

“SEA LAND and AIR”

THE AUSTRALIAN NATIONAL MONTHLY

— OF —

TOPICAL INTEREST

Edited by M. DIXON.

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SEA LAND AND AIR

AUSTRALIA'S
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THE FUTURE—AND OURSELVES

THE growing importance of Radio in Australia points to a time in the near future when the experience of America and England will be repeated here. From a comparatively unknown science Radio has advanced to a position of outstanding importance in shipping and commercial circles, and very soon in Australia it will enter the home and banish the isolation which is to-day one of the country's greatest drawbacks.

Those who have been identified with radio in Australia from the beginning must needs move with the times. For many months the question of what provision should be made to cater for the needs of the growing army of experimenters has been under consideration, and the time has arrived when the publishers of "SEA, LAND & AIR" have decided to incorporate this magazine in an all-radio publication, to be known as "RADIO." The new publication will be issued fortnightly, and will sell at the popular price of 6d. It will be devoted wholly to Radio, each issue featuring the latest and most invaluable developments of this important science.

We have ample evidence that a magazine run on the lines on which "RADIO" is to be conducted will supply a long-felt want amongst experimenters and wireless enthusiasts in Australasia. So far they have had to depend largely on text books and overseas publications for the material they require, but "RADIO" will supply topical and local items, in addition to up-to-the-minute information from abroad. Our aim will be to give those interested in Radio—whether they be experimenters or the possessors of home receiving sets—the material that will prove most useful to them. In this way we will secure and hold the interest of many thousands of readers throughout Australasia.

Those who know and have learned to appreciate "SEA, LAND & AIR" as it exists to-day, will be especially welcome to the fold of readers of the new magazine. It will be all that a radio magazine should be, and we look forward with confidence to the support of our old friends as well as the gaining of some thousands of new ones.

[April 4—the date of our first issue—will be a red-letter day in the history of Radio in Australia and New Zealand.]

Month by Month

Peopling the Empty Spaces.

NO country in the world has so much fertile land in unprofitable occupation as Australia. And New South Wales provides an object lesson in this respect that is sad to contemplate. Many critics of our State loudly proclaim that it has many waste spaces, mainly incapable of being settled. Such, however, is not the case, and these persons speak with a lack of knowledge. There is very little land in New South Wales that remains unoccupied to-day. The fault lies in the use to which the land is put by its owners or lessees. Throughout the rich, river-traversed coastal belt, where climatic conditions are always favorable, can be found hundreds of small land-locked towns languishing and decaying for lack of population. And they can never prosper until the large estates of the neighbourhood are sub-divided and worked to the limit of productiveness. In a country such as this it is nothing short of criminal folly to fatten bullocks on river flats that would produce lucerne, maize or vegetables, or to graze dairy cows on land that can be cultivated to give returns a hundred per cent. greater. If the position along the coastal belt is bad, it is equally deplorable in the Central and Western districts. There magnificent wheat lands are grazed over by sheep and rabbits, and production as calculated in terms of pounds, shillings and pence is at a minimum. Successive administrations have tackled the problem of bursting up the big estates so that the land may be utilised and tilled to its fullest advantage, but still the aggregation of large holdings continues. The present Government, in pursuance of its arrangements with the Imperial authorities, is putting forward a concrete scheme to make some of the idle lands available to immigrants and local land-seekers. And it is not moving too soon.

—G.B.

Popular Fiction.

The novel dominates the literary world; the circulator of one 'best-

seller" surpasses the total of all the works of the most read serious writer. In these days good novels are necessary. They serve as mental relaxation for jaded brains; they bring before thousands knowledge of other classes than their own which beget sympathy; they paint with verisimilitude and vigour the industries and customs of races of which the vast majority could learn nothing at first hand, and rob history of its terror. Yet some think it a waste of time to pore over interminable pages which merely paint the social world as known to ourselves, and which everyone has the opportunity of studying for himself. To the "problem" novel, with its hectic and vicious scenes, one is tempted to paraphrase the famous order credited to Omar, the victorious militant apostle of Mahomet, when he gazed on the endless shelves of the Alexandrian Library: "If these volumes agree with the Koran they are unnecessary; if they disagree they are pernicious; burn the lot." Substitute "life" for "Koran," and draw the inference. The writer read three modern novels lately. On a voyage he waded conscientiously and stubbornly through the eleven hundred closely printed pages of Galsworthy's "Forsyte Saga,"—a wonderful presentation of a middle class property-proud family of humble origin and sudden rise, to riches in the England of Queen Victoria's sedate and snobbish days. As it reproduces with remarkable fidelity a form of life now largely modified and perhaps disappearing, it is of high value as an antiquarian study, and in a century after the momentous social changes now apparently looming have developed, should be a text book of social history.

Then came "If Winter Comes," by A. M. S. Hutchinson, an illuminating study of semi-ecclesiastical life in a decorous English district, and the effect of the outbreak of the war on a temperament at once gentle and self-sacrificing, yet courageous and noble, and almost divine in its compassionateness and silent dignity. Next on the list appeared "This Freedom," the

most boomed book of the day, the 'best seller' par excellence, a composition replete with uncanny power of delineation of character and reproduction of the most intimate thoughts of the soul. The millions must like it, and indeed once started it possesses an irresistible fascination, one must read on to the bitter end. And it is bitter; hardly a character has a natural death, few have a moment's happiness in their stricken lives. "Unmerciful disaster follows fast and follows faster." The whole atmosphere is morbid and depressing, and leaves an after-taste of death and gloom. Yet it has an important moral. As an antidote Rex Beach's "Glowing Gold" was read. It came as a change from a cavern to a healthful prairie. Not approaching the other work in artistry, yet it is a stirring story. The characters are full of life and loveableness and the scenario amid the oil-wells of Texas gives an instructive and arresting picture of the great oil-boom.

