities of gaining an advantage, and will frequently take a greater risk than in stroke play in order to drive that advantage home. A well-contested game—stroke play is not a game, it is a form of competition—lingers longer in the memory, and is more frequently quoted when past stirring events are being discussed. In stroke play an outstanding stroke is frequently forgotten by the player, and is probably recalled years after when reminded of the fact by someone who had witnessed the particular stroke, and was impressed by it. As a matter of fact, it may have been quite an ordinary shot which appealed strongly to the onlooker. Every player who has participated in big events will readily understand the circumstances. With a match, however, the effect upon the player is different. A well-fought-out match is indelibly imprinted upon the player's memory, and likewise upon the memory of those who were fortunate enough to have been spectators at such matches.

Great Matches of the Past.

Who will forget the great match between the New Zealand champion, Arthur Dureau and the Hon. Michael Scott at Kensington. The latter soon established a lead, but the New Zealander stuck to him like a leech. Left to negotiate a half-stymie to save the match on the last green, things looked black against him. He rose to the occasion, and holed a most difficult putt. The effort was too much, however, as he topped his drive into the bunker at the deciding hole. Holing the putt was a great test of nerve and skill, and will never be effaced from the memory of those who saw the putt. The players concerned are not likely to forget it either. Another match, perhaps the greatest in the series of great matches when the standard of play is compared, was that between O. H. O'Brien and T. S. Cheadle in the final of the New South Wales Cham-

Champions of the Links.

Nine of America's best amateur golfers—the American team which recently defeated the British team at Southampton, L.I., for the Walker Trophy. From left to right: Chick Evans, Bobby Jones, Francis Ouimet, Bob Gardner, Captain Fownes, Max Marston, Jesse Guilford (1921 amateur champion and winner of the qualifying round in the amateur championship at Brookline recently), Jesse Sweetser (Metropolitan champion), and Ruddy Knepper, of Princeton.

pionship at Rose Bay, some ten or twelve years ago. At that time to break 80 was almost unknown, yet these players battled out a great match, O'Brien eventually winning. I cannot recollect their medal rounds, but they were in the vicinity of 75. The phenomenal recoveries by E. L. Apperley in this year's State Championship, when he so sensationally defeated G T. Balcombe and H. W. McLelland are too fresh in the minds of golfers to require recapitulating, but they will go down in history and be recounted years hence when pipes are drawing well and cigars are glowing. Such stirring contests are impossible under stroke play conditions, and the game itself will be all the poorer as the opportunities for match play decrease.

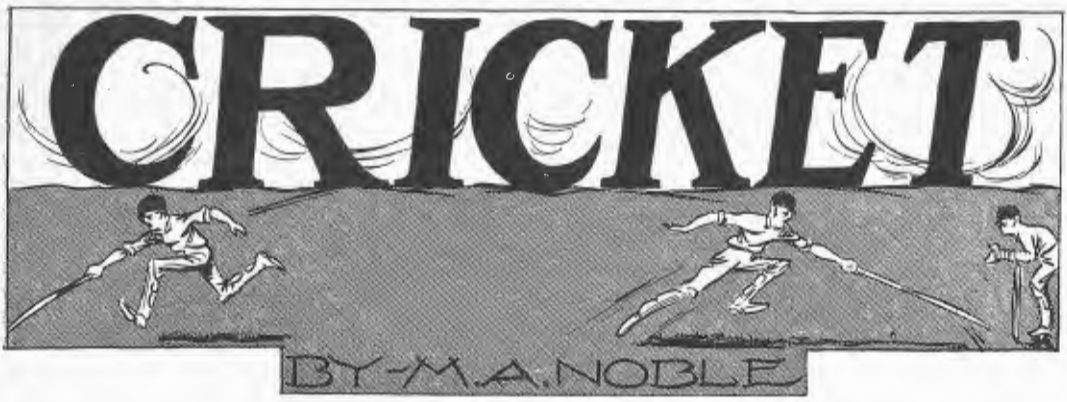
What Clubs Might Do.

Surely each club could set apart one Saturday in four for this, the oldest and best form of the game. In the inter-club games during the past season there were many interesting finishes, many of the matches being carried beyond the eighteenth hole. In a few instances a decision was not arrived at until the twenty-second hole. The players concerned will look back with pride upon those matches, the winner because he eventually triumphed and the loser because he put up a good fight. I cannot imagine any player with the spirit of the game within him advocating that those matches are not in the best interests of the game. Another form of the game which has been introduced within recent years is the four-ball-best-ball. With the players correctly handicapped this is a form of the game which has become highly popular, and, it must be admitted, provides excellent pleasure and enjoyment. The scratch player can take on the limit player as a partner against any two, and each player still retains an interest in the game. Unfortunately this form of the game is being abused in many instances through four-ball-best-ball competitions against bogey. In many instances when club events have been staged there has been no reduction in the player's handicap, the result being that bogey hadn't the ghost of a chance against the field. Eight and ten up has frequently been the winning card, and the competition has become a farce. The essence of true handicapping is to ensure a close finish; the ideal would be that all players would finish equal. This result, of course, could hardly be expected, but the handicaps could be so adjusted as to get a result more in keeping with the results in ordinary bogey events.

Owing to extreme pressure on our space, we have reluctantly been compelled to hold over the illustrated article dealing with the history of the Royal Sydney Golf Club. It will appear in our January Special Holiday Issue, ready on December 18.—Ed.

Radio Puts Joy in Life Down on the Farm.

"A revolution in Social Life on the Farm" is the title of an article in *Farm Mechanics,* which valiantly breaks a lance against the doctrine that the American farmer must essentially live a crude and solitary life because of his remoteness from "city improvements." "With the advent of radio telephony," the article states, "there has been placed in the hands of the rural population a utility which is fast revolutionizing social life on the farms. The high-class entertainments and education lectures which were previously available chiefly to city dwellers are now within the reach of every farmer. He need no longer make a special trip to the city to hear an opera or a lecture by some noted explorer. The radio telephone has obviated this, and now makes is possible for the people of the country districts to enjoy the best of modern entertainment right in their own homes."



Charlie Bannerman Honoured.

IT is fitting that the first representative match of this season should have been played in honour and for the benefit of "Charlie Bannerman." The N.S.W. Cricket Association is to be heartily congratulated upon giving the proceeds of this match to swell the funds of his testimonial. It would have been more in keeping with the national cricket spirit had a more important fixture been allotted for the purpose, but no doubt the N.S.W.C.A. would have done so had they not had other considerations which were deemed of paramount importance. Let me tell you something about the famous "Charlie."

He was the first Australian to make a hundred against England in Australia.

He made the first hundred by an Australian in England.

He made the first hundred by an Australian in America.

He made the first hundred by an Australian in New Zealand.

What a record, and how proud of him we cricketers should be!

In 1876-77 Lilywhite brought an English team to Australia. His bowlers included "Shaw," "Southerton," and "Ulyett"—great names these. Combined Australia played them on the Melbourne Cricket Ground. The team comprised D. Gregory, W. Murdoch, T. W. Garrett (now Public Trustee), F. B. Spofforth, Ned Gregory, J. McBlackham, Medwinter, Horan, Kendall, Allen and Charles Bannerman. It was in this game that Charles Bannerman immortalized himself by scoring 165, at which point he had to retire with a smashed hand. It is significant, and an added tribute to him, that the next highest score of 22 was made by T. W. Garrett.

Charlie was very quick on his feet, and drove with great power. A peculiar feature of his game was that he never played a ball behind the wicket, but regardless of that he was a very fast scorer.

My associations with "Charlie" were confined chiefly to his umpiring days, and he was invariably honest, fearless and capable. As a coach, I am convinced we never had his superior, and Victor Trumper was one of many who benefited by his advice and assistance. He used to say "Play your own game," and would show you how to do it. He never tried to dwarf natural genius by preaching orthodoxy.

His fame has come down to us from that day in 1876, when he made such a fine score. We of the modern school are sometimes so wrapped up in our present-day champions that we rarely give a thought to those grand old players of the past, who made it possible for Australia to compete with England on even terms. We owe a great debt of gratitude to Charlie Bannerman, for it was solely owing to that great innings of 165 not out that the visit of an Australian team to England became possible. What issues of tremendous national import were created by reason of that visit!

Cricket became our national pastime, and as such there is nothing approaching it as an influence for good in moulding the character of our people. Therefore, should we not now take up the burden of cricket responsibilities and let Charlie Bannerman

and his associates realise that they are in safe keeping? More than that, we should make a whole-hearted effort to ensure this testimonial being a tremendous success. Nothing we can do will pay our debt of gratitude in full, but we can at least show in some measure our appreciation of this outstanding figure in the Australian cricket world.

Future of the Game.

In writing this article on the coming season I do so with a certain amount of diffidence. It is always unwise to resort to prophecy, for after all we are all human, and the best of us make mistakes at times. One can only try and visualize, as it were, the impressions gained by the previous season's experience, and depend very largely upon the opinions formed through personal contact with the players on the cricket field. It is not nearly so much a question of what this or that player is capable of as it is of the effect, in a general way, of the means employed to make the coming season a success.

If proper methods are adopted the players will develop automatically. If good players are continually playing with and against each other the standard of their play remains a high one; but if all our good players are distributed broadcast a few in each club, where perhaps the rest of the club members are very much inferior to them, it follows that the standard of club cricket is going to be lowered. Not only will this affect the players, but it will also be reflected in the attendance of the public.

If the latter are to retain the same interest in cricket as evinced during the visit of the last English team to Australia they must have some incentive offered them. People cannot be induced to go to cricket grounds every Saturday afternoon to watch a game played between two teams incapable of producing high-grade play.

To arouse real local interest—that interest which is manifest when the followers of the local club refer to their players as "Our Boys"—we must have complete teams, and we can only get them by concentrating the whole of our very best players into fewer clubs. It is no use, for instance, having only three good batsmen in a team, for if they fail the whole side is out, and if they make good it is only another evidence of the weakness of their opponents from a team point of view.

We must have well balanced teams, with due regard to the capabilities of the players in every department of the game. One bad fieldsman will destroy the morale of the best team. Nothing upsets a side more; it disheartens the bowlers, and consequently their effort suffers, with the result that the batting team gets more runs than it otherwise would.

Bad picking up, inaccurate returns, disinclination to chase the ball to the boundary as fast as possible to save that one run, which may mean the winning or losing of the game, and many other phases of indifferent fielding frequently spell disaster, and send the onlookers away disappointed.

An Appeal to Juniors.

The position we are now faced with is that of having in our senior grade competition no less than 16 clubs. If we are to continue our cricket operations in the future under these conditions, with a possibility that the number will be still further increased ,we must look for an alternative . The only one that is at all possible is to encourage the best juniors to join the senior ranks. It is unquestionable that we have a great number of players in the senior competition to-day who do not come up to the standard of club cricket as we knew it ten or fifteen years ago. The remedy I have suggested sounds very simple, for one would naturally think that the junior would welcome an invitation to play senior cricket. My experience, however, teaches that it is not so. This sounds almost incomprehensible, but nevertheless it is a regrettable fact. Juniors who have the necessary ability, and give great promise of developing into international players, are, for reasons best known to themselves deliberately throwing away the golden opportunity the senior clubs hold out to their youth and energy. It is quite understandable that clubs may not wish to lose their best players, but it is imperative that they view it from its wider aspect—the welfare of the game generally. Indeed, it is so vital a matter to cricket that I would go so far as to suggest that it might be wise from a legislative point of view (especially as all junior associations are affiliated with the New South Wales Cricket Association) that a committee be

formed from the ranks of the junior association and the present body to seek out the promising juniors and influence them to play with the district club. It is not the junior who hasn't any ambition that is needed, but many of them who would like to go higher are perhaps somewhat diffident at leaving the old associations for fear the new ones will not supply the social element to which they have been accustomed. I would like to tell them that they need have no fear, for they assuredly will form pleasant associations, and they need not utterly forsake the old ones.

It would appear that the juniors as a body do not know that the senior grade clubs are languishing for young players of promise and ability. Do you know, juniors, that the ball is at your feet waiting to be driven right over the boundary on to the hill of success! It is your opportunity if you are desirous that the mantle of players of former greatness should rest upon your shoulders. Do you know that if you remain wedded to the standard of cricket you are at present successful in you can never improve. Unless you go forward and pit your skill against men who to-day are your undoubted superiors, not only will you not improve, but you will retrograde. Having learnt all you can in the junior ranks and become, as it were, the top dogs of your club, you cannot continue playing in the same company without gradually going back to the standard of your environment. Cricket is very like school. When one has reached the highest standards offered by our great schools, and is desirous of learning more, the University is the next step.

A Goal to Aim At.

So it is with cricket. Why stand by and admire the great players from a distance, and hope to become a Macartney, a Bardsley or a Gregory? When the opportunity offers to rank alongside these men, I would most earnestly ask you to throw off the lethargy which possesses you, and take the path leading to the goal you desire. It will be to your advantage from every point of view to join up with a club whose members consider the honour of winning the game sufficient inducement to give of their best. Furthermore, they do not countenance the giving of trophies. So far as I know there are no clubs in the senior grade which award trophies at the end of the season. I have written in this manner because it is my desire to galvanise the juniors into a desire to better themselves. We cannot all be "Trumpers," but we can try. Nothing is accomplished without hard work, but the goal is there for those who seek.

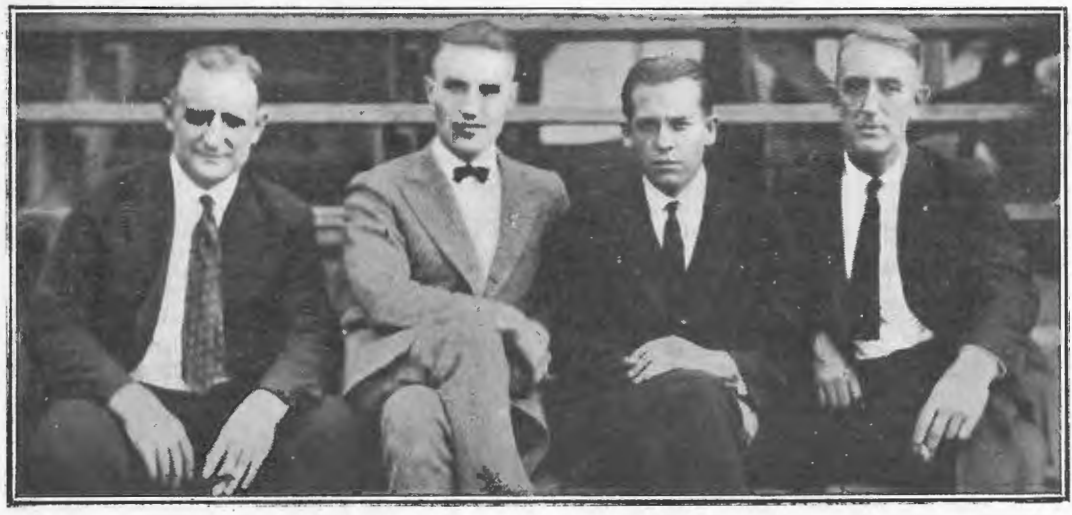


Photo: Special Press.