Rex tells lots of good stories: there is room only for one. The driver of the "Ford," his own machine bogged to the body, saw what he took to be a Derby hat lying on the mud. Picking it up, a man's head was disclosed. "You're in pretty deep, Pard," said the chauffeur. "Sure," replied the submerged one, 'but you ought to see my brother; I'm standing on his shoulders.'

—T.J.H.

Parents to Blame for Hysteria.

Although profound emotional shock is the cause of an onset of an hysteria convulsion, it is not the cause of hysteria itself.

Hysteria is not caused by intense worry or by concentration of the mind upon itself.

The emotional shock simply acts as a cause for the patient to lose her conscious mind, and thus be thrown into a subconscious mind or the "unconscious."

Hysteria is not hereditary.

Perhaps it runs in families because parents give their children the same treatment during life which they themselves received when children.

That which is hereditary is the baby constitution, the infantile undeveloped self-control.

As children the hysterics have always had their own way, and the practise of giving to children anything they desire

is full of folly, and independence is sadly lacking in them in their future years.

When an individual of this type is confronted by misfortune, instead of fighting it she goes into an hysterical attack, thus substituting for her conscious mind her unconscious mind, which brings her back to the days of childhood when all was serene.

Psycho analysis, coupled with a study of the manner in which the patient goes through her emotional demeanor, will discover to her her weakness and failures which give a diminution of self-control.

—B.L.

Pioneer Women.

Complaint has been made that unsympathetic men pharmacists resent the intrusion of women into their ranks. In their view the wielding of the pestal, the camouflaging with goodly outsides otherwise unsightly and unpalatable pills, and the concoction of infallible toothache remedies, should remain privileges of the lords of creation, and gentle demoiselles not stain their lily-white fingers with unsightly pigments, or diffuse a faint aroma of assafetida or iodoform instead of patchouli or opponax. Yet in spite of the unchivalrous attitude attributed to man numerous ladies have succeeded in insinuating themselves into pharmacies, and carry out with accuracy and skill the most complicated dispensing and compounding. Indeed pharmacy seems to have an attraction for the gentler sex. Not only are there lady students in our own Universities, but while visiting the great University of the Philippines recently the writer learnt that 80 per cent. of the students in the pharmacy department there are women. But if it is true that men pharmacists obstruct women they are only carrying out the tradition of other learned professions. The British medical schools for decades refused to confer degrees on women, and it was not till Sophia Jex-Blake and Millicent Garrett Fawcett and a few devoted followers had fought against prejudice and endured rebuffs innumerable that they at last succeeded in compelling the universities and colleges to allow them to graduate. The lawyers in their department acted in a similar way, and the appearance of women as accredited legal lights is a very recent

phenomenon. But now woman has captured another citadel heretofore exclusively dominated by men, that of veterinary work. The brave pioneer is Miss Aleen Cust. This lady determined when a girl to become a "vet." She was ridiculed by most, while men vets regarded the idea as a preposterous joke. But in spite of the frowns of authority and the sneers of the public she entered the Veterinary College in Edinburgh, and attended the full four-year course. Although she proved an exemplary and brilliant student the Royal College of Veterinary Medicine and Surgery refused to confer the diploma of membership upon her. Nothing daunted she started in practice. Notwithstanding that she was technically "unqualified" she soon made a name, and won an extensive practice. For ten years she acted as Veterinary Inspector for the Galway County Council, and held other appointments. In the war she did valuable work in a veterinary hospital in France. Now her long fight has been crowned with success; a few days before Christmas the Royal College gave way and conferred on her the well deserved diploma. Thus as the first lady in Great Britain to become a trained and scientific veterinary surgeon and physician Miss Cust must forever rank with the great pioneer women of their sex.

—T.J.H.

Scientists Coin Curious Names.

In an interesting discourse before the American Chemical Society, Dr. Edwin Slosson remarked that the chemist had become the greatest coinor of words in the world.

The rapid expansion of organic chemistry demanded the fabrication of some 250,000 new names with provision for an indefinite increase in the future.

Nobody ever had such a job since Adam was called upon to give names to all the animals who filed in front of him.

It meant doubling the dictionary.

In accomplishing the gigantic task of constructive philology the chemist has got some unwieldy combinations, but on the other hand, under the pressure of commercialism, he has invented some very neat and handy nicknames for every day use.

The coinage of "kodak" confounds the philologists. But they have determined the derivation of "balopticon" to their own

satisfaction. It is derived, they say, from two Greek roots "ballo," to throw, and "opticos" sight, a very proper term for a projection lantern, and removes the suspicion that the name of the apparatus might conceal a sly reference to its makers, the Bausch and Lomb Optical Company.

—B.L.

Golfers and Goodwill.

Many people, who ought to know better, entertain the idea that golf appeals only to a class who are inherently conservative. This is an entirely erroneous belief. To the casual onlooker golf appears neither interesting nor entertaining, and many people openly scout the idea that it calls for skill of even a moderate order. Let the man who thinks along these lines take hold of a "driver" and attempt to hit the ball from the tee towards the green. If he manages to dodge a rough fairway let him try his luck with either a mashie or mid-iron, and when at last the ball is within measurable distance of the hole hand him a putter and watch him putt out. When he has accomplished this, and finds that it took him perhaps twenty strokes to do what an experienced player would do in four the "scoffer" invariably "stops to pray."

Almost the same thing happens when the outsider first enters golfing circles. He has previously felt that he would be "like a stranger in a strange land," but a very brief experience soon compels all his preconceived notions to go by the board. The utmost cordiality and good-fellowship prevails; a friendly spirit of rivalry characterises the play at all times, and no player, however indifferent his initial effort may be, is allowed to feel other than perfectly at his ease.

Golf is a game which has only to be understood and practiced ever so little to make a convert of all who fall under its fascinating influence. And the attraction of the game is only equalled by the good-fellowship of all who play it.

—M.D.

Ellis Island.

Of late local interest has been aroused in Ellis Island by the fact that the Australian wife of an English traveller was

detained there, as the complement of Australians was complete in the States at the moment she endeavoured to land. If the Immigration Inspector, who boards all the ships that enter the New York harbour, decides that you are "for the island" nothing less than an act of God will prevent the decree being carried out. There can be no appeal, no protest, because there is no higher authority, and you are "at sea."

Then what happens when you get there? Through a door in the side of the ship and down a rope ladder you will go. Below a boat is waiting to take you to the shore. The luckier passengers who are going on to New York hang over the sides of the ship and whet their curiosity over your discomfort. Speculation is rife. Who are you? What deadly secret have you carried in your breast—or trunk—across the Atlantic? Do you lack the regulation fifty dollars, without which no visitor is allowed to land in the States? Are you one of the pirates of an elopement, or landing with a husband or a wife who is not yours by the sanctity of the Church or the authority of the State?

You arrive in a few minutes at a forlorn wharf, and an official shouts "All off! Slow speed!" There are women officials in blue uniforms on the landing stage. They receive the women from the steamer as though they were prisoners. They take charge of the women, while the men look after the male defaulters. Men and women go separately, in single file to their new quarters.

In the general building the walls, floors, and all partitions are of stone or iron. One huge room is divided into cells with iron doors. Each cell is furnished with one chair and a folding bunk, which fits up against the wall. The doors are locked at seven, and until that hour of curfew residents on the country's bounty may walk about and hold converse in the big saloon, and an attendant will take messages, post letters, and send off telegrams for a tip, these, of course, at your own expense.

The next day, before a board of immigration officers, your "case" is heard, and the country's grudge against you is made known to you for the first time in plain words. Occasionally, on a sliding bond,

ranging from five hundred dollars to two thousand dollars, the detainee is permitted to land in New York, pending the investigation of the case. An "attorney" may be obtained from the mainland if the cash is forthcoming, and for these purposes boats run between Ellis Island and New York City twice a day.

While on the island everyone eats at the same table. All the eating utensils are of tin, cups and all; food is loaded all together on the one plate, and he that has the best stretch comes off the victor in the scramble for butter and sugar. Manners go by the board in a detention camp of this nature. Often if food is rejected or left on the plate by one "prisoner" his next-door neighbour takes advantage and helps himself to the leavings.

These are things that make Ellis Island a place of dread to anybody of refinement. Many people have remained there for weeks; some have been detained for a year. While it serves its purpose for keeping undesirables out of the country it is frequently a hideous snare for many innocent people who are not fully acquainted with the conditions for landing. Such a case occurred on the ship on which I once crossed to America. A young English girl who had counted on going to friends in New York while she was looking for work for which she was fully qualified, was failed by these same friends, who unexpectedly were called to China on business. She could not give the names or addresses of any other residents, and, although provided with the necessary amount of money for landing, was about to be marked "for the island" when, fortunately, an Australian woman on board heard of her dilemma, and came to her aid, and made herself responsible for her. As one who had lived in the States, and could establish security of a residence there, her guarantee was taken.

—M.M.

Sale of Fruit.

No Australian needs to be reminded of what an important part fruit plays in the diet of people who live in semi-tropical countries. Australia is a great fruit-growing country, and despite the fact that prices are invariably high, due mainly to a bad system of marketing, a great quan-

tity of fruit is regularly consumed here. A couple of years ago street barrowmen were licensed to sell fruit in Sydney streets in an effort to give the public cheaper fruit. This was a good move, and while numerous complaints have been made that the barrowmen have at times not played fair with the public, they appear to enjoy very liberal patronage. One grave objection to the selling of fruit off open or partially covered stalls in Sydney or elsewhere is that its quality is liable to become seriously impaired through exposure to the sun for many hours at a time. If the fruit is perfectly sound the damage may be very slight, but if it is over-ripe fermentation is likely to set in. The consequences of eating such fruit are frequently evidenced by an attack of gastritis or other stomach troubles. Children are particularly prone to illness from eating fruit that any medical man would condemn as unfit for human consumption. The remedy is a simple one, and in the interests of public health the proper authorities should see that fruit on the stalls is adequately protected from the sun's rays.

—M.D.

How "Treasure Island" was Found.

Lloyd Osbourne recently revealed the story of how R. L. Stevenson's "Treasure Island" came to be written. He said:—

"This idolized step-father of mine was the most inspiring playfellow in the world, which made it seem all the sadder that he was unable to write a book worth reading. When I was a little boy of twelve I was spending my holidays in the Highlands with my mother and step-father. I knew that his books were very poor, for, being a great reader, I had toiled through every one of them. Feeling that he ought to do better, I often timidly remonstrated with him, but his only answer was to burst out laughing, and tell me there was one thing he would never, never be—and that was a popular author.

"We lived in a small house known by the somewhat depressing name of 'the late Miss McGregor's cottage,' and here, one rainy morning, busy with a box of paints, I happened to be tinting the map of an island I had drawn. Stevenson came in as I was finishing it, and, with his affectionate interest in everything I was doing, leaned

over my shoulder, and was soon elaborating the map and naming it.

"I shall never forget the thrill of Skeleton Island, Spy Glass Hill, nor the heart-stirring climax of the three red crosses. And the greater climax still when he wrote down the words 'Treasure Island' at the top right-hand corner. And he seemed to know so much about it, too—the pirates, the buried treasure, the man who had been marooned on the island. 'Oh, for a story about it' I exclaimed, in a heaven of enchantment, and somehow conscious of his own enthusiasm in the idea.

"Then he put the little map in his pocket, and I can recall the feeling of disappointment I had at losing it. It was my map, and had become very precious, owing to its association with the pirates. But next day at noon I was called mysteriously to his bedroom. I saw my beloved map lying on the coverlet, and my step-father began to read aloud the first chapter of 'Treasure Island.' Had it not been for me and my childish box of paints there would have been no such book."