Survivors of the World's Greatest Air Disasters.

Four survivors of the three greatest air disasters met recently in U.S.A. and congratulated each other. Reading left to right they are I. W. Dworack, U.S.N., and Roy Hurley, Roma disaster; N. O. Walker, U.S.N., only American survivor of R38; and Henry Nacker, one of the survivors of the Chicago smash, when a dirigible went through the roof of a bank.

THE WOMAN'S CORNER

MAKE FRIENDS WITH SLEEP.

WOMEN worry. Worse! They take their worries to bed with them. They wrestle with their problems in the small hours before dawn. There's the gas bill to meet by the first of the month; the wherewithal to find for Johnny's schooling; there's the dentist's account to be reckoned with; there's—ah, well, we all know the common feminine fretteries. Before the problems are smoothed out the curse of insomnia too often has taken hold—continuous sleeplessness, the most devastating sickness of all. How often you hear a woman say, "I simply can't sleep. I just dread the nights." You can pick her out by her gaunt cheeks, drawn mouth, and the hunted look in her eyes.

Let us, then, woo sleep above all other lovers. Above all things drugs should be avoided unless under a doctor's orders. The vitality that should be renewed during sleep is debilitated by the constant use of these false friends. A firm bed, a soft pillow—only one—and an open window are the first essentials for a good night's rest. If the body is aching from over-tiredness or perpetual want of sleep a second pillow, small and square and loosely filled with kapok or soft rags, may be pushed under the knees. On no account should a pillow or a heavy counterpane be laid over the feet; sometimes this ensures sleep, but the sleeper wakes heavy and unrefreshed, and is frequently troubled with bad dreams. The head pillow crushed into the nape of the neck will bring much comfort, and the sleep-seeker should endeavour to lie at perfect ease on one side—preferably the right, to give the heart more freedom of action. The hands should never be above the shoulders, and the ideal position is to allow one arm to lie against the side, taking care that it shall rest behind the hip and not in front of it, thus permitting more air to enter the lungs. More rest will be obtained by stretching the legs right down than by curving them.

When the body is perfectly comfortable and in a position to allow of relaxation, then the mind may be treated. Counting sheep, numbers, etc., is usually an irritant to an active mind. Instead, if one can nip every new thought in the bud as it pops up, and meet it with the single and constantly repeated word "sleep" the sub-conscious mind gradually becomes imbued with the idea of sleep, and sleep inevitably steals upon one. At first it may not be successful, but with a little training it may almost be said to be infallible. One must resolve not to toss and turn, but hold the position unless a sense of strain sets in.

Sleeping with the head to the north has advantages. Very often if the non-sleeper will get out of bed and rub herself all over with a rough towel or a dry nailbrush it will prove effective, the object being to draw the blood away from an over-active brain. In extreme cases a little menthol or analgesic balm applied to the temples and the "heat centre" at the back of the neck will be found soothing.

A eucalyptus pillow or one stuffed with hops slipped under the real pillow is aromatic and sleep-producing. And the following are a few harmless sedatives that may be taken at bedtime:—

A cup of hot milk with cinnamon, or a cup of cocoa with a teaspoonful of mixed spice. A peppermint lozenge allowed to dissolve in the mouth. Lime tea, made from dried lime flowers, bought at the chemist's,

made with sugar, but no milk. A glass of hot water, sipped as near boiling point as possible.

Failing these, a brisk walk just before going to bed should have some good results. If it is neuritis that is keeping the non-sleeper awake then warmth is the surest sedative, and the hot water bottle should be called into requisition.

SHALL A WOMAN LEAD?

A strange situation, favourable to a woman's claims for recognition as man's epual, has just arisen in the English Trades Union Congress. The presidency goes by order of seniority, and the next in order is Miss Margaret Bondfield, who has been a

Miss Margaret Bondfield.

member of the executive council for the longest period of all the existing members. The union leaders are divided on the question of Miss Bondfield's election, some declaring that for a woman to lead the world's greatest proletarian movement would be too risky. There are six million members in the union, the largest Labour organization in the world. It is argued by Miss Bondfield's supporters that, Labour having ever advocated the equality of the sexes, it can scarcely overlook her claims. The next on the list is Mr. J. B. Williams, a member of the Musicians' Union.

LISTENING IN.

In America already thousands of homes have their radiophone, enabling them to catch the reins of the world's progress. It is rapidly becoming as integral a part of home life as central heating, the ice box, or the wire blinds, without which no self-respecting American would think of setting up housekeeping. A woman authority on household efficiency now offers some suggestions on the practical use of the radiophone. She says: "The radiotelephone is primarily an invention for women. Its greatest achievement is banishing loneliness. Who better than a woman can thoroughly understand the full meaning of that dreaded word? The farm woman, often located miles from the nearest neighbours, has complained of being shut off from the outside world. Housekeepers have felt they were imprisoned within the four walls of the house, tied down to the monotony of household tasks, deprived of participation in the pleasures of culture, because they have to stay at home and take care of young children. Isolation, whether mental or geographical, has been the cause of woman's restlessness, and done more to retard her progress than any other factor. The radiophone must alter much of this."

She puts forward a table of suggestions that the radiophone might cover for the purpose of bringing women in touch with one another, and keeping them cognisant of the movements of the world beyond their own particular hedge. Delightful though it may be to listen in to the latest song by a *prima donna,* or dance to the music of a band situated many miles away and broadcasted to the lonely edges of the villages and small towns, there is something still more human and more likely to warm the cockles of the wayback woman's heart in joining with others, placed in similar circumstances as herself, but in different districts, in opening up her mental outlook and learning how to lighten her daily tasks. A schedule of the different subjects to be discussed at certain hours would be distributed broadcast, and the whole scheme worked from the broadcasting stations already established through America.

In Paris, where "broadcasting" is making rapid strides, a tiny working instrument can be bought for one pound.

GRANDMOTHER'S JEWELLERY.

Platinum is no longer the last word as a setting for diamonds. A new fashion has been set by French women of using red coral and black onyx—usually a mixture of both—as a background for brilliants and

diamonds. Our grandmothers used to delight in the onyx locket with a cross of pearls or diamonds, or designs that might be mistaken for lilies of the valley sprouting out of black soil. Grandmother is back in the fashion to-day.

THAT REVEALING SKIRT!

A leading male dressmaker and designer of woman's clothes asserts that a woman of 50 can look 30 if she is properly dressed from the knees downwards. He advocates the narrow skirt of "uncertain age." The circular skirt—with which we are threatened—can only be worn gracefully by the flapper, and a slim flapper at that.

DEAD AIRMAN'S BIOGRAPHY.

Mrs. Harry Hawker, the late Australian airman's wife, has just published a book about her husband, called "H. B. Hawker, Airman." One chapter describes her long wait for news when he and his companion were crossing the Atlantic. She read the morning newspaper with "Hawker Missing" in large type, and of that she writes: "I believe I gave up all hope at that moment. Then I thought of his last words to me, 'If things don't go quite right never give up hope.'" Mrs. Hawker speaks frequently of "Harry's courage and magnificent optimism." She relates how she first met him. Her car had broken down, and he came to the rescue, and discovered that the petrol tank was full of water.

THE SNEEZING CLASS.

There is a new crusade on. Children in London are attending a class where they are taught to blow their noses hygienically. Some are babies, too young to take in the instruction, and then their mothers are put through the course. The principal is a woman doctor, Dr. Lewin. The children sit on small chairs with porridge bowls on their knees filled with a harmless white powder, which they are told to take like snuff. They blow their noses with paper "hankies," and induce the sneezes by tickling their nostrils. Dr. Lewin teaches them that it is little less than a crime to borrow another child's handkerchief. Most of the small people who attend are suffering from nasal or throat complaints.

CURE FOR SUNBURN.

Now that summer is upon us we are in-

clined to have a very feminine grudge against her. The sun-kissed V of a woman's neck and the elbow-to-wrist tanning of her arms are inelegant and slightly absurd when she gets into evening dress. Though the useful lemon is a good standby for removing tan, a better wrinkle is a soft muslin bag filled with powdered starch and kept in a closed jar on the dressing table away from all dust. If this is lightly dusted over neck and arms before going out into the fierce sunlight it will be found deliciously cooling and a preventative of sunburn. The muslin should be of a fairly open mesh to permit the powder to penetrate.

PHRENOLOGICAL BUMPS. AND WHERE TO FIND THEM.

Phrenology is one of the most absorbing, fascinating and instructive of all the sciences.

Briefly, it is a study of that wonderful organism, the Brain, and of the Mental Faculty.

The interested student, with a little care and patience, will soon acquire the art of reading certain projections of the cerebrum, known as "phrenological bumps," and when he has learnt what these bumps mean he will be able to make statements concerning the character of the individual involved.

A comprehensive survey of the subject is impossible here on account of restricted space, but I will commence with a word or two on the brain.

The normal circumference of the brain of an adult male should measure at least 22 inches, for a female 21. Anybody with measurements below these is abnormal, tending towards idiocy.

A man with a brain circumference of nineteen inches is an unfit person to enter the state of matrimony or to undertake any serious occupation in life. When Thackeray was a little boy his aunt was alarmed because he could wear his uncle's hat. On consultation with a doctor she was reassured and vastly relieved to hear that this was a good sign, and indicated a good brain development.

A well developed brain measures about 24 inches in circumference, never exceeding 26 inches unless diseased.

The relative proportions of the different organs or bumps varies with the size of the brain, so that a glance will suffice to indicate various developments.

The fascinating study of the brain may be undertaken with profit by one and all, for it is the brain which rules the life of the individual; it is the seat of the feelings, the passions, of all the intellectual powers with which he is endowed.

FINDING THE "PHRENOLOGICAL BUMPS."

The Front of the Head.

At the central line of the top of the head is situated the Organ of Firmness.

About an inch and a half downwards, towards the forehead, are the bumps of Veneration and Sympathy, the latter in front, the former behind.

On each side of the organ of Firmness are the bumps of Conscientiousness, right at the top.

Draw both hands downwards towards yourself about one inch and you will come to the regions of Faith and Imitation.

The Protective Group.

Place the hands in a straight line with the length of the head, but on each side, as if boxing the ears, and you will feel the Region of Defensive Energy or Combativeness.

By raising the hands and drawing them forward the fingers will rest on the regions of Aggressive Energy or Destructiveness, a flatness indicating a small development, and a feeling of full roundness indicating a good development.

The region of Secretiveness will be felt by raising the hands just a little. This bump is the hardest of all to estimate; the head should widen from the front as far as this organ, and where there is too much widening it indicates a large secretiveness.

The Back of the Head.

There are four important bumps situated at the back of the head, namely, the organs of Philo-progenitiveness, Concentrativeness, Independence and Self Esteem.

Stand facing the side of the subject's head, as if looking into the ear. With the right hand search the back of the head for that landmark known as the Occipital Protuberance. At this spot the organ of Philo-progenitiveness will be located, and its development estimated.

Standing still in the same position, turn the hands at right angles for a little way,

and the fingers will rest on the faculty of Concentration. A very marked depression will be indicated by a want of concentrated power. There will never be a very marked fullness or bump.

With the hand still in the same position, move upwards towards the organ of Firmness about an inch and find the bump of Independence. When this is large a distinct bump will be felt. Now shift the fingers to the back of the organ of Firmness to that of the Self Esteem.

PERSONALITY.

Personality is a universal characteristic, shared, to a certain degree, by everyone. It is subject to change and variation, and can be developed subject to altered circumstances, environment and surroundings.

The very origin of the word "personal" indicates something assumed or put on.

Personality is the colour or dress of the individual, the ego; one's clothes, manners, homes are expressions of our personality.

How often have you felt the force of a magnetic personality on entering the room of a great man. The furnishings will probably be of the most severe kind, yet there will be something quiet and forceful in the very atmosphere that will impress before one sets eyes on the man. Immediately on seeing him you feel you can trust him; his handshake will be open and firm, and the gaze he turns upon you straight and intent.

Personality is dependent upon many things—ancestry, influence of family, environment, intelligence, education, ideals, experience, physical semblance, manners, all go to make up something too ethereal to define, yet which is clearly perceived by everyone.

It must not, however, be confused with Individuality, which expresses the innateness of character or the essence of selfhood. Individuality is dependent upon the timbre or vibratory quality that distinguishes each of us from the other, and is not perceptibly altered through a lifetime, although psychologists believe that it, too, is a living, growing thing, capable of infinite development.

GOOD LOOKS.

Beauty that Depends on Expression.

The face that can express "a song without words" has a lasting charm, for expression is the better part of beauty, being much more than skin deep.

Expression is an interpreter of personality, and personality should have "intelligence, soul and charm." Now this elusive and much-to-be-desired quality is acquired rather than inherited, and is built up by thoughts and deeds; so that, provided she has intelligence, the plainest woman may hope.

Watch Your Expression.

Don't look as cross as two sticks, even if you feel that way. If you look sour, mean, or cynical you'll make folks around you *feel* just the way you *look*.

There is something just as contagious about sunniness as sourness.

We all know the "cranky person" whose arrival at a cheerful gathering is a signal for a general dispersal. The natural instinct is to fly from the former as much as to rush to the latter.

The Essence of Good Looks.

The right expression is the essence of good looks. It can beautify an otherwise plain face, and make it far more attractive than a beautiful face marred by a cynical expression.

Don't Worry.

Obviously the remedy lies in yourself. You cannot help looking how you feel; so first of all cultivate the habit of thinking pleasant thoughts, and, above all—not worrying.

Be Happy.

So if you want to be good looking—be happy. Let the gladness, the *Joie-de-vivre*, shine out of those "windows of the soul"—the eyes.

THE HAND-CAR GANG.

(*Continued from Page* 666.)

single street, shooting and howling as much like a dozen men as possible, and keeping the town terrorised until the two others had hurried from the door of the bank, emptying their own revolvers as they ran for the deserted station. Before the first really brave citizen, almost hysterically angry at having allowed himself to be cowed, had sallied forth with his shotgun in hand, they were spinning merrily down the track, their flying wheels singing crisply upon the rails.

The retreating robbers had but little work to do, as there was a down grade all the distance, except for the level stretch opposite the lime kiln. They were going back the way they came, because in the other direction there was a night telegraph station not far beyond Claypool. Besides, just beyond the kiln, at the sharp curve, was a country crossroad, which led to a place of hiding.

As they passed the lime kiln they were shouting in the double intoxication of success and rapid motion. The fire they had left behind them was burned down now to dull embers, and there was no sign that Blue Pete and Chicago Red had remained to brave the five-against-two fight that would meet them. They took the curve at top speed, but just as they rounded it the man in the corduroys opened his mouth for a startled oath. No sound came forth. It would have been ludicrous to see the foolish expression of his face as he strove to utter the warning that would not come, and that could not have availed had it been shouted. Before he could even fully comprehend the disaster that confronted them, he was pitched forward, and his head struck against something hard; he knew an instant of numb sensation, and then lost consciousness.

The hand-car had run square into a pile of ties, placed across the rails by two men who now jumped up from the side of the track, with clubs in their hands, for use if necessary.

IV.