"Treasure Island" was dramatized and played in New York during the early days of the war, and was a most interesting production. The great ship towered in the little Bandbox Theatre, built by a millionaire, Arthur Hopkinson, for his wife, who enacted the part of Jim in the piece. Never a petticoat graced the boards but the pirates were so absorbing that the lack of them did not matter. Now the play has reached London, and is being played at the Strand Theatre, with Arthur Bourchier as John Silver. Lloyd Osbourne supervised the production.

—M.M.

The Birds Fly North.

This year Australian love birds were quite the rage as Christmas presents in London, and one store off Oxford Street sold them for 7s. 6d. each. The woman who sells them to this shop has been breeding them for the last ten years, and has brought them to such a perfectly trained state that they will perch on the hand or the shoulder without attempting to fly away. The buyers took them away from the shop without cages, and a quaint sight in Oxford Street on Christmas Eve was a pedestrian here and there in the crowd serenely walking along with a green and yellow love bird waltzing around on his shoulder.

—M.M.

Billson's Bargain

by Richard Thorne



BILLSON was a strange, silent man with few friends. His meanness and moody disposition militated against his chances of becoming popular. By profession he was a dealer in hides, skins, old furniture and other odds and ends, but nursed a sort of grievance against himself because he had remained a very common dealer instead of rising to fame as a novelist or a great detective.

For Billson believed there was within him all the elements of greatness in either of these avocations, if only the key or the missing link could be found to enable him to "let himself out," as he called it. His only recreation was the reading of cheap detective stories and Deadwood Dick novels. Over these he racked his wits in fierce endeavour to anticipate the end of each yarn.

Thus he lived up till the time he met one, Charles Mullens, an unfortunate adventurer, who was flying from the wrath of his creditors in Melbourne. Footsore and hungry, Mullens was trudging along the road sixty miles from Melbourne when he came upon Billson sitting by the wayside chewing a sandwich, while his horse also rested and wore its nose bag.

Billson rather hurriently bagged up what food he had left when he saw Mullens approaching, and on the latter asking for a mouthful vouchsafed the cheerless information that he had none left.

Billson hitched his horse up again, and prepared to resume his journey. Mullens asked for a lift, but Billson refused, saying he was already fully loaded. Then he added, after a moment's hesitation: "I

couldn't take you on without some compensation."

Mullens has one solitary shilling left, but that he handed over, for he was all but exhausted and badly wanted to reach the next township by night.

During the journey Billson pored over a big-eared novel, and Mullens sensed out his weakness for dark and terrible plots. So being a rather brilliant man in shots, he conceived an idea. Mullens laid a heavy hand on Billson's shoulder, and gripping firmly, said in cold deliberate tones. "My friend, I see you are a man of remarkable intelligence; you have a brain that is perhaps unmatched in the world to-day. You have an insight into mysterious and dreadful matters, which is truly stupendous."

Billson blinked, and begged pardon. Mullens continued: "Sir, you and I are strangers; therefore, then, is safety in our speech, but after tonight you or no other man will ever see me again. I go to my rest in the quiet grave, if rest there be for one whose life has been so cursed and blighted through being entangled in a hellish net of crime."

Billson shivered and lowered his passenger's hand off his shoulder. Mullens was making the right kind of impression on his man, seeing which he followed up his advantage.

"I am flying from a reeking hotbed of vice which festers in the heart of Melbourne. There, my friend, is a nest of diabolical conspirators and assassins, who in less than fourteen days will make this sturdy young Commonwealth stagger in a

paroxysm of horror such as was never experienced in the bloodiest annals of Russian history."

Cold shivers rushed all over Billson, and icy chills crept through the marrow in every bone.

"Ugh" he shuddered, as he peered nervously about in the falling dark. "What is it all about?"

"Let me tell you something of this fearful business," said Mullens. "It will lighten the load I carry, and if you do fathom the dark depths of this mystery and have the courage to step in and frustrate the designs of these secret fiends, your name will go down to posterity as the man who snatched our young country from the crumbling edge of a precipice, and riveted the feet of Australia upon the solid rock of nationhood."

Mullens could perpetrate no end of eloquence when he thought it was necessary. He had once been a candidate for Parliament.

By degrees, as Billson listened, he conquered his nervousness, and grew inquisitive and ambitious.

From Mullens he learned that in Melbourne there was a secret society of men, lately arrived and mostly foreigners, whose hands in the past were drenched with blood, and who had in the future a series of appalling murders to commit.

The victims in each case were to be men in the very highest places, and the object was to gain enormous wealth and lay the Commonwealth at the feet of a Bolshevik Administration.

Mullens confessed that he was actually one of the gang, but the awfulness of the undertaking had reached such proportions that his nerve had given way, and he had taken to flight.

He assured his now wide-eyed listener that it was his intention to commit suicide as soon as he could screw his courage up to that pitch, and in the meantime he had to pursue his headlong way as far from the prospective scene of slaughter as possible. Billson invited Mullens to stay with him at his humpy in the township that night; and as they sat over the evening meal and later over the scanty fire the terrible story was further elaborated by the guest.

The more Billson thought over it the more sure he became that the great chance

of his life had arrived. He told Mullens at last that he would like to go to Melbourne and explore the whole show. Mullens nursed his chin in his hands and shook his head sorrowfully.

"What do you think about it?" Billson asked. "Couldn't I go down and burst up the conspiracy?"

"Yes," said Mullens, "you could, perhaps; and I could assist you. But to do that would bring my poor own brother, Augustus, to a prison cell, or perhaps the gallows; for he too, poor lad, is connected with the gang. Ah, no, I could never see that done. My poor brother Augustus! That can never be."

He doubled up, and seemed to be torn with a terrible grief.

"Is there no way of letting your brother out of the trouble?" asked Billson. "For if there is we might allow him to escape while we overthrow the others."

Several deep groans escaped Mullens; then suddenly he straightened up and said: "Look here, my friend. Will you undertake this business? If so, on condition that you assist my brother to escape I will put you in possession of a certain paper which will be the key to the whole mystery, and will at once enable you to exterminate the conspirators."

Billson was agreeable, and only wanted to know how the brother could be spared. Mullens explained:

"My brother must fly immediately. I will write, telling him that disaster is about to be wrought by a man of master mind, meaning you, of course. And you will forward him the funds which will enable him to reach a place of safety before the crash takes place."

"How much will it cost?" asked Billson, with a look of anxiety, for parting with money was always a trial to him.

"Twenty-five pounds," said Mullens. "That will enable him to reach New Zealand before the great discovery."

The amount rather shocked Billson, and sent him to the doorway to cool his brow before he replied. "Twenty-five pounds! Great Scott, that's a power of money!" But he reflected silently. "This is the chance of my life. It has come at last."

"Show me the paper," he said. Mullens took from his waistcoat pocket a small piece of coloured paper, and laid it out upon the table. Upon it were some strange

marks, evidently foreign letters. The document was small, rather dirty, and certainly insignificant looking. But the foreign letters on it had a fascination for Billson.

"That paper," said Mullens, "has a duplicate; you will see where it has been torn from its fellow part, leaving an uneven edge. The duplicate of this is now in the hands of certain leading members of our society. This is your secret pass port. On production of this paper they *must* yield up to you certain things which will reveal the whole plot.

"There is just one other essential point which I will also divulge. It is an extra-safeguard, and it must be strictly observed or you will be baffled. You must accompany this paper with a silver coin of the value of one shilling."

Next morning a chart was drawn up by Mullens to guide Billson to the place where he was to hand in the paper, and a letter was written to Augustus Mullens in Melbourne. It told Augustus that "enclosed would be found a money order for twenty-five pounds," and he was urged to use it in flying for his life, "for the game is up." It was signed "bound for a better world. Your repentant and loving brother, Charles."

The money order was enclosed, and the letter sped on its way. Mullens and Billson parted on the outskirts of the town. The former ostensibly going to a lonely death in the most lonely part of the bush, and the latter to prepare for his momentous journey to Melbourne.

In four days he started out, and in due course reached the city. He began his search for the den of criminals, and as he was advised by Mullens to find the place

purely by means of the chart instead of asking questions, he was a whole day in locating it. At last he stood before the building, and found its exterior exactly as described. Visions of greatness filled his mind, as with paper and coin in hand he entered the den.

While the foreigner scrutinised the paper, Billson found himself in a phantasmagoria of dreadful imaginings. The man seemed to recognise the paper, and was satisfied about the coin. He took from a shelf a paper parcel, and shot it across the counter to Billson. Billson grabbed it in both hands, and started out for his temporary lodging.

Arrived at his room, he securely bolted the door, and then with trembling hands opened the parcel. It contained two clean, but much worn shirts, two collars and one pair of socks. Faced with such paltry things as old shirts and socks when world-shaking clues were expected the master mind of Billson lost its grip, and was no use to him for half an hour.

Then with a mental effort, truly marvellous in the circumstances, he remembered the address of Augustus Mullens, to whom he had sent twenty-five pounds. Thither he went at top speed, with the laundry work under his arm. The landlady of the dingy tenement was absent, but the housemaid proved quite communicative.

From her Billson learned that Augustus and Charles Mullens were one and the same person. He had returned from the country just two days before, and received a letter containing "a handsome remittance." She recognised the washing as belonging to Mr. Mullins. She knew it by the "holes in the socks and the whiskers on the collars."

V. P. Taylor in America.

A recent Australian visitor to America came into personal touch with V. P. Taylor, the "Australian airman," as he is known throughout the United States.

The genial "V.P." is doing well in the "land of the Almighty Dollar," and few Australians have ever succeeded so well in keeping the name of their country before the people of another land as he is doing. Scarcely a week passes without he is en-

gaged in some balloon "stunt" which rivets the attention of even the Americans, who ordinarily look upon all sensational performances as part of the day's work.

"V.P." wishes to be remembered to his numerous friends in Australia.

* * *

If "silence is golden" then a whole lot of the receiving sets in this burg must be worth a pile of money.

THE MAGIC OF THE EAST

A TRIP TO THE ORIENT

INCIDENTS ON THE VOYAGE

By THOS. J. McMAHON, F.R.G.S.

NO Australian can take a trip to the wonderland of the East without gaining a knowledge of its geography which he could never otherwise hope to possess. From an educational point of view, too, the trip will prove exceedingly valuable, for it gives an insight into the life and conditions of the great neighbour-lands of China and Japan,—an experience which will unquestionably stimulate in every Australian a desire to see his own great Commonwealth progress to the utmost of its limitless possibilities.

The trip is one marked by an unusual number of scenes, by a wide variety of interests, peoples, customs, and countries, by calm waters, and weather conditions unparalleled in the world. The course of the voyage extends, after leaving Australia, through a grand sea-avenue of islands, the Celebes, Borneo, and the Philippines, thence to Hong Kong, Japan, and China. It is five weeks of fascinating travel, sure to bring to the voyager profit as well as pleasure. It is a trip quite devoid of monotony.

The first days are along the beautiful shores of Queensland, and within that grand scenic asset of the Commonwealth, the Great Barrier Reef, upon which have been showered by thousands of travellers and tourists expressions of rapture. A sea-way calm, and unusually interesting in every mile, and justly to be claimed by Australians as one of the most delightful scenic pleasures of the wide world. Land is seldom out of sight, and at least two of the busy and important towns of North Queensland are visited. Townsville, the capital of the North, with its frowning but picturesque Castle Hill dominating land and sea for many miles round, and offering the finest example of enterprising British peoples making good, notwithstanding its tropic clime, making it one of the most promising commercial and industrial centres of the whole of Australia.