The clubs were not needed, for not one of the raiders was in condition for an immediate fight. It was a mere matter now of securing them; but Chicago Red had eyes only for one man—the man of the corduroys. Distinguishing the fellow where he lay sprawled upon the other side of the pile of ties, Red ran up and drew back his foot. As he brought it forward, however, another foot hooked dexterously into his, and the violence of his own stroke unbalanced him. He found his companion over him as he fell.

"Ugh!" snorted Blue Pete in disgust. "You are a brute, all right, Red!. I want you to understand that the boots don't go here. Now help me tie these fellows."

One of the men, the boy of the party, was on his feet by this time, crying and shrieking for vengeance. As he caught sight of Red he scrambled over the ties toward him, drawing his pistol as he came. Blue Pete sprang forward, but too late. A shot rang out, and Red clapped his hand on his shoulder. A bullet had penetrated him there that was to lay him up for a weary while, and the next one would probably have killed him, but Blue Pete grappled with the fellow in time to prevent that next shot, gripping the wrist of the hand that held the revolver with so muscular a clutch that the fingers opened limply and the weapon dropped to the ground.

There was a sharp, decisive tussle, which could have but one ending, for, even had the man been in his normal condition, he would have been no match for Blue Pete. They struggled desperately in the dark, however, until they stumbled over the rail and went headlong into the ditch, where Blue Pete rolled on top, his opponent lying limp for a moment from the force of the fall. In that moment the victor had thrown the youth upon his face, had drawn his hands behind him, and had tied them firmly with a piece of hemp found near the pile of ties at the side of the track.

Blue Pete dragged the fellow, bound hand and foot, upon the bank, and then turned his attention to the others. He found one raider groaning with a broken arm, and took his pistols from him. Another had his leg pinned in between the heavy hand-car and the ties. Every one of the five, besides being stunned, had sustained more or less injury; and these injuries Blue Pete looked into as well as he could, working skilfully and rapidly, too, for the north-bound passenger train would be along within an hour.

When he finished, he had his five disconsolate prisoners sitting in a row on the bank and cursing him furiously, while a bonfire was burning on the pile of ties. Nearly every handkerchief that had been worn as a mask was now bound upon some hurt received in the wreck, and Blue Pete was still engaged in repairing a part of the mischief he had wrought when number twelve came thundering on, caught the light of the burning ties in time, and slowed down with her nose not forty feet away from the blazing obstruction around the curve.

The trainmen and the buffet-car night-owls piled quickly out, but it was to the conductor only that Blue Pete vouchsafed any explanation.

"These five here are the men who did the job at Claypool to-night. I want you to take them on up to Courtville and turn them over to the sheriff."

"Haven't any authority," objected the conductor, a young man and nervously new to the passenger service.

"Oh, yes, you have," Blue Pete promptly informed him, having had plenty of time to figure over this aspect of the case. "These men stole the company's property, the hand-car with which they made the raid. I guess the company will back you up in turning them over. And here's some evidence. I think the company will let you take charge of that, won't it?"

He thrust into the conductor's hands the bag of bank notes and coin which he had taken from the nerveless fingers of Corduroy. The conductor felt the bag and opened it, looked in and shut it again with a startled look, then slowly grinned.

"Sure," he exclaimed with sudden enthusiasm. "Well, I should say so! Jake, you and the boys help bundle these highwaymen into the smoker."

The trainmen, assisted by some of the more officious passengers, had already removed the obstruction from the track, and now they turned to the glum and disgusted raiders around whom the curious crowd had congregated.

"I thought you said there were only five," remarked the conductor. "Where did the sixth man come from?"

"Oh, that fellow on the end there by himself is my pardner," replied Blue Pete quickly. "He helped me to get these fellows, and got plugged in the shoulder for it. There will be a good reward for this job, and I'm going to split it with him. By the way, I am going to ask you to take us on—just tuck us in an empty compartment somewhere, away from the rubber brigade, will you?—and make another stop for us about fifty miles down the road, where a—a—doctor friend of mine lives."

He smiled as he thought of the little cabin hidden among the hills in the midst of its smiling fields, and of Red's sister, the girl with the Titian hair, whose clear blue eyes had looked into his so searchingly the only time he had ever met her, and who had inquired who and what he was, and what were the exact relations between himself and her black-sheep brother. He was going to see *her* again!

"All right," agreed the conductor briskly. "I guess we can make up the time." He paused and stammered, as a sudden, disquieting idea came to him. "By the way," he hesitated, half apologetically, "who are you, anyhow?"

Blue Pete frowned slightly. A little knot of passengers had collected around them, eagerly intent on every word. He looked out and beyond them at the dark figures thrown into grotesque silhouettes by the swinging lanterns, by the glow from the fire box, by the streaming headlight and sighed.

"Come this way a moment," he said. Taking the conductor around to the other side of the engine, he confronted him with a queer smile. "I have to swear you to secrecy on this," he began.

The conductor shook his head doubtfully. The trace of suspicion was growing deeper. "I don't know about that," he said.

"Oh, I think I can induce you to keep quiet," rejoined the other. "I am known as Blue Pete."

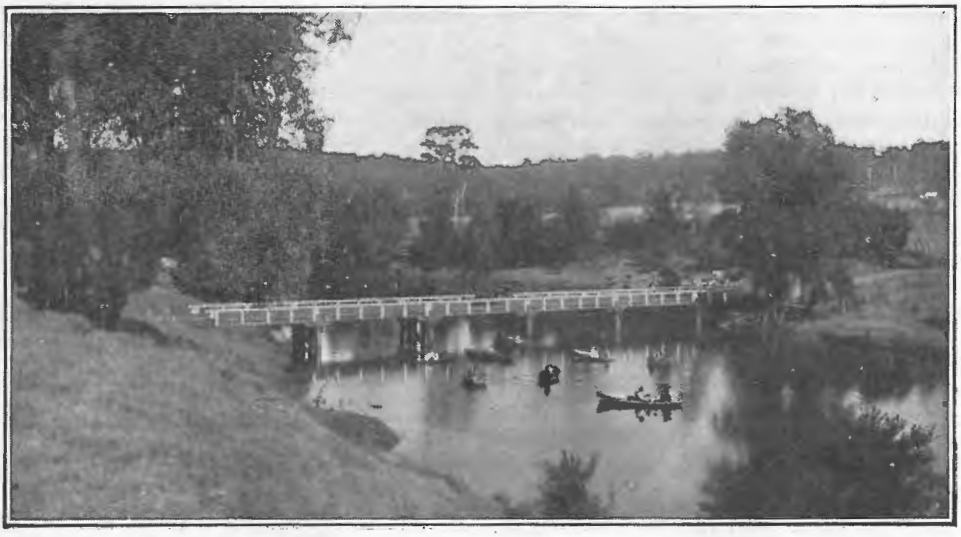
The conductor laughed nervously. He was not at all sure that the statement was a joke, incredible as it might seem. Moreover, to substantiate it, upon the man's left cheek was the striking scar which had been described over and over in every newspaper that had chronicled the deeds of the bold yeggman. He moistened his dry lips. He was more agitated than he knew. Blue Pete himself laughed now, and the sound was reassuring. The conductor brightened.

"Your prisoners will tell you the same," the man with the scar went on soberly, "and they will be telling the truth. You may give out for publication that Blue Pete and another desperado wrecked the raiders and turned them over, in revenge for being shut out of the job. You may add that Blue Pete and his companion were also taken in charge, but escaped from your custody."

The conductor shook his head, and was about to venture a feeble remonstrance, but Blue Pete, smiling, checked him by holding up his hand.

"That will make a mighty good newspaper yarn," he continued, pausing for a moment to listen with grim satisfaction to the vicious ravings of the five prisoners who were being put on the train; "but here is the part that you will swear yourself to secrecy upon, so far as the public is concerned. I am known, privately and officially, to a very select few, by quite another name."

He threw aside his vest, and, opening the double web of his wide suspenders, exposed a shining metal plate to the rays of the startled conductor's lantern. He turned his inner coat pocket inside out, and, from a slit in it that led to a concealed pouch, he drew a folded bit of tough and much-worn paper, which instantly explained to the conductor where and how all these newspaper articles had had their origin. It was signed with the name of a famous chief of police, and it vouched for Mr. Peter Burton, detective.

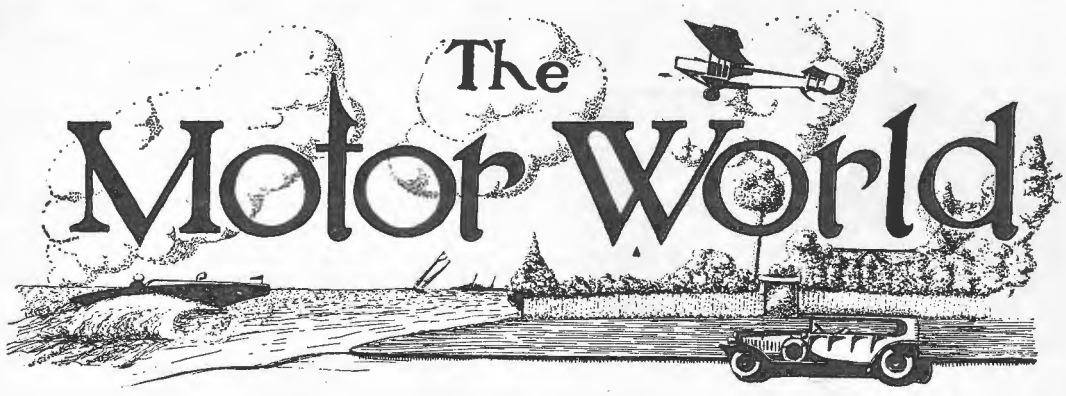


Blaxland Crossing, Wallacia, N.S.W.

A RONDEAU OF THE SINGER.

Your wondrous song, rich melody,
Beguiling as some crooning sea
That fills the evening's perfumed air
With mystic music, sweet and rare,
Did soothe my soul full tenderly.
For through its blended harmony
Methought there trilled a symphony
Of forest birds, who came to share
Your wondrous song.
The charm of woodland minstrelsy,
Its joyous cadence swelling free,
In rapturous notes beyond compare,
Is yours. Did piping Pan prepare
Your wondrous song?

GORDON BENNETT.



By "SPARKING PLUG"

Bravo, Mr. Ball!

IN these days when so many people are ready to hurl bricks at the motoring fraternity—with or without provocation—it is somewhat refreshing to read the common-sense reply given by the Minister for Railways (Mr. Ball) when the Railway Commissioners complained that the motor 'bus traffic was making serious inroads on the revenue returns of the railways and tramways.

"If that is so," said Mr. Ball, "so much the worse for the railways and tramways."

The retort, perhaps inclined to be unorthodox and unexpected as Ministerial replies go, is very much to the point, and is an indication of the Minister's practical mind.

As the official parents of all that the railway and tramway services stand for the Commissioners, no doubt, did not bargain on a rebuff from such a quarter.

The fact that the Minister so emphatically repulsed the Commissioners, despite the fact that he is the official head of the services concerned, shows to what an unreasonable extent he considered the Commissioners to have gone in their desire to sprag the wheels of the motor 'bus enterprise.

With a public purse to call on and Acts of Parliament to fortify them, the Railway Commissioners have quite enough advantages over the handicapped motor 'buses without seeking further pampering.

Yet, in spite of the odds, private enterprise is undertaking the transport responsibilities shirked by the Commissioners, and is performing its task with a zeal and enthusiasm which the Government services might emulate with advantage to themselves and satisfaction to the community.

It is hoped that other prominent personages will back up Mr. Ball when opportunity offers, instead of allowing the campaign of prejudice against motor owners to continue without opposition. There is a tendency at present to pick out motorists for special taxation either for roadways or making up leeways in an unbalanced Budget.

If Governments and people are to be educated up to a true perspective on the matter the call is on all motorists to figuratively punch an anti-motorist's head wherever it shows itself.

Language of Motor Horns.

Why is it that pedestrians so frequently scowl on motorists when a sharp toot warns them of danger ahead?

Day after day in the busy streets of the city people may be seen casting black and withering glances after a vanishing motorist who is paving a passage through the traffic with the aid of his horn or bell, or whatever instrument he selects to announce his advent.

Sometimes vexed countenances may indicate envy or jealousy—perhaps annoyance at being disturbed in the midst of a meditative repast, but in many cases the domineering way in which some drivers toot their way along causes more resentment and obstinacy than is generally imagined.

Touring Topics—
What might happen if pedestrians were allowed unrestricted use of the roadway.

Just as the little boy complained to his mother that the echo in the wood when he angrily shouted out was an angry one, so must motorists remember that the response they will get from most pedestrians will be angry or otherwise, according to the tone which the adopt when sounding their warnings.

This question, besides being a practical one, is also of intense human interest, because of its psychological aspect.

Although there are no available statistics regarding the number of people who have suffered from nervous prostration as the direct result of noise emitted by motor car warning devices, drivers undoubtedly proclaim their presence on the road at too frequent intervals. Pedestrians are often peremptorily "honked" out of the way by a series of ear-splitting shrieks, when a gentle toot some distance away would be quite as effective.

In addition to tending to give motorists a bad name, this abuse of the horn frustrates the purpose for which it is intended. People become somewhat accustomed to the continual "honking" of the motorist, and continue on their way, leaving the position entirely in his hands.

Make It Speak.

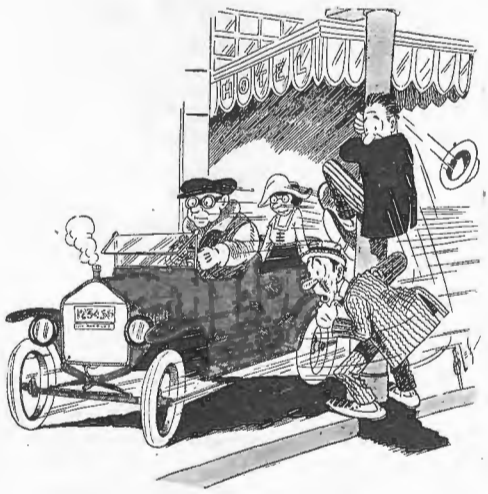
The intelligent use of the motor horn is a phase of motoring worthy of some consideration. To make the horn speak should be the object. Instead of manipulating it to say "Out of the way! This road is mine!" there should be an endeavour to make it gently murmur "Excuse me, please; will you kindly allow me to pass." The latter is certainly a better method than serving peremptory notice on everybody that you are on your way and they must jump out of the way or be annihilated.

Who Owns the Roads—Cars or People?

The point of view—whether you own a car or do not—will invariably influence the answer to the above query.

Both answers may be right and wrong, for each party has inalienable rights which should not be lost sight of by either party. No doubt pedestrians when crossing streets are careless of their own safety, while, on the other hand, motorists, in a number of cases, do not display the care that they should, and it appears as if they frequently exceed the speed limits laid nown by the authorities.