A night's journey, 162 miles, and Cairns is reached. A town with amazing and modern wharf accommodation, a well-planned tree-shaded promenade along the harbour shores, and wide and well-maintained streets, and many handsome public buildings. Cairns is a busy port, to which railways converge from rich sugar, dairying, mineral, and timber districts. It is famous, too, as the starting point to that world-wide attraction, the Barron Falls, one of the most beautiful, if not one of the largest water-falls in the world. A few hours journey by train into the hills is a revelation of magnificent views, of grand expanse of sea, hills, town, cultivations, terminating with startling effect at the Falls, a flashing mass of silvery waters tumbling into a giant gorge of dark rock, enframed in gorgeous tropic vegetation.

For two and a half days the voyage continues along the blue coasts and island-dotted sea of Cape York Peninsula, and the Torres Straits. This is a rich but neglected world of its own, for only a handful of brave settlers are winning the wilderness from idleness, and diving into the seas rich with pearl and shell. Thursday Island is the capital of this little world; it is, as well, one of the most interesting and isolated of British out-post forts commanded by a regiment of Australian soldiers. At present a trade quietness reigns over the little town, but to the tripper it is always of interest. In the Quetta Cathedral is to be seen the sad memorial of the British India steamship *Quetta*, wrecked in Albany Pass some 33 years ago, a disaster attended by much loss of life. From Thursday Island to Sandakan, 2,000 miles, is the longest unbroken period of the voyage, and this is the time when full opportunity is afforded for a gay programme on ship-board. It is a time of bright skies, soft, balmy air, calm sea, and island groups on every hand. Every incident and detail sets life to the



Main picture shows a canal, bridge, and houseboat in China. (2) A scene in the native portion of Sandakan. (3) Interior of Quetta Cathedral, Thursday Island. (4) Wharf scene at Shanghai.

accompaniment of pleasure and contentment.

Now it is that sports committees get busy with tournaments of golf, tennis, quoits, while the evenings are devoted to jazzing and games. Always ahead are especial functions such as a Chinese dinner, or a fancy dress ball. A Chinese dinner is a decided novelty; it is most frequently held when travellers are returning from the Orient with their wardrobes well stocked with Chinese robes and Japanese kimonos. The dinner is one of purely Chinese foods, eaten in Chinese fashion, and with Chinese chop-sticks, the whole laid out in a saloon decorated to represent a Chinese tea-house. All attend in Oriental costumes, and nothing is left undone to give a true Eastern atmosphere to all proceedings, even to gorgeous palanquins to carry dainty "Chinese or Japanese" ladies from the decks to the saloon, each of whom is

ushered in to the loud accompaniment of drums, cymbals, and other Oriental musical effects. The Chinese stewards and sailors delight in this entertainment, and assist in so many ways to give a touch of reality to it.

A fancy dress ball on board ship at any time is a source of pleasant excitement. For days beforehand all are devising with great earnestness, original costumes, or unravelling the puzzle of how to make up a fancy dress out of one's wardrobe, a condition that is strictly enforced, for no costume must be ready made, or bought. Secrecy as to each other's dress produces a triumphal entry to all at the dinner preceding the ball, there are screams of delight, surprise and amusement. All enter into the spirit of gaiety, the ship is richly bedecked with bunting, and flooded with vari-coloured electric lights, and Chinese lanterns.

The swimming bath on the tropic traveling steamers, the most comfortable in the world, is always the cause of much sport and amusement. A great canvas tank is rigged up on the lower deck, deep and long enough for slight diving and swimming. Every morning and evening there are swimming contests, and on occasions Father Neptune arises out of the ocean, via the bath, to the exquisite delight of all, but particularly the children, for Father Neptune is a sort of Father Christmas who brings wonderful modern toys from the depths of the wide ocean.

An interesting point on the trip between Thursday Island and Sandakan is Bird Island. This is just a mountain top in the sea, and is the rendezvous of myriads of birds. A blast of the whistle and they rise up and soar aloft so dense at times as to obscure the sun. One day this island will be another Nauru, famous for its supply of phosphate of lime, the primest of soil fertilizers. At present it has not a single inhabitant, and beyond the passing Australian steamers is never visited.

Items of especial interest are the coasts and native villages of some of the Celebes Islands, the steamer passing so close as to discern quite plainly the native people. The small island of Amboina of this group is seen clearly, and is to be noted as the world's chief source of spice. Sandakan is an important trade centre of North Borneo, a part of that rich island territory in the hands of a British Charter company doing splendid work in opening up the resources of coal, minerals, and timbers, in the last of which many Australian firms are keenly interested. To Australians Sandakan is especially interesting because of the fact that much Australian trade in food products is now going there for distribution all over Borneo. In the mixture of many Asiatic races Sandakan is a true reflex of the East. The town is picturesque, built on the shores of a very fine harbour, and backed by an imposing hill. It boasts many fine tropic gardens and residences of the British settlers connected with the Government and the Charter company. In "Asia" town, as the business centre is termed, from the great number of Chinese, Japanese, Malay, and Indian shop-keepers there are rows of narrow streets always densely crowded. The shops are gaily adorned with flags, banners, and

bright painted advertisements, and there is an incessant jabber of voices, mingling with a weird buzz of Oriental musical instruments. At night Sandakan is a blaze of light, and the streets and shops are more thronged than ever. One remarkable feature, truly Oriental, are the gambling "farms." These are well lighted, gaudy, buildings, filled with gamblers, where fan-tan and other Chinese gambling games go on day and night without a break. Gambling in Borneo is not a social crime, it is a business, where a man "invests" his money at the gambling "farms" in preference to any other business speculation.

A day's steaming from Sandakan and the first of the Philippine Islands are sighted. It is an historic group, that continues for at least two days until the fascinating city of Manilla is reached. This is partly an old walled city of the Spanish days, and partly a new American city, of fine buildings, wide streets, and beautiful parks. In 1899 the Philippines fell into American hands, and the group has progressed ever since, a very different state of affairs to that obtaining under the ownership of the unprogressive Spanish, who held the Islands for some hundreds of years, though on one occasion they were British for about two years, and were then given back to the Spanish. The American Government allows the Filipinos a very generous amount of self-government, but so far they have not shown much energy or enterprise. The old city remains as it was hundreds of years ago, only it has been cleaned up and made wholesome. It must always be a place of pilgrimage to travelers, with its ancient Churches and Universities. By night Manilla is one of the brightest and gayest of cities.

A three days' journey from Manila and that noble, and grandly impressive outpost of the British Empire, Hong Kong, is reached. There could not be a grander example of British power and enterprise than the busy harbour and splendid and beautiful city of Hong Kong. No Australian could visit Hong Kong without feeling assured of the safety of Australia. The place is a veritable fairyland by night; it is one vast illumination from the summit of the Island Peak—1,500 feet—to the harbour crowded with steamers and junks. Hong Kong is a garden of interesting



The main picture shows a street scene in Yokohama. Inset: The chief thoroughfare in Shanghai.

features, and it is little wonder that people of all nations flock there in tens of thousands every year.

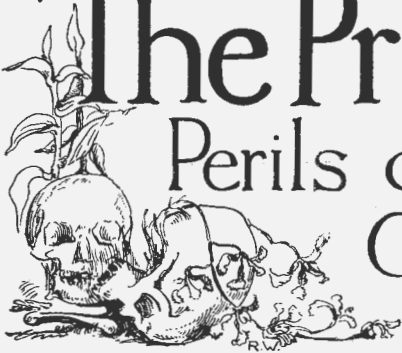
The first port of call in Japan, Moji, is five days from Hong Kong. From the moment of entering Japanese waters there is one unending series of delightful scenes and items of interest. The people are polite, sober, industrious, and by no means the aggressive folk some writers and politicians would have Australians believe. Australians visiting Japan, and studying conditions there, realize the impossibility of the Japanese being a menace to the Commonwealth. Japan in the last fifty years has almost completely thrown off her Orientalism, and has become quite a modern nation, yet retaining much that is romantic and unique. There is a wonderful industrial activity throughout the land, and the cities of Tokio, Kobe, and Osaka

compare with the best of the European world. What is known as the inland sea of Japan, through which the voyager travels for hundreds of miles, is one of Nature's scenic wonders. This sea, with its myriad junks, its dainty islets, its atmospheric colour effects, has to be seen to be realized; no words could describe the many beauties of the sea, in which Japanese artists and poets delight.

China is undoubtedly the coming tourist field of the world. At time of writing it is in the throes of civil strife, but nevertheless it is a land of great trade possibilities, and British enterprise is responsible for the wonderful trade progress of the great and populous nation. Shanghai is a magnificent city, termed the "Paris of the East," because of the fact that it is almost as full of life, interest, and gaiety as the capital of France.

The Price Men Pay

Perils of Orchid Collecting



BY FRANK REID.

THERE is no real justification for surprise at the sometimes fabulous prices paid for orchids. The cost of obtaining them is so great, both in money and in human life, that the wonder really is they are so cheap. Growing in the scrubs of North Queensland and inland Papua there are a hundred varieties which could be bought at an average of half-a-crown apiece. But you can also spend as many guineas as there are days in the year on one ugly little bulb, which is the sole representative of a new species or variety, or which is a departure from the established type of a known variety, either in colour or in some other detail. These are the orchids which daring men seek in the evil-smelling fever-smitten forests of little-known Papua. The adventures attending the search for these rare plants would fill many books. Generally Frenchmen, Germans, Englishmen and Australians, the collectors must have the patience of Job, the courage of Nelson, and the knowledge of a professor of science, combined with power to endure years of hardship.

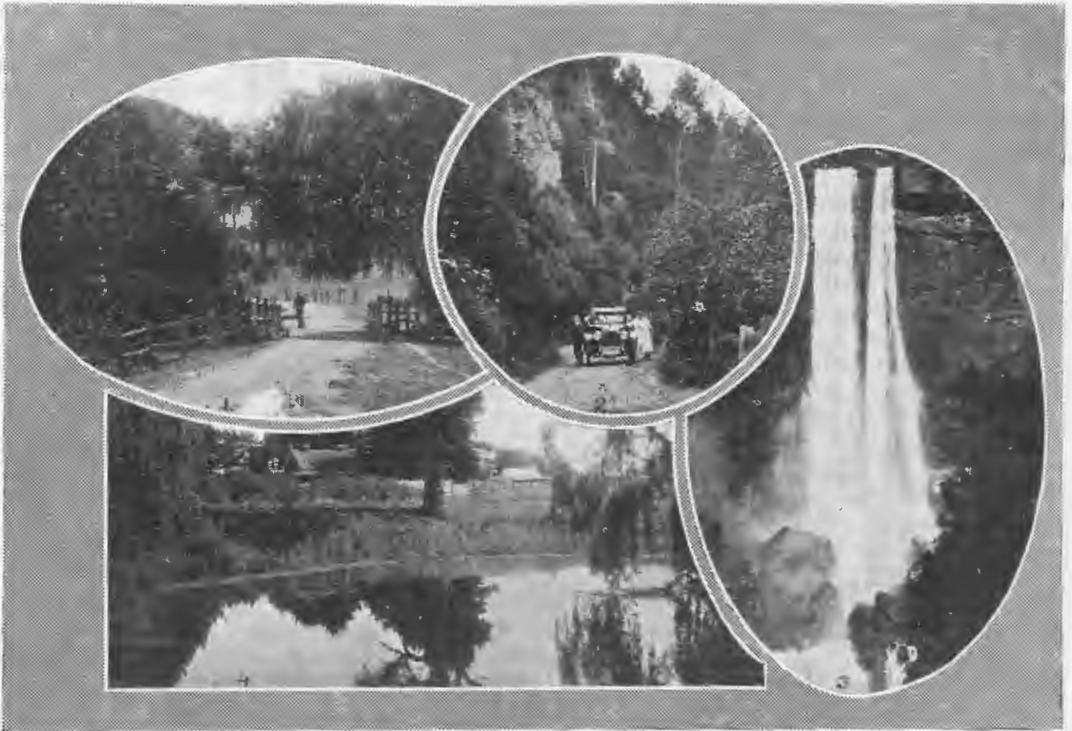
Some years ago a collector for an English firm was sent to Papua to look for a *Dendrobium*, then very rare. He went inland, dwelt among the natives for months, faring as they fared, and living under very trying conditions, and he found about four hundred of the plants. He loaded a little schooner with them; but he put into a native village at the mouth of the Fly River, and the ship was burnt to the water's edge. He was ordered to go back for more, and he did. He found a magnificent collection of the orchids in a native bury-