The traffic by-laws do not appear to deal with the question. However, there is provision for motormen on tramcars who are required to bear a vigilant look-out for all horses, carriages, vehicles, and persons on foot, especially children and women with children in arms, and women carrying bundles, either on the tramway tracks or moving in the direction thereof, and on



Touring Topics—
The position would be even worse if motor cars invaded the footpath.

the first likelihood of danger to such horses, etc., the tram-driver shall stop . . . his car in the shortest time and space possible.

Greater latitude is allowed tramcars than automobiles in the matter of speed. With a few exceptions, trams are allowed to travel at the rate of 15 miles an hour, although, when turning corners they are restricted, as is the case with any other vehicles, to 4 miles. Where the trams are allowed to travel at 15 miles an hour motorists are restricted to 12 miles.

Motors and Diseases.

Is the greatly increased health of the present generation a consequence of the disappearance of the horse from our streets?

This question, raised by one of Sydney's leading medicos, is of deep and almost mysterious interest. For a change has recently occurred in the domestic animal kingdom of Europe, and to a slightly less extent in this country, such as has never before been witnessed in the whole history of the world, as almost in a night that vast army of hundreds of thousands of horses which but thirty years ago seemed established for ever in our midst, has vanished away. The stables stand empty.

And with the horse have gone vast numbers of other animals and insects. The city sparrow is a disappearing quantity. The myriads of flies which formerly laid their eggs in or around the stables can lay them in such places no longer. The stable rat, too, must seek a home elsewhere.

The horse itself has not been convicted of carrying disease, but it is quite another matter with its satellites, the flies and the sparrows. There is good reason to believe that these latter creatures are very frequently affected by tuberculosis, and may indirectly affect public health.

Mutual Blame.

A case of interest to all motorists was heard in the Durban Police Courts recently. It concerned a collision between a taxi and a *Ford* car. The driver of the former was the complainant, and, in his evidence,

stated that while he was proceeding along a main road at a speed of between 15 and 20 miles an hour the *Ford* emerged from a side street. The taxi driver endeavoured to prove that the onus of ensuring a safe passage lay on the *Ford* driver as entering the highway. After the usual questions from the Bench anent the sounding of hooters, the conclusion arrived at was that each party was equally to blame. The case was dismissed.

Maritzburg Insurance Claim.

An important decision affecting insurance practice has been given in the Supreme Court, Maritzburg. The plaintiff, Axel Yensen, claimed £290 from the London and Scottish Insurance Co. in respect to the insurance of a car destroyed by fire on the road between Maritzburg and Durban. He had made a proposal for insurance for £300 with the local agent and had paid the premium, understanding, he stated, that he was insured from that moment. The proposal had to be sent to the head office at Capetown, and before it could be accepted or rejected the car was burnt. The defendant company denied verbal cover, and submitted it was not their practice to issue verbal cover with this class of business. A special jury found for the plaintiff, and judgment was given for the full amount claimed with costs.

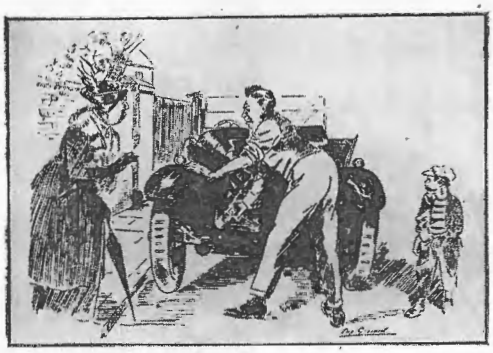
MOTOR CYCLING OFFICERS.

The following office-bearers have been elected by the Northern Suburbs Motor Cycling Club for the ensuing year:—

President, Mr. S. Shaw; Vice-Presidents, Messrs. F. Delandro, K. Youl, J. Hollingsworth, W. Goodwin, J. Audsley; Secretary, Mr. R. R. Ochs; Assistant Secretary, Mr. J. Carter; Treasurer, Mr. R. Kirby; Judge, Mr. W. Goodwin; Assistant Judge, Mr. E. Smith; Starter, Mr. S. Shaw; Assistant Starter, Mr. J. Carter; Captain, Mr. D. Shaw; Vice-Captain, Mr. E. Richardson; Press Correspondent, Mr. J. Gunn; Committee, Messrs. T. Sulman, O. Cherry, J. James, R. Hall, J. Goddard; Competition Committee, Messrs. R. Hall (com. sec.), T. Sulman, L. G. Ochs; Handicappers, Messrs. R. R. Ochs and L. G. Ochs; Auditors, Messrs. W. Goodwin and E. Smith.

Popular Camping.

More than 12,000 motorists in America have made use this year of the camping facilities provided by the City of Milwaukee. The tourist camp, which was only established late in May this year, is in Lake Park, on Lake Michigan. The largest number of motorists to camp there in one day so far is 47.



Interested Old Lady: "Tell me, young man, how far does it go after that much winding up?"

TYRE SERVICE.

When solid tyres have not given service, rather than apply new ones, assuming that the old tyres have failed due to some manufacturing fault, it would be well to investigate the service the truck is being operated in. If the load the truck is called on to carry is found to be in excess of the normal rated capacity of the truck, or exceeds the maximum carrying capacity of the tyres, the more satisfactory course is to change the tyres for a size or type that will meet the conditions as found.

The limitations of each size and type of solid tyres are pretty well established, and if these limitations are exceeded a larger size or a different type will quickly correct the faulty service and an improvement in tyre mileage will soon be noted.

The service rendered by solid tyres is largely dependent on three factors: The speed at which the vehicle is driven, the load transported, and the type or condition of the road over which the vehicle operates. When determining tyre sizes for original equipment these three items are usually given careful consideration by the truck manufacturers, and the correct size is carefully estimated. The original tyre equipment as fitted to vehicles is thus usually of ample size to meet the average user's requirements, and will give satisfactory service as long as the vehicle is operated and loaded to its normal rated capacity. If either the vehicle speed or its load exceeds this normal rate some change must be made in tyre equipment; either a change in type or an increase in size to take care of the extra demands made on the tyres.

It is just as important that the speed at which the vehicle is operated be carefully checked as it is to see that the loads do not exceed the maximum limits as recommended for the size of tyre used.

General road conditions should come in for a fair amount of consideration, for if they are generally poor the impact forces generated by the load suddenly dropping into road depressions and operating over road obstructions will tend to lead to early tyre failure unless the vehicle is amply fitted to withsstand such increased impact loads.

EXIDE BATTERY SERVICE.

Mr. D. P. Dunne, a director of the Chloride Electrical Storage Co., Ltd., made an interesting speech at the opening of the company's new showrooms in London recently.

"Battery service," said Mr. Dunne, "is in a different category from any other engineering service that I know of, because a battery is not merely a mechanical contrivance or an electrical contrivance, nor yet a chemical contrivance, but is a complication of all three, and the qualifications required by an agent in order that he may give efficient battery service are rather special.

"We have at the present time over 200 Exide service agents in this country, which is many times as large as any other service organization in this country. This organization has taken us some years to get together. We were careful in our selection, we were strict to the agents' qualifications, we were painstaking in training our agents and unhesitating in getting rid of unreliable ones. This work cannot be done in a month or in six months. We have been slow, but we have to-day the finest battery service organization in the world outside America.

BRITISH ACCESSORIES

Does England lag superfluous on the production stage? We think not, for, now that the war, and some of the war's aftermath, are well and truly relegated to the limbo of the past we find, with no small degree of pleasure, that British-made goods are surely, even if slowly, re-establishing themselves in this market. Say "Smith's" to any English motorist, and he immediately visualises S. Smith & Sons for practically every car manufactured in England to-day has one or more of Smith's specialities fitted. On this page we give an illustration of their factory at Cricklewood, the largest in Great Britain, exclusively devoted to the manufacture of motor accessories. Here are employed regularly over 2,750 work people, whose average weekly output includes 3,000 speedometers, 2,000 motor clocks, 1,000 gauges, 2,000 lighting and starting sets, 2,000 carburetters, and 5,000 mechanical horns.

A new car lighting set just produced has been adopted by Messrs. Morris Motors, Ltd. (manufacturers of the Morris Oxford and Cowley cars), and a number of other small car builders; and the sample set now on view at the showroom of Messrs. Smith, Sons & Rees, Ltd., is certainly the last word in neatness and efficiency. The price is within the reach of motor cycle and sidecar enthusiasts, and no doubt it will be a very popular set in this field alone.

Smith's have also a controlling interest in the M.L. Magneto Syndicates, Ltd., and the output of this factory is in addition to that mentioned above. During the war Messrs "M.L." produced approximately 100,000 magnetos, 50 per cent. of which were taken by the Air Service. These magnetos were required to work under the most exacting conditions, and the experience acquired has resulted in the production of commercial models not only lighter and more efficient than the pre-war models, but also capable of operating at higher speeds and running for longer periods without attention.

How often have you gazed at and watched the antics of the airman during his various "stunts"? You have heard him "cut out," perhaps, just before "spinning" or a "nose dive." You have waited—it seemed minutes—then, switching on, he recovers and soars up.

Magneto efficiency has a real meaning to the aviator. Quite a large number of the machines being used in Australia to-day are "M.L." equipped—there is an M.L. to suit all cars, motor cycles and stationary engines.

K.L.G., perhaps the most popular sparking plug in the world, is also handled by Smith's (M.A.). Wherever there has been a notable achievement either in the air, on the water, or the racing track, K.L.G's. have been the plugs selected. In the recent Sydney to Brisbane trial the winning car was equipped with K.L.G. plugs, as also were a number of other successful competitors.

The Australian control of these famous lines is in the hands of Smith, Sons & Rees, Ltd., whose showroom in 30 Wentworth Avenue is replete with all kinds of novel display stands to demonstrate them.

AN HISTORIC EVENT.

The story of the first commercially successful automotive vehicle:—

Back in the summer of 1897 two Lansing boys, each destined for a permanent niche in industrial history, slipped secretly into a workshop in the rear of a local factory.

In the corner of this shop, and almost finished, stood the creation that had been their constant dream—a carriage, propelled by a gasoline engine. Sensitive to the laughter and scepticism that had greeted their project, and mindful of parental objections that had forbidden to them the use of the workshop, these boys, Ransom E. Olds and Frank Clark, worked at odd times and in secret to achieve the goal of their ambition.

Their's was a propitious partnership, however; Olds' father manufactured stationery gasoline engines; Clark's father operated a small carriage works. Though necessary to employ them clandestinely, the facilities for their work were available, and, despite the obstacles imposed, they at last attained their objective. In 1897 they produced the first *Oldsmobile*—now permanently housed in the Smithsonian Institute at Washington.

Run this first *Oldsmobile* would—but without sufficient continuity to warrant any glowing expectations as to the future of gas-driven vehicles. Olds' enthusiasm, however, remained undimmed. Purchasing Clark's interest in the venture, he went to Detroit in search of capital, and succeeded in interesting a Michigan copper king and his two sons.

These men had imagination, daring and faith. They plunged at once into an extensive production and sales programme, and in 1900, almost the first year of their manufacturing existence, produced 1,400 cars. Even in these early days the Olds Motor Works blazed the trail, sending its cars to the four corners of the globe, where they were eagerly sought by kings, princes and merchants.

This commercial success of *Oldsmobile* had a marked influence on the growth of the industry. It indicated, for one thing, the market possibilities offered by the

automobile. In the Olds plant, too, were being inaugurated methods of production so sound that they are in vogue to-day throughout the automobile industry.

Due to a fire in the Detroit plant in 1902, a second factory was built at Lansing, which ultimately became *Oldsmobile's* permanent home.

In 1905 *Oldsmobile* changed its curved dash model to a runabout with straight dash, and inaugurated the two-cylinder automobile. In 1906 it exhibited the first medium-priced four-cylinder car in the New York auto show. *Oldsmobile* had now become a household word, commemorated in song and painting. The song *In My Merry Oldsmobile,* composed by Gus Edwards, is still sung to-day.

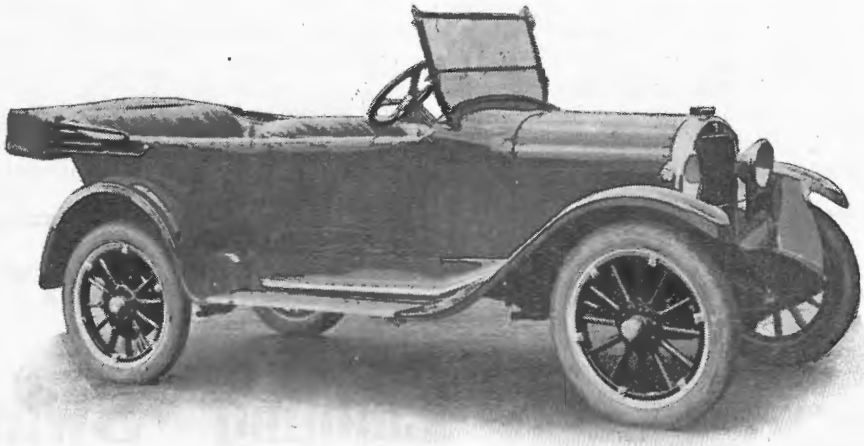
At this time experiments were begun on the six-cylinder automobile, which was brought out in 1908.

The next year this company sold more six-cylinder cars than any other concern, clearly establishing itself as leader in the quality field of fours and sixes.

During these years *Oldsmobile* not only furnished inspiration to the whole automobile industry, but leaders as well. No fewer than a dozen of the most flourishing automobile companies of to-day were founded by men trained in the *Oldsmobile* plants. Surely no company more worthily deserves the title of "father of the automobile industry."

Up to 1913 the Olds Motor Works had been devoted exclusively to the manufacture of expensive quality cars designed for the rich. Then it was that a plan was inaugurated to produce a light weight car—its quality to continue at the same high standard, which made the name a synonym for automobile value and perfection. Size and weight only were to be sacrificed. This policy adhered to since has resulted in production that has practically doubled each year, until in normal times 30,000 of these cars are needed annually to fill *Oldsmobile* demand.

To-day in its class the car is still blazing the way—just as *Oldsmobile* in 1897 and those early years blazed the trail for an industry in its infancy.



Dodge Brothers' Touring Car. Note the enhanced appearance due to higher radiator bonnet, and improved cowl and windshield.

A MUNIFICENT GIFT.

Candidly acknowledging its own substantial contribution to the flood of motor cars which the automobile industry has turned loose on the highways of Michigan, causing a serious congestion of the few remaining open parks and bathing beaches within 50 miles of Detroit, Dodge Brothers, Inc., has bought up eleven of the finest park sites in the lake district north of Detroit and donated them to the State.

The purpose of the donation is to provide a memorial to the late John F. and Horace E. Dodge, and to "give motorists places where they may have their picnics,

games and bathing without being constantly driven from pillar to post by indignant owners of private property."

Ten of the eleven parks have large lake or river frontage, and the other is a rugged, almost mountainous, parcel, noted for its beautiful scenery. The parks will be known as Dodge Brothers State Parks No. 1, 2, etc.

In a letter to Governor Alex. J. Groesbeck, formally presenting the parks to the State, Chairman Howard B. Bloomer, of the board of directors of Dodge Brothers, intimates that he would like to see other automobile manufacturers follow Dodge Brothers' example and do something to provide outdoor recreation for motorists. Under present conditions, he says, it is almost impossible for the man who does not own a summer home to find a suitable place to spend the week-end..

The eleven Dodge Brothers State Parks consist of 627 acres of natural forest and lake sites.

Both John F. Dodge and Horace E. Dodge were lovers of the great outdoors. Had they lived to see the growing need of outdoor accommodation for the motorists who have no summer homes to which they can drive with their families for the week-end, they would have personally provided for such accommodation without doubt Therefore, the board of directors felt that it could establish no finer memorial for these two men than to provide a system of parks which will give health and happiness for all time to thousands of workmen from Detroit and vicinity in whom John F. Dodge and Horace E. Dodge were so intensely interested, and to whose welfare they always devoted so much of their time and resources.

Goggles and Hearing.

There is probably quite sound reasoning in the argument that impaired hearing when wearing goggles is caused by pressure of the strap upon the auditory nerves, says "The Motor Cycle." This suggestion seems to be proved by the fact that one's hearing is often slightly affected even while wearing goggles pushed up on to the forehead.

EFFICIENCY OF THE PLUG.

Is it possible to improve the ordinary sparking plug in the matter of real efficiency, asks a correspondent in *The Motor*. It is well known that the insulation and electrodes have received a great deal of attention by manufacturers. Yet it seems strange to the writer that one important, though very simple, fact has apparently been overlooked altogether. Recently the writer was investigating a case of misfiring, and, thinking that there might be a crack in one of the plug porcelains, the engine was run in perfect darkness to locate the short circuit. But there was no defect of this kind present; nevertheless, the test disclosed something very interesting. As every plug came into operation a very distinct blue-violet brush discharge of current shot off the plug terminal edge and the threaded end. This indicated leakage by the well-known brush discharge, and when one comes to think of it no plug appears to be designed to prevent it; there can be no question that a brush discharge does lower the sparking efficiency. To prevent it is a very simple matter in principle. There should be nothing on the outside "live" part of a plug even approximating to a point or a sharp edge; the connection to the plug should approximate to a ball and be as smooth and polished as possible. The ordinary milled head terminal, with its many sharp edges, invites brush discharge leakage, and, similarly, also does a piece of projecting thread; sometimes this is, in fact, left with a point as it comes off the machine in manufacture.

Navigation Act.

SENATOR Earle, speaking recently regarding the Government's intention with reference to the exempting of P. & O. and Orient mail steamers from the Navigation Act, said that the Cabinet had decided to exempt all steamers proceeding to Hobart to load fruit for the United Kingdom, irrespective of the line.

New Steamer for Australia.

On her maiden voyage to Australian ports, the new steamer *Tasman*, of the Royal Packet Navigation Company, sailed from Batavia early last month.

The new vessel was built to the order of the British Government in fulfilment of an undertaking given to the Royal Packet Navigation Company to replace the vessel of the same name, which was requisitioned during the war and subsequently lost in action. Owing to various delays the vessel has only now been delivered to the company. The new vessel is a single screw steel steamer, of 5,500 tons, having length 392 feet, beam 49 feet 6 inches, and depth 28 feet 9 inches, and will have a speed of 13½ knots. Accommodation is provided for 85 first and 20 second class passengers. With the placing of the new steamer in the Java-Australian service the steamer *Roggeveen* has been withdrawn, and the present service will be maintained in conjunction with the steamer *Houtman*.

The "Bell" Ships Sold.

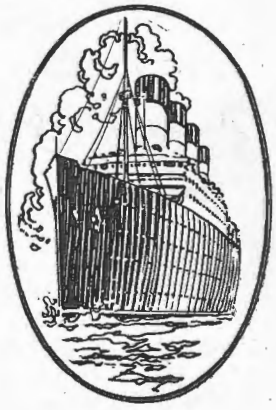
According to information received in Sydney by mail, the three "Bell' ships, well known in the fleet of sailers trading to Australia, have been sold to Norwegian owners. The three vessels—the *Bellco*, *Bellands* and *Bellpool*—were formerly owned by James Bell & Co., of Hull. All three vessels have visited these waters this year, the last to leave being the *Bellpool*, which left Newcastle during September with a cargo of coal. The *Bellands* is under charter to load in Baltic ports for Australia; while the *Bellco* is on her way from Campbelltown (N.B.) to Melbourne with timber.

New Tug "Rollicker."

According to Captain Richardson, master of the twin-screw tug *Rollicker*, which arrived at Newcastle recently from England, there are few finer vessels of its type in the world. It is the largest of three tugs purchased in Great Britain by Mr. John Brown, of Messrs. J. & A. Brown, mine and ship owners. The only tugs more powerful than the *Rollicker* are the *Titan* and *Hercules*, which work in the Suez Canal, and can develop 3,000 horse-power. The *Rollicker's* indicated horse-power is 2,600. Built by Ferguson Bros., Limited, at Glasgow, in 1919, the *Rollicker* was reported to have cost £147,000. She was the largest of six tugs which performed the prodigious task of towing a pontoon measuring 1,000 feet by nearly 200 feet from the Kiel Canal to England. The voyage of the *Rollicker* was marred by a fatality in the Mediterranean Sea. During a spell of rough weather the chief steward, Arthur Reekie, fell overboard, and a fireman named Anderson jumped overboard and supported Reekie until the tug turned. The *Rollicker* raced for medical assistance to Bona, on the north coast of Africa, but Reekie died before port was reached.

Britannia—1840.

EIGHTY YEARS of TRANS-ATLANTIC TRAVEL



Aquitania—1920.

FULTON'S *Clermont* and Bell's *Comet* both deserve mention in a history of trans-Oceanic travel, for these two vessels, crude as they were, served to convince a sceptical world that it was possible to apply steam power to transportation by water. Very timidly the public accepted the new craft in the coastwise trade and in channel service. But it was the general opinion in the thirties, even in some scientific circles, that it was impossible for a vessel to carry enough coal for a trans-Atlantic voyage!

One of the first shipping men to realize the practical advantages of steam packets over sailing was Samuel Cunard, a leading merchant and shipowner of Halifax. For several years Samuel Cunard had been operating a fleet of ships carrying on the mail service between Boston, Newfoundland and Bermuda. For a long time he had entertained the thought of developing a line of steamers to cross the ocean.

At that time the mails between England and America, carried by more or less obsolete sailing vessels, were irregular and uncertain.

In 1838 the British Government, convinced of the feasibility of steamship service by the voyage between Bristol and New York of the paddle steamer *Great Western,* invited bids for a speedier and more regular steam carrier system of ocean mails. Here was Samuel Cunard's opportunity to develop his dream under the auspices of the British Government.

Merchants of Halifax did not look with approval on his scheme, so Mr. Cunard sailed for England to raise the necessary capital. Letters of introduction led to a meeting with Mr. George Burns, of Glasgow, and Mr. David MacIver, of Liverpool, two very able shipping men in Great Britain, both engaged in the coasting trade between England, Ireland and Scotland.

These three maritime pioneers soon perfected their plans, raised the required funds, and Mr. Cunard submitted his tender to the Commissioner of the Admiralty. His offer was better than one made by the owners of the *Great Western,* and was accepted. It called for the conveyance of the mails once a fortnight between Liverpool, Halifax and Boston.

The original intention to maintain this service with three steamships was altered to provide four steamships, fixed sailing dates, and certain other provisions calculated to ensure regularity. In consideration of these more exacting conditions the remuneration was increased by the British Government to £81,000 per annum, instead of the £60,000 originally contemplated.

The pioneer vessels of the Cunard fleet have passed into the history of the British Mercantile Marine. They were the *Britannia, Arcadia, Caledonia* and *Columbia.* Much as they impressed their contemporaries, they seem small beside the present giant *Aquitania.* The *Britannia,* though, is one of the best known and best remembered of the vessels that have flown the British merchant flag. She inaugurated the British and North American Royal Mail Steam Packet Company (as the Cunard Steam Ship Company, Limited, was first known) on July 4, 1840. The voyage was an eminently successful one,

proving that owners and builders had evolved a type of vessel that could be relied upon to cross the Atlantic, not at a great speed, it is true, for the steam power of the *Britannia* and her sisters was only eight and one-half knots.

From 1840 onward the history of the company has been one of steady progress, and despite the rivalry which the success of the line called into being the company has consistently maintained the high regard of the travelling public.

The Cunard Line entered upon the second stage of its career in 1880, when a prospectus was issued stating that "the growing wants of the company's trans-Atlantic trade demanded the acquisition of additional steamships of great size and power, involving a cost for construction which might best be met by a large public company."

Two years previous the company had been registered under the Limited Liability Acts. The step was a necessary one in view of the family interests involved. Mr. David MacIver had died in 1845, his share devolving upon his brother Charles. Mr. George Burns (who was created a baronet in 1889, the year before his death) had retired in 1858, leaving his holding in the company to his two sons, John and James Cleland Burns. The capital of the Joint Stock Company was £2,000,000, of which £1,200,000 was issued and taken up by the three founders' families, but no shares were offered to the public till 1880.

Then the available shares were at once subscribed for, and, of the company which was then formed, Mr. John Burns became the Chairman of the first board of directors, the first Chairman of the Cunard Steam Ship Company, Limited, the new name then given to the concern as more indicative of its origin than the older and more cumbrous title of the British and North American Royal Mail Steam Packet Company.

Looking back in brief review over those four decades, progress, measured by the more rapid advancement of recent years in the domain of naval architecture and marine engineering, may seem to have been somewhat slow. The *Britannia* of 1840 was 1,154 tons gross. The *Scotia*, 3,871 tons, the finest paddle steamer that ever crossed the ocean, was built in 1862. Some ten years later the *Australian*, an iron screw steamer of 1,402 tons, was built for the Line. The *Scotia* remained the largest vessel of the fleet until 1874, when she was eclipsed by the *Bothnia*, of 4,556 tons, which was followed in 1875 by her sister ship, the first *Scythia*. The largest Cunarder in commission in 1880 was the *Gallia*, of 4,808 tons, four times the tonnage of the *Britannia*. Had only the same rate of progress been maintained during subsequent years, the biggest Cunarders of to-day would be the *Caronia* and *Carmania*, and we should still have long to wait for the advent of an *Aquitania* (45,647 tons). The *Britannia* and her sisters crossed the Atlantic at a speed of eight and one-half knots. Forty years later the best westward record was fifteen and one-quarter knots, a rate which the *Mauretania* has increased by more than ten knots.

No merchant vessel the world over ever had such attention focussed on her as the *Lusitania*. From the laying of her keel-plate to her completion she was the cynosure of all interested in ships and shipping. The British and foreign press reported her progress in minute detail; her successful launching was recorded with enthusiasm in every maritime State throughout the world; for she and her sister, the *Mauretania*, enjoyed the dual distinction of being the largest and fastest vessels which naval architects had produced. How they justified the expectations of their owners and builders, and how Europe and America awaited with interest the notification of each day's run, is now a matter of history.

They were succeeded, however, by a still larger vessel, the *Aquitania*. The length of the *Aquitania*—over 900 feet—and her great dimensions—she is listed at 45,647 tons gross—have rendered possible public rooms of such proportions and such perfection of architectural arrangement and decorative art as mark an advance even upon the elegance of the *Mauretania*, and this advance is by no means limited to the accommodation provided for first-class passengers, but extends throughout second and third class quarters.

When wireless telegraphy came within the scope of practical use the Cunard Line recognized its value at once as a factor for

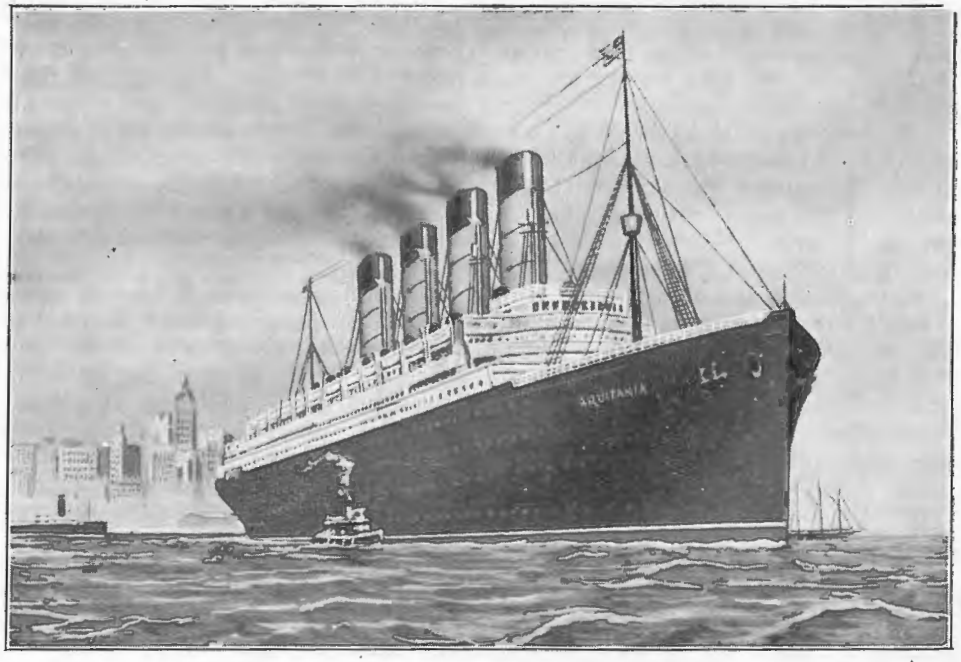
increased safety. The Marconi system was first introduced in the *Lucania*. So pleased were the directors with the results that they decided at once to adopt the invention in all their passenger steamers. In October of 1903 the *Lucania* was the vessel selected by the inventor for further experiments in wireless telegraphy; on the voyage from New York to Liverpool, completed on October 10, a newspaper with news from the Marconi stations at Cape Breton (in Novia Scotia) and Poldhu (Cornwall) was published daily. This Cunard Daily Bulletin, as it was called, recorded the most important and interesting events on both continents, and marked a fresh era in oceanic journalism. Its issue was suspended during the war, but its daily publication on all Cunard ships is again a delightful feature of ocean travel.

This is the Cunard record of over eighty years of trans-Atlantic service, from the staunch little *Britannia* to the magnificent *Aquitania,* the fleet *Mauretania,* the gigantic *Berengaria;* from a fortnightly service between two ports to a service that calls at a multitude of ports with surprising frequency and regularity.

Far from being content to rest on its laurels, the company regards those fourscore years merely as a good foundation for future advancement.

Its march of progress, however, is not only westward, but also to the east and south. Australia and New Zealand are included by the company's Australasian service through the Commonwealth & Dominion Line, at whose offices passengers may make Atlantic reservations.

The past has proved the soundness of the Cunard policy of thoroughness, safety, expansion. The future will surely see those principles applied with increasing force.



The Cunard liner "Aquitania."

Opportunities come to all—come continually on all the common days, and come oft-times in the simplest common things. The trouble with too many of us is that we do not improve them, do not seize them.—Miller.

Misfortunes are in mortals what bitters are in medicine. Each is at first disagreeable; but as the bitter acts as corroborant to the stomach so adversity chastens and ameliorates the disposition.

Charleville-Cloncurry Service.

THE Charleville-Cloncurry air mail service, which commenced on November 2, had the distinction of carrying as a passenger on the first trip an old gentleman of 86, who was highly delighted with the experience.

"I will never travel in any way to Cloncurry in future except by aeroplane," declared Mr. Alexander Kennedy. "I feel splendid and 20 years younger since I started on the trip. I left Longreach at 5.30 a.m. and landed at Cloncurry at 11.20 a.m., less than six hours going.

"When I came first from Longreach to this district (Cloncurry) 50 years ago it took me between two and three months to do the trip."

Pilot Hudson Fysh, in acknowledging the toast to his health at a civic reception, said that there was very little more expense entailed than in ordinary travelling. At present it took six days to reach Sydney from Cloncurry. Now a start could be made from Cloncurry on Sunday morning, be at Charleville at 10.25 a.m. on Monday, catch the train leaving there at 1.45 p.m., and be in Toowoomba next day at 11.30 a.m., and in Sydney on Wednesday.

One could go from Cloncurry to Longreach in five hours. It took them 2½ days by train and car at present.

CAPTAIN W. J. STUTT.

An Appreciation.

Australia has good reason to mourn the death of Captain W. J. Stutt, which occurred in the early part of October, 1920, whilst searching the Tasman Sea for the long-overdue steamer *Amelia J.*

Up to the present day no trace of the ill-fated schooner, with her crew, and the heroic Captain Stutt and his mechanic has been discovered.

Captain Stutt was one of Australia's pioneers in aviation. Having left this country as a lad to join up with one of the many big aviation concerns in England, he made rapid progress, and when Europe became the centre of the greatest war the world has known, young Stutt was well equipped to take his place and represent Australia in the then little-known art of aviation, where he served with honour and distinction.

Captain Stutt was a man of attractive personality, and answered the call of his country with the utmost of his physical powers. In its dangers and pleasures he took equal zest to the end of a too short life. His unselfishness and generosity towards his fellow men were really the cause of his tragic end. No man ever embarked on a perilous enterprise more cheerfully or with a better object.

He is mourned on personal grounds by many friends, who feel that they "will not look upon his like again." But we mourn him also for much wider reasons. Few men have done so much for the cause of aviation in Australia. After a brilliant miiltary career in France with the R.F.C., he was invalided home, and was appointed by the N.S.W. Government as Chief Instructor in Charge of the Aviation School at Richmond, N.S.W., a post he held until the end of hostilities.

To be well known is one thing; to be a strong and consistent force for good is another; and he was both. In order to estimate his value we have to co-ordinate the time in which he lived, the kind of work which fell to his lot, that which he mapped out for himself, and the special qualifications he brought to bear upon it.

THE STEPS TO PROMOTION AND HIGHER PAY ARE MADE EASY BY *THE LA SALLE PROBLEM METHOD*, WHICH SUCCESSFULLY CONDENSES MANY LIFETIME EXPERIENCES INTO A FEW MONTHS' INTERESTING STUDY.

Many thoughtful men have asked themselves whether training gained at home by correspondence might not prove to be mere "book-learning"—impractical—unmarketable.

We have no fault to find with this question—it is a natural one. The burden of our criticism rests on the man who permits the question to be its own answer, and to stop him in his upward climb without seeking further enlightenment.

For when more than *Three hundred thousand* men have trained with La Salle and found bigger, better things through this training there must be sound reasons for their success.

There are reasons. They lie in the La Salle Problem Method of imparting—not "book-learning"—but real, practical, usable business experience.

Experience is cash capital in business.

There are only two ways to get it.

One is the old, slow, uncertain way. The man who chooses to learn a branch of business by picking it up bit by bit as he goes along, finds the years slip by faster than he thought and sometimes his progress not as sure as he had anticipated. For all the "bits of knowledge" he sought may not have come his way.

The other road is short, sure and certain. It lies through the Problem Method, distinctive with La Salle Extension University. This way condenses into months the experience which it takes most men a lifetime to gain.

Write to-day to:—

La Salle Extension Institute Ltd.

115 Pitt Street, Sydney, N.S.W.

Affiliated with La Salle Extension University, Chicago, U.S.A.

Mention in Your Letter which of these Courses will help you—

Business Administration	**Salesmanship**	**Industrial Management**
Business Practice and Correspondence	**Public Speaking**	**Foremanship**

We require representatives in every town throughout Australia and N.Z. capable of bringing under the notice of their fellow townsmen the many advantages of qualifying for better positions and bigger pay. If you are interested, full particulars will be given on application to the Managing Director, La Salle Extension Institute, Sydney.

The Late Captain Stutt.

Captain Stutt has left behind him assets to his country in the shape of a devoted wife and mother and two bonny boys, who must, unfortunately, grow to manhood without the guiding hand of their father, but with his name and his sterling qualities for their inheritance. In years to come they may be able to take up the broken end of their father's life and continue serving Australia as he would have wished.

Love of country, fearlessness and generosity, even to giving life to save another, are the characteristics that should, and will, we feel sure, mark the sons of such a man as Captain Stutt.

—*H.M.*

MOTORLESS FLIGHT.

The London *Times,* in an article reviewing the results of the experiments recently carried out to demonstrate the practical value of "gliding" or motorless flying, makes the following important observations and comments:—

"In combined sailplane-flight and gliding-flight the Hanover student Hentzen created a 'record' of 3 hours 10 minutes on a monoplane. He described numerous circles and turns, his altitude varying up to nearly twelve hundred feet above the starting point. Previously, on August 19, he had made a similar flight of 2 hours 10 seconds duration, at an altitude of about seven hundred feet. This had been preceded on August 18 by a sailing and gliding flight performed by the Hanover student Martens, on the same machine, with a duration of 1 hour 5 minutes. It included nine circles, besides left and right handed turns.

"During Hentzen's three hours' flight the student Hackmack, of the Technical High School at Darmstadt, made an ascent in a monoplane, and remained in the air for one hour and 22 minutes. He circled repeatedly over the starting place at eleven hundred feet altitude, and finished with a distance flight of three miles. As two other machines, piloted by Botsch, of the Darmstadt group, and Martens, of the Hanover group, were also up, there were at one time four sailplanes cruising in the air above the cliffs of the Wasserkuppe. On the same afternoon Botsch had previously gone up in a high, gusty wind, with a velocity of twenty-five to thirty-five miles an hour. He landed smoothly on the Wasserkuppe, a hundred and fifty

feet above the point of starting. It was repeatedly observed during these sailplane flights that the machines were not only able to describe wide circles, but remained perfectly still in the air, head-to-wind, for minutes at a time.

A glider which recently performed so well in a trial flight.

"There would appear, therefore, to be no doubt from the evidence of all these successes that the problem of motorless flying, from a technical point of view, has arrived at the goal of practical success. After a space of two years, during which time universal attention has been fixed on gliders and sailing flights, progress beyond all expectation has been made. The experiences and successes at the Rhön meeting have distinctly furthered the knowledge necessary for building motorless aeroplanes for use over a flat countryside.

WIRELESS INSTITUTE OF AUSTRALIA

NEW SOUTH WALES DIVISION

MR. C. P. BARTHOLOMEW presided over the last meeting of the Institute, held on November 2, 1922., at 8 p.m.

After the minutes had been disposed of Mr. C. D. Maclurcan, who exhibited his transmitter at the meeting, gave an extremely interesting lecture on "Transmission." The transmitter was fully described and explained, and the circuit was dealt with in detail. The various positions of inserting the transmiting key were shown, and the necessity of using a substantial grid leak was emphasized. A wire-wound grid-leak was recommended, as this type of resistance would take ample current and be stable in operation.

A Ford spark coil was mentioned as a fairly good modulation transformer. Filament resistances of at least 18 Eureka wire were essential to overcome heating when used on the transmitting valves.

The Chairman, in thanking Mr. Maclurcan for his interesting discussion, said he looked forward to seeing still further developments from the apparatus which had already made history.

Mr. F. Basil Cooke then addressed the meeting. He compared the results of the American experiments with the record-breaking achievement of Mr. Maclurcan. Mr. Maclurcan's transmitter, he said, was originally installed for experimenting with the Sydney Observatory, and the power (9 watts) was considered just sufficient. Gradually, by earnest experimentation, New Zealand had been reached with ease. He attributed this phenomenal work to Mr. Maclurcan's thoroughness in matters of detail and to the geographical position of the station.

The matter was open to discussion, during which Mr. J. G. Reed described High Frequency Current in the antenna circuit of a transmitter.

A hearty welcome was extended to Mr. Phil Renshaw, who had not previously attended a meeting since his recent illness.

Mr. H. A. Stowe moved a vote of thanks to Mr. Maclurcan and those who had assisted him, Mr. Best seconded, and the motion was carried by acclamation.

SOUTH AUSTRALIAN DIVISION

The monthly general meeting of the South Australian Division was held at the Y.M.C.A. Buildings, Gawler Place, Adelaide, on Wednesday, November 1.

The President (Mr. Hambly Clarke) presided over a large and enthusiastic attendance of members.

After the reading and confirmation of minutes three applications for membership were received from Messrs. E. S. King, A. M. Bryant and Robert F. Ayers. All were admitted.

The President announced that, thanks to the generous offer of Professor Kerr-Grant, future meetings would be held in the University of Adelaide.

The usual correspondence and business having been dealt with, the President called on Mr. Caldwell to deliver his lecture on a "practical receiving set."

Mr. Caldwell had his portable valve receiving set, complete with loop aerial ready, and in a few minutes succeeded in tuning in several ships and commercial stations. A practical demonstration of the set was given, and a diagram shown of the circuit employed. The members evinced considerable enthusiasm in working the set, and several exhibited pieces of home-made apparatus.

Mr. E. S. King introduced an interesting discussion on the method of reception from the ordinary house lighting circuits Reference was made to the American fuse wire manufacturers' report of a boom in their trade since Gen. Squeir's announce-

ment of this method of reception, and it was decided that, although quite possible, it was not as yet a very practicable scheme from the amateur's standpoint.

A general discussion then took place, at the conclusion of which the President thanked Mr. Caldwell on behalf of the meeting.

Members will note that our C.W. and telephone transmitter is nearing completion, and will be in operation shortly.

WIRELESS NOTES

Radio Music.

The social and dance held by the Western Suburbs Wireless Association in the Masonic Hall, Auburn, on Saturday, October 28, was a great success in every way. Over 100 people listened to music transmitted from Mr. Maclurcan's station at Strathfield. The music was loud and distinct, being heard clearly all over the hall.

The instruments were designed and built by the club, and were operated by Mr. Brown, a member of the club. Mr. Brown used stages of amplification, the music being magnified by a magnavox.

Valuable assistance was given by Mr. Burman, Mr. Challenger, Mr. St. Hill and Mr. Brown, and it was their united efforts that made the social such a huge success.

Wireless at Henley Regatta.

Henley Day in Melbourne was a gala day for members of the Victorian Branch of the Wireless Institute of Australia, for as has been the case for several years past the signalling and controlling of traffic along the course was accomplished by stations erected and operated by Melbourne amateurs. Wireless operations at Henley were greatly hampered by the very short notice given by the Henley regatta committee, who sought the assistance of the Institute less than two weeks before Henley Day. As a result the telephony stations that some ambitious members had visualized along the banks of the Yarra were in reality three spark stations, and were erected in haste, and with apparatus part of which was the property of the amateurs and part lent for the purpose by local dealers.

The first station was situated at the finishing post, and was operated by Messrs. H. W. Maddick and W. H. Conry; the second at the bend in the river, half way along the course, was under the control of Messrs. H. Holst and K. McGregor, while Messrs. R. Hull, G. Steane and K. Trood were the parties responsible for the last station, which was erected at the starting post. Aerials about 30 feet long and 12 feet high were used at each station; the input power of the transmitters was about 5 watts each, and the radiation at each station 2 amps. Signalling was on a wave of 200 metres. Simply made valve receivers were installed at each station, a stage of low-frequency amplification being added in two cases. During part of the afternoon communication was established between two of the stations by causing the valve receivers to oscillate, but it was found impossible to obtain stable "beats," as the crowds passing under the low aerials and surging around the instruments produced ever-changing body capacity effects, which made the very critical tuning necessary to operate with C.W. on the short wave extremely difficult.

Some anxiety was felt by the operators of the stations lest the working of the Henley station should interfere with the Melbourne Radio Station, which is less than a mile away from the Henley course.

Messrs Maddick and Conry kept in close touch with the operator on duty at the

MISS CECIL BRADLEY.

Miss Cecil Bradley, of the J. C. Williamson Musical Comedy Co., has endeared herself to Sydney playgoers by her characterisations of "Madeline Manners," in "Going Up"; "Suzanne," in "The Girl in the Taxi"; and a long list of other well-played parts, revealing her as a clever comedienne, with a charming voice and a personality which should make her a screen star, should she enter the cinema world.

Like the majority of professional singers of note, Miss Bradley is an advocate of Heenzo for aiding the throat and preserving the purity and resonancy of the voice.

She writes:

"HEENZO IS A GREAT BOON TO PROFESSIONAL SINGERS, WHO MUST BE DELIGHTED AT HAVING SUCH A REMEDY FOR HOARSENESS, RELAXED THROAT OR VOCAL STRAIN."

Heenzo

Reg'd name for Hean's Essence.

The Famous Money-saving Treatment for

Coughs, Colds, and Influenza

If you do not require a family supply of Cough Mixture, you should use

HEENZO COUGH DIAMOND JUBES.

They have a delightful flavour, and are most efficacious for ailments of the throat and chest. They also sweeten the breath.

All leading Chemists and Stores stock Heenzo and Heenzo Cough Diamond Jubes.

commercial station, but on each occasion the reply was that though the signals could be heard they were very weak on 600 metres, and they in no way interfered with traffic handled by the Melbourne station.

The results of the afternoon's working were extremely satisfactory, and great appreciation was expressed by members of the Henley Committee.

The Institute was asked by the committee to make arrangements for similar work next year.

Wireless Call Signals.

The Prime Minister's Department notifies that the following call signals were allotted during October:—

V Z D K—"Jervis Bay."

V Z D N—"Ellaroo."

The following call signals have been cancelled:—

C G O—"Manurewa."

V H T—"Montoro."

ITEMS OF INTEREST.

On Wednesday, October 25, a very successful wireless telephone demonstration was given to the Yorick and University Clubs. The members were addressed by Mr. Cameron (Chairman of the Tramway Board), who informed them that the question of overhead or conduit system need not be considered, as he would now do all by wireless.

Dr. McCarthy, of the University Club, also spoke to the members in appropriate terms.

At the receiving end sufficient amplification was effected to make the speech and concert numbers clearly audible throughout the room.

On October 31 a very interesting experiment was carried out between Amalgamated Wireless (A'asia), Ltd., and the Victorian Police.

The police motor car was fitted with a wireless telephone set, and messages were exchanged throughout the afternoon and evening with perfect results. The car traversed the outer suburbs within a radius of 15 miles from Melbourne.

Everybody was very pleased with the experiments, and the Chief Commissioner of Police described the innovation as "an unqualified success."

The principal newspapers in Melbourne pointed out that at least so far as radio is concerned Melbourne is abreast of the times, as similar experiments are only now being carried out in America.

COASTAL RADIO SERVICE.

STAFF CHANGES.

Stewart, H., Radiotelegraphist, Melbourne Radio Station, has been transferred to Port Moresby Radio.

Clifford, J. R., Radiotelegraphist, Port Moresby Radio, has been transferred to Sydney Radio, on completion of his term of tropical service.

Bolleman, F. A., Radio Mechanic, Geraldton Radio, has been transferred to Broome Radio.

Wigg. F. W., Radio Mechanic, Broome Radio, has been transferred to Geraldton Radio on completion of his term of tropical service.

Christie, J. F., Relieving Radiotelegraphist, has been transferred from Perth Radio to Geraldton Radio for relieving purposes.

O'Donnell, E. J., Relieving Radiotelegraphist, has returned to his headquarters, Perth Radio, after relieving at Esperance Radio.

PERSONALITIES.

Dr. E. W. Bonwill, a country member of the Institute, residing at Cowra, N.S.W., was in Sydney during the month, and took the opportunity of visiting the stations of several metropolitan members.

Mr. Phil Renshaw, Hon. Secretary of the N.S.W. Division of the Institute, has sufficiently recovered from his recent illness to be able to resume the duties connected with the position. Tribute must be paid to the good work of Mr. R. D. Charlesworth, Asst. Hon. Secretary, who carried on in Mr. Renshaw's absence.

Mr. Spencer Nolan, who was for many years an active member of the Institute before being compelled to resign for private reasons, has now rejoined the Institute, much to the delight of members. Mr. Spencer Nolan is a past President of the Institute (N.S.W. Div.).

Institute members will be glad to hear that Mr. Harold R. Gregory, a member of the Council, has at last sufficiently recovered from his serious illness to be able to return home a few days ago from Lewisham Private Hospital, where he has been laid up for over ten weeks.

The next general meeting of the N.S.W. Division of the Institute will be held on Thursday evening, December 7, at 7.45 p.m., in the Royal Society's Hall, 5 Elizabeth Street, Sydney, at which a lecture entitled "Rectification" will be delivered by Mr. Joseph G. Reed.

At the last meeting of the Council of the N.S.W. Division it was decided that the Institute would refrain for the present from forming any country sections of the Division. The present policy provides (apart from other benefits) for country members (individuals) to be kept in touch

The auxiliary ketch "Eureka," fitted with wireless, which is playing a prominent part in Captain Frank Hurley's expedition in Papua.

with the Institute by circular, and they are welcomed whenever they are able to visit the metropolis and attend any of the meetings. As soon as arrangements at present being made are complete, country members will be brought into much closer touch with doings in the metropolis.

It is very pleasing to note that the Institute's membership is steadily growing. By this means it will be possible to maintain and even improve the high standard of the past.

The Hon. Secretary of the Wireless Institute (N.S.W. Division) will be glad to forward advice to, and assist, any country club formed, or proposed to be formed, in regard to rules, etc. All communications should be addressed to Box 3120, G.P.O., Sydney.

The Institute Council has appointed a special committee, consisting of Mr. F. Basil Cooke, F.R.A.S., Mr. H. A. Stowe, and Mr. P. Renshaw (Hon. Sec.) to draft a new syllabus for the year 1923, as the last syllabus ends with December of this year. It is expected that a very attractive programme will be evolved, which it is hoped to publish an early issue of *Sea, Land & Air.*

Diagnosing Valve Circuit Troubles.

Faults may be broadly divided into two classes: (*a*) noises; (*b*) failure of the set to give signals. The first-mentioned trouble is probably the more assertive, and it is with this class that this article chiefly deals.

When an amateur complains that he gets noises in the telephones he is almost invariably told that the cause is a bad high-tension battery. The writer has been troubled with noises from many sources, but not yet from high-tension batteries. Of course, noises are often due to bad high-tension batteries, but more often to other causes. Common sources of trouble are: (1) telephones; (2) grid leak; (3) valves.

In tracing the cause of the noise it is advisable to commence by testing the high-tension battery, either by trying it on another set or by trying another battery (known to be O.K.) on one's own set.

When the insulation of the telephone winding has deteriorated, as it will in high-resistance telephones used in valve circuits, loud cracking noises result. Telephones may be tested on another set or by comparison with another pair on one's own set.

The grid-leak is often a source of noise. Once the trouble has been traced to this it is easily remedied.

The noises may be due to bad contact between the element and the terminals, with the result that any vibration of the valve panel, or even the bench, produces noises which completely drown signals. The noises produced by a faulty grid-leak greatly resemble atmospherics, that is, sharp cracks followed by long-drawn-out rustling noises.

Valves may produce noises: (1) by the legs making bad contact in the sockets; (2) by uneven electron emission from the filament.

(1) The first cause results in noises when the valve or panel is tapped or vibrated, and may be remedied by splaying out the legs of the valve.

The second effect cannot be strictly called a noise. In a two-valve set, in which one valve is rectifier and the other is low-frequency amplifier, with the 'phones in the latter circuit, if the filament current of the amplifying valve is turned on nothing will be heard (except, possibly, a slight hum due to adjacent A.C. mains). When the filament current for the rectifying valve is turned on, however, a slight hissing sound is usually audible, but this does not interfere with reception. This hissing is caused by uneven electron transmission from the filament. It is difficult to obtain a valve without this effect, but the slight hissing is negligible.

A good way of tracing the cause of noise is to make up a circuit consisting of valve, telephones and high-tension battery. If there is no sound in the telephones the high-tension battery, telephones and valve are obviously all right, and the causes must be searched for elsewhere. Other causes are faulty low-frequency transformers and condensers!

Failure of the set to oscillate may be due to: (1) Insufficient high-tension supply; (2) reaction coils leads reversed; (3) reaction coil too small; (4) aerial shorting to earth; (5) no by-pass condensers provided across telephones, high-tension battery, low-frequency transformer primaries, etc.

A REGENERATIVE RECEIVER FOR SHORT-WAVE LENGTHS

By J. G. REED
Radio Engineer

TO successfully pick up short-wave lengths specially designed receivers must be employed. In the following text will be described a regenerative receiver capable of responding efficiently to waves between 150 and 450 metres both spark and C.W. The circuit employed is shown in Fig. 1, in which it will be seen that Armstrong's regenerative connection is used. In the secondary and plate circuits variometers V1 and V2 are used to tune to resonance to the incoming wave. No direct magnetic coupling exists between the grid and plate circuits as in the regenerative receivers for longer waves. Regenerative action in this type of receiver is accomplished through the inter-electrode capacity of the valve itself. When the plate circuit is tuned to the same frequency as the grid circuit an extremely high impedance is offered by variometer V2 to the radio frequency currents which flow through it, and as a consequence the potential of the plate varies greatly when this takes place. As the grid is in the electrostatic field between the plate and the filament it will come under the influence of this variation, and its potential will also change. This change in the potential of the grid still further aggravates the condition in the plate circuit, and would continue indefinitely were it not for the change in the slope of the characteristic curve of the valve. When this reaction is no longer capable of sustaining itself the magnetic field stored up in V2 causes a variation in the plate potential in the reverse direction, and so the action of the valve is to keep itself in a state of continuous oscillation during the time that these conditions last. If any difficulty is experienced in making the valve oscillate with this circuit a very small variable condenser shunted between the plate and the grid will set matters right, for by its means the requisite inter-electrode capacity can be obtained. When operating this receiver for the reception of damped or modulated C.W. signals it will be noted that as the variometer V2 approaches resonance amplification takes place at first without distortion, and then by further tuning the set breaks into oscillation, being then in a condition for the reception of straight C.W. For the reception of radiophone music or speech the set must be adjusted just below the point of oscillating or distortion will take place. To increase the wave length range of the receiver up to about 750 metres two small condensers of about 0.0002 microfarads must be connected in parallel to the secondary circuit and the plate variometer, as shown in the dotted lines on the diagram of connections.

For the panel obtain a piece of bakelite or hard rubber sixteen inches long by six inches broad and one-quarter thick. True it up exactly to this size, and then on a sheet of paper copy the layout of the terminal, switch, bearing and screw holes as shown in Fig. 2. Touch the back of this plan lightly with glue or seccotine and paste it on to the panel, taking care that it lies true all around. With this as a guide centre-punch all the holes and drill to the sizes specified. This method of locating the holes to be drilled on the panel makes certain that all are accurately placed. It is much easier to correct a mistake on a paper drawing than on the panel itself.

Now take a thin sheet of copper or brass, or, failing this, some heavy gauge tin foil, and cut a piece which will cover the panel all over with the exception of spaces of about ½-inch around all terminals and bearings to prevent short-circuits. This sheet is now connected to the earth terminal, and forms an electrostatic shield between the coils and the body of the operator, reducing to a large extent the annoying fluctuating of the pitch of C.W. signals, which is very noticeable when the hand approaches and recedes from the dials during tuning. As an additional precaution line the rest of the cabinet and connect all to earth.

To construct the variometers and coupler obtain three pieces of cardboard tubing 4-in. diameter, 4-in. long, and ⅛-in. thick for the stators, and three pieces, 3-in. diameter, 2-in. long and ⅛-in. thick for the rotors. Details regarding the preparation and assembly of these tubes were given in the November issue of this journal, and, with the exception of the windings, the construction is similar. Figures 3 and 4 show the back and side views of the receiver, from which the method of mounting can be seen. To support the coils clear of the panel cut out with a fret saw six pieces of ½-in. close-grained wood to the shapes indicated by the letter "X" in Figs. 3 and 4. Four of them are 5-in. long, and the other two, which are for the middle variometer, are 4-in. long. Boil them all in paraffin wax to improve the insulation, and prevent any shrinking or distortion likely to be caused by seasoning of the timber. While on the job with the fret saw cut out three half-inch discs, from which the supporting pieces for the rotors are made, and treat them to a bath in the wax until bubbles cease to rise.

Before assembling the tuners wind the coils as follows: On the two variometer stators wind 30 turns of No. 22 d.c.c. wire in two sections with a space of ½-in. between them, and on

A SHORT WAVE REGENERATIVE RECEIVER

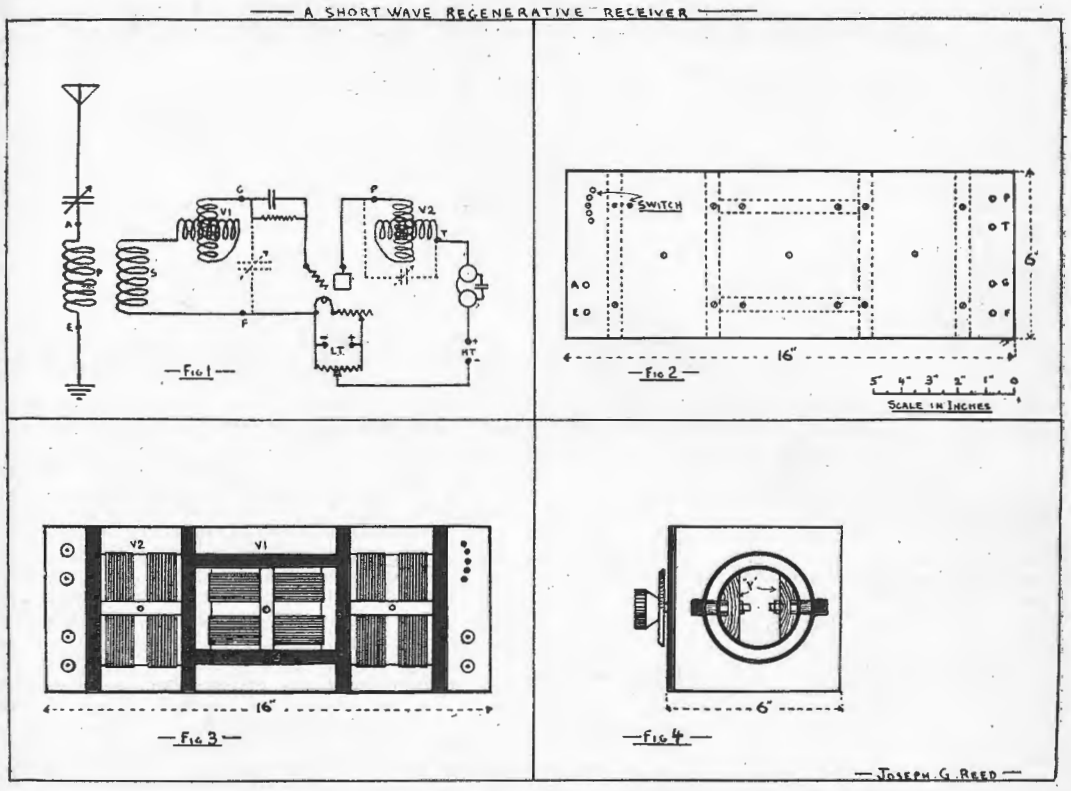


Fig 1 — Fig 2 — Fig 3 — Fig 4

— JOSEPH G. REED —

the three rotors 40 turns of No. 24 d.c.c. in two 20-turn sections. For the primary winding of the variocoupler put on 50 turns of No. 24 d.c.c., tapping it every ten turns, and connecting to a five point switch. The position shown on Fig. 2 for the switch and contacts is for an "Expanse" radial arm pattern, and if any other type is used care must be taken to amend the layout accordingly.

Dip all the windings into hot paraffin wax to protect them from the effects of moisture, and to attach them firmly to the cardboard tubes. The wires from the rotor windings are soldered to the inside of the rotor shaft, and connection is made outside by soldering on short pieces of flexible wire. Both the rotor and stator coils are connected in series on the variometers, but in the case of the coupler the windings are kept separate, the stator being the primary and the rotor the secondary coil. Terminals for the respective windings consisting of small machine screws and nuts should be provided. Those for the stator being placed at the end of the coils and those for the rotor in the space between the stator winding.

To assemble the coils drill ¼-in. holes diametrically opposite in the centre of the space between the windings to allow the bearings to pass. Inside the rotors attach the supporting pieces "Y" with ⅛-in. brass screws, using washers under the heads to prevent them cutting through the cardboard. The bearing strips attached to the stator are made fast by means of ⅛-in. machine screws and nuts passing through the cardboard. In the centre of this

bearing strip, exactly opposite the bearing hole in the cardboard tube, is drilled a ¼-in. hole to accommodate the rotor shaft. Thread each of the brass shafts for one inch, and to facilitate the soldering of the rotor wires to it "tin" the inside or screwed end at the point, taking care not to foul the threads with solder or the nuts will be hard to screw on. Insert the shaft and screw the thread well home against the nut in the recess between the wooden support and the cardboard tube. Now screw on the inside nut, and complete the connection of the winding to it.

A set screw against the shaft can be used as an additional precaution to guard against it coming loose. The spacing pieces between the rotor and stator must not be a tight fit, or trouble will be experienced in getting the parts together. After the coils are assembled they must be attached to the supporting pieces "X" and screwed to the panel. Before doing this take them in pairs and make sure that they are perfectly symmetrical, otherwise the rotor shaft will not pass through the panel at 90 degrees, and the dial will be out of square.

It will be noticed that the end coils are mounted horizontal and the centre one vertical. The reason for this is to reduce as much as possible the coupling effect between the circuits which otherwise, due to reaction effects, might cause trouble when tuning the set to the shorter wave lengths. For a similar reason the leads from the various coils must be spaced as far as possible, and not run parallel for any great distance.

To wire up the receiver use No. 18 bare copper wire insulated with lengths of valve rubber or No. 3 surgical tubing. For a neat job all wires should be run parallel with the sides of the panel and all bends be made at right angles, instead of following out Euclid's teaching and making the shortest distance between two terminals a straight line .

The grid condenser should have a capacity of about 0.0001 to 0.0003 microfarads, with a high resistance leak across it of three megohms. A suitable size for a grid condenser of this capacity is two sheets of tin foil about one inch square separated with a dielectric of mica two mils thick, or three times this size if waxed paper is used. For small waxed paper condensers a very good dielectric can be made by impregnating sheets of "Ziz Zag" cigarette paper with wax. Its extreme thinness and freedom from defects makes it well suited for this purpose.

If a soft valve is used for detecting a great improvement will be made in its operation by using an "A" battery potentiometer. This enables the plate potential to be finely regulated over the entire range of the filament battery, which is usually about six volts. In conjunction with a multiple point switch tapping the high-tension battery every three cells a close regulation from zero to maximum plate potential is secured. At a critical point on the characteristic curve of a soft valve the plate current decreases slightly with increasing potential, and as a consequence rectification takes place on both the positive and negative halves of the cycle of the incoming wave train, giving a marked increase in signal strength.

To operate this type of receiver begin with the coupling of the secondary to the primary at maximum, and set the variometers at minimum, i.e., with coils opposing. Adjust the plate variometer until oscillation takes place, and then tune the primary to resonance, which will be indicated by a faint click in the 'phones. Now increase the inductance in the secondary circuit and continue readjusting primary, secondary and plate circuits until the full range is covered. Note the positions of the various stations heard, and log them for future reference. If spark or radiophone stations are picked up detune the plate circuit until the set just ceases oscillating, and it will then be in the best condition for undistorted reception.

In place of the tuned plate circuit it is possible to use the ordinary magnetic reaction coil as in longer wave receivers. It possesses the disadvantage, however, of causing noticeable detuning of the secondary circuit owing to the capacity effect between itself and the other windings varying with change of position. This is particularly objectionable when attempting to receive C.W. signals. A change of less than one-fifth of a metre in the tuning will cause a change in the beat note of more than 500 cycles when receiving on 250 metres.

If any point in the above article is not quite clear expert advice is always available if queries are forwarded to the Editor.

NEW WIRELESS REGULATIONS.

The new regulations for the control of wireless, which came into force on the first of this month, have been received by amateurs and experimenters generally with marked satisfaction.

These regulations are most comprehensive, and provide for the control of every branch of radio communication. To amateur operators they convey a measure of freedom not previously enjoyed since the outbreak of war in 1914, at which date there were only a comparative few interested in the science to the number who follow it closely to-day.

"Sea, Land & Air" rejoices with the amateur enthusiasts, who have been placed in such a favourable position under the new regulations. The clear, well-defined course which now lies open to them to pursue study and experimentation will unquestionably be fully availed of. The fact that the license fees have been so materially reduced will enable them to carry on practical work at a minimum outlay In the matter of encouraging amateur operators by advocating proposals which unquestionably tended to benefit them, Mr. E. T. Fisk (managing director of Amalgamated Wireless

(Aust.), Ltd.) stands pre-eminent in Australia. Mr. Fisk has always had the interests of the amateur at heart, and his good work in connection with the N.S.W. Division of the Wireless Institute of Australia will not readily be forgotten. The amateur to him represents the seed of great possibilities in the field of wireless telegraphy. It is only by encouraging those who evince an aptitude and enthusiasm in exploiting the possibilities of radio communication that the full fruits of this wonderful science will ever be realised. This has been the guiding principle of Mr. Fisk's actions since wireless became a really live question in Australia.

The following is a precis of some of the more important regulations:—

All wireless stations must be licensed by the Prime Minister's Department before they can be legally operated. Provision is made for the following classes of licenses: Ship station, land station (for inland and isolated localities), coast station, aircraft station, portable station, and experimental station (transmiting and receiving), the actual fees for which are fixed in respect of each at £1 per annum, while the fee for an experimental receiving station will be 10s.

Within a radius of five miles from a commercial or defence station, no transmitters of the undamped (spark) type will be permitted, but other types of transmitters will be licensed, with a power not exceeding 10 watts.

From 5 to 50 miles distance from such a type of station any system of transmission will be allowed, with power not exceeding 20 watts; while over 50 miles transmitters operating on a power of 250 watts will be licensed. The wave lengths for such transmitting stations will be confined to the following range: 150 to 250 metres, for spark, I.C.W., C.W., and telephony, with a special band for C.W., and telephony only from 410 to 440 metres. Interference is less likely to be caused on these wave lengths within these limits.

Applicants for experimenters' licenses will be required to produce evidence of their technical fitness, by experience or training, to conduct experiments usefully, and operate their sets satisfactorily, before a license can be granted. Applicants must also disclose particulars of apparatus they propose to operate. To ensure that all wireless stations are licensed, regular inspections of suspected stations will be made. With a view to enforcing the regulations, every retailer of wireless apparatus will be required to keep a record of the disposal of wireless apparatus, and may not sell any apparatus unless the purchaser has, or is obtaining, a license.

CORRECTION.

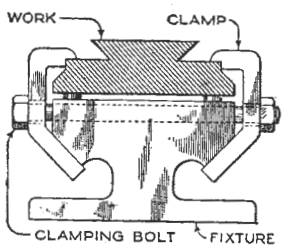
In the article entitled "A Variocoupler Receiver" in the November issue readers were told to dip the ends of the wires into hot "water" to set them on to the tube. Quite obviously hot "wax" was meant.

JUNIOR MECHANICS SECTION

In order to keep this section as bright and up-to-date as possible we seek the co-operation of our readers. By contributing simple constructional and experimental items—written in non-technical language that will occupy space varying from a small paragraph to a full page or more—accompanied by diagrams and illustrations, readers will materially assist. All contributions will receive our most careful consideration and, if accepted, will be paid for on publication.—ED.

PLANER CLAMP FOR AWKWARD PIECES.

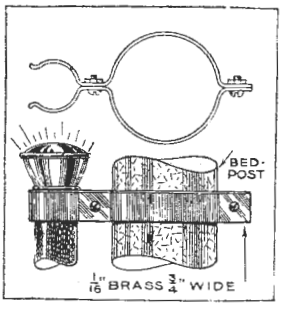
IN order to clamp down irregularly shaped work quickly and firmly the fixture shown in the drawing was made, reducing materially the time formerly required to set up the pieces on the planer. Two clamps of the shape shown



were made and bolted to a special holding block. The work rested on the short pins, and the ends of the clamps were machined to fit over it. When the bolts were tightened the work was held with an even pressure on both sides. The fixture was bolted to the bed of the planer in the usual manner.

FLASHLIGHT BRACKET FOR THE BED.

To make the electric flashlight available at any time during the night a simple



bracket can be made and fastened to the bedstead. A piece of No. 16 gauge sheet steel or brass is used. Two strips about ¾ in. wide are needed, and these are bent to fit around the bedpost and flashlight, as shown. After forming the strips holes are drilled to take two small bolts for clamping it to the bed.

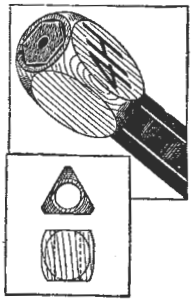
—*Popular Mechanics.*

WHEN BRAKES SQUEAK.

Squeaking brakes are usually the result of dirt working its way into the fabric brake lining. This foreign material presents a hard surface to the metal drums, and the result is friction of sufficient intensity to cause the unpleasant noise. Usually the brake linings can be effectively cleaned with kerosene, but in cases where there is a large amount of dirt or grit a small quantity of resin and castor oil mixed to a plastic condition and applied to the brake bands will be more effective in overcoming the noise.

A USEFUL PENCIL MARKER.

Draftsmen and others using several grades of pencils will appreciate the merits



of the pencil marker illustrated, which, besides indicating the hardness of the lead at a glance, also prevents the pencil from rolling. These markers are easily made in a few minutes by whittling down an ordinary thread spool, the hole in which is usually the right size to fit the pencil.

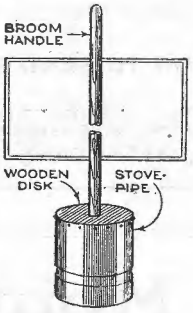
EDUCATIONAL ANNOUNCEMENTS

CLOTHES CLEANED BY VACUUM CLEANER.

By using the vacuum cleaner attachment intended for cleaning the upholstery of furniture, clothing can be cleaned with a minimum of trouble. The garments are laid out flat on a table and gone over several times; the results are much more satisfactory than brushing. —*A.S.H.*

CUTTER FOR STRAWBERRY RUNNERS.

Strawberry plants send out runners that, unless kept cut off, permit the plants to spread to such an extent that they cannot easily be cultivated. This and other reasons make it necessary to keep the runners cut short, and the drawing shows a tool that eliminates this back-breaking



labour of the strawberry grower. As shown in the sketch, a thick wooden disc is attached to the end of a wooden handle. A piece of stovepipe is nailed to the disc and forms the cutter, the edge of which may be filed to make it sharper. In use the cutter is merely placed over the plant and pressure applied to the handle, severing any runners longer than the radius of the hollow cylindrical cutter. —*L.H.R.*

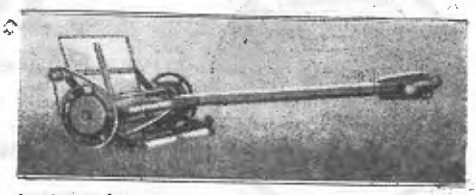
EXTRACTING BROKEN CARTRIDGES.

The sportsman, when using reloaded shells in his gun, is frequently troubled by a head breaking off and leaving the cardboard cartridge tube sticking in the chamber. If the tube sticks too tightly to be removed by ordinary methods, as it usually does, it can be removed by screwing a tap into the cardboard cylinder from the chamber end. This makes it possible by inserting a rod in the muzzle to drive out the cartridge by a light blow or two on the end of the rod. —*G.C.*

MOWER ATTACHMENT FOR CUTTING HIGH GRASS.

After the lawn has been neglected and allowed to grow for more than a week it is generally hard work to make a good job of mowing, as great exertion is required to push the mower into the tall growth.

The photograph indicates a way out of the difficulty. It consists in attaching to the mower a revolving blade, or fan, which pushes the tall grass into the cutter so that it can be cut off instead of being pushed over by the advancing lawn mower and rolled flat on the ground. Two pieces of flat-iron stock are drilled at one end to take a light shaft, and the opposite ends



An Attachment for the Lawn Mower Which Makes It Possible to Mow Grass of Tall Growth Easily

are drilled to fit under nuts on the mower-wheel housing. A piece of stiff sheet metal or light board is mounted on the shaft between the bearings one outer end of the shaft being provided with a small pulley in line with the mower wheel. A belt around the wheel of the mower and the pulley causes the fan to revolve when the implement is pushed forward, the grass being pushed into the path of the revolving cutters.

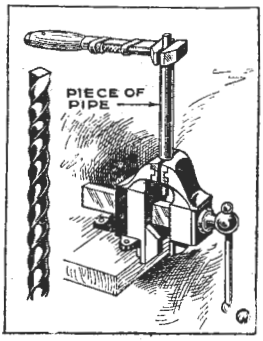
—*Popular Mechanics.*

MICROSCOPE WITHOUT LENS.

The materials needed for the construction of this simple instrument are: A ¾in. cotton reel, a disc of celluloid the same diameter as end of reel, a disc of thin cardboard the same size and several tape pins. Enlarge the bore of reel at one end, blacken inside with Indian ink, and then tack the celluloid on to the enlarged end with three or four tape pins. Next blacken on each side the cardboard disc and tack it on to the opposite end, and in the centre punch a tiny hole with the point of a needle. Your microscope is now complete. Slightly moisten the celluloid, put on the wing of a fly, and look through the needle hole. The wing will appear as large as a man's head. —*C.C.B.*

TWISTING IRON BARS.

The occasional worker in ornamental iron often finds it difficult to twist two round bars, or a square one, so that the resulting piece will be straight and the pitch of the twists uniform. By applying

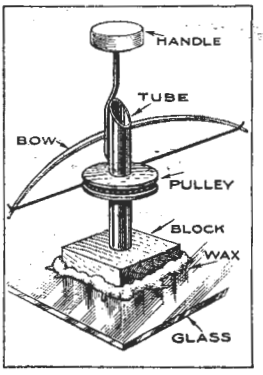


the idea illustrated, however, excellent results may be obtained. One end of the bar to be twisted is clamped in a vise and a close-fitting piece of pipe is slipped over it as shown, allowing the upper end of the rod to project beyond the pipe. This end is seized in a wrench, which is used to twist the rod.

—*W.N.F.*

DRILLING LARGE HOLES IN GLASS.

To drill comparatively large holes in glass without the danger of breaking it the arrangement illustrated may be used, and will produce a clean, smooth hole. A piece of thin brass or copper tubing, the outside diameter of which is the same as that

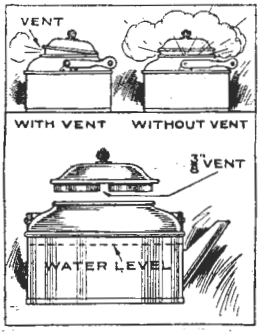


of the hole to be drilled, is fitted with a wire handle and a small woooden pulley. A wood block with a hole in the centre to fit the tubing used is provided, and is fastened to the glass by running melted beeswax around the edges. The tube is placed in the hole of the block, partly fillled with a mixture of emery and water, and rotated by means of a bow, in the manner of a fiddle-bow drill, the string passing around the pulley. This method is particularly suitable for drilling holes in curved glass, as the underside of the block can be shaped to the curvature of the surface so that the drill will not slip.

—*Popular Mechanics.*

SAFETY VENT FOR THE TEA KETTLE.

When the tea kettle is filled with water above the inner opening of the spout the



cover will vibrate when the water begins to boil, making considerable noise, besides which one may easily scald his hands by the escaping steam. This undesirable feature can be overcome by cutting a slot ⅛in. wide in the flange of the cover. The steam pressure will raise the cover slightly and allow the vapour to escape through the vent in a horizontal stream. By turning the cover so that the vent is opposite the handle all danger of being scalded when picking up the tea kettle will be eliminated.

WHERE HUBBY COULD SHINE.

A rap sounds at the kitchen door. Oh, my! Mother has been so very busy around the house that she feels her hair is terribly disarranged. Hurriedly she parts it in a woman's unseeing, feeling way and trenchantly approaches the door, hoping there is not a visitor. If hubby would only fasten a little mirror near the door casing for her that would be the point of many an assuring comfort.