ing-ground, growing among exposed bones and skulls. After much hesitation, the natives allowed him to remove the orchids, some of them still in the skulls, and sent with the consignment a little idol to watch over the spirits of the departed. Little wonder that these plants sold at prices ranging from five up to twenty-eight guineas each.

The dangers of the collector's task are terrible. Eight naturalists seeking various specimens in Papua once dined at Port Moresby, and in one year after there was but a single survivor. Even this favoured person was terribly afflicted, for, after a sojourn in the most malarious swamps, he spent twelve months in the Townsville Hospital, and left without hope of restored health. Two collectors seeking a single plant died one after the other of fever. A collector detained at Port Moresby went far inland to look for an orchid he had heard of, and the natives brought him back from the swamps to die. A French collector who insulted a native chief because his men would not guide him to a spot where certain orange and black orchids were said to be growing, was clubbed to death. Still these dangers must be encountered invariably, if rare or new orchids are to be found. A well-known Australian collector recently informed the writer about a rare plant which clings to the very tip of a slender palm in swamps which the natives themselves regard with dread as the chosen home of fevers and mosquitoes.

And the difficulties of the work are as great as its dangers. A collector named Randall was known to wade up to his

SCENES NEAR BOWRAL, N.S.W.



(1) A willow-shaded path. (2) Macquarie Pass. (3) Fitzroy Falls. (4) The Swimming Pool.

middle in mud for a fortnight seeking for a specimen of which he had heard; another lived among savage natives for eight months, looking in untracked forests for a lost variety. To obtain the orchids which grow on trees, the collector has generally to hire a certain area of woodland with the right to fell the timber. The Papuan native cannot be trusted to climb to the summits and gather the plants, and the collector cannot spare the time. So the trees are cut down, natives being employed to do the work, and the collector gathers his specimens from the fallen trunks. This generally takes place far inland, and the plants have then to be brought to a shipping port.

In one case they had to be carried six weeks on men's backs from the mountains to the Fly River; then carried six weeks in canoes before they were placed on a schooner bound for a Queensland port. Another collector spoke of a journey far inland as quite easy travelling, yet it involved thirty-two loadings and unloadings

of cargo, and the party had to go in the bed of a torrent and on the face of a precipice alternately for an uncertain period of time, with a river to cross almost every day. Moreover, after all this trouble, the specimens died on the journey, and the collector lost over £1,000 on the bulbs. What wonder that orchids are often dear!

Only last year an Australian collector named Travers left Port Moresby with the intention of finding a certain species of orchid which the natives had seen growing on the summit of the Giriorap Range. After climbing 9,000 feet several specimens of the plant were secured; but on the return journey to the coast the party fell into the hands of Yapitze, who is called the devil of the mountains, and the man who is behind cold-blooded murders by the dozen. He is the arch-villain of all Papua. Yapitze is a diminutive, skinny little blackfellow, almost inconspicuous in the midst of the stalwart natives who always accompany him. He is barely five feet tall, and it is doubtful if he would

move the beam at a hundred pounds. Two years in prison at Port Moresby has given him much knowledge of how the white man does things. After holding him captive for two days Yapitze allowed Travers to continue his journey to the coast, but he cannot say what happened to the natives who accompanied him. Probably they were slain and formed part of a cannibal feast.

Yet it is not so much the difficulty and danger which makes orchids dear as rarity or peculiarity. Amongst a lot of the commonest plants secured in Papua some years ago, was found a plant similar to the rest in every characteristic, except the colour of its stem, which was green instead of brown. When it flowered, the bloom should have been green; but it was golden, and the plant became in consequence practically priceless. It was taken to London and divided into two parts. One was sold to Baron Schroeder for seventy-two guineas, the other to Mr. Measures for one hundred guineas. This latter piece was several times divided, selling for one hundred guineas each time, but Baron Schroeder's piece was never mutilated, and is now worth one thousand guineas. It would bring that sum, say the authorities, in any London public saleroom.

The good fortune of orchid buyers is sometimes remarkable. Bulbs which have not flowered, and give no sign of peculiarity, are often treasures in disguise. A collector at Port Moresby once gave a few shillings for what appeared to be a common species. Taken to London it proved

to be an unknown variety, and was resold for a sum exceeding one hundred pounds. Another rarity, bought from a sailor for one shilling, was resold for seventy-two guineas to Sir Trevor Lawrence, who at that time had one of the finest collections in England. Another variety, developing a new and beautiful flower, at once advanced in value from a few shillings to three hundred guineas. It was afterwards sold in five pieces for seven hundred guineas. Simply because its flower has proved to be white instead of the normal colour three hundred guineas have been given for a species from Dutch New Guinea, and hundreds of guineas are available at this present moment, over and over again, for rare or extraordinary orchids either in private collections or in the English market. A plant no bigger than a tulip has been sold for many times its weight in gold; and "a guinea a leaf" is a common, and often inadequate, estimate of the worth of rarities.

Last year there was something in the nature of a pilgrimage to the hot-houses of a London collector, where a wonderful new orchid found in Papua was on view. It carried sixteen blooms, each nearly five inches in diameter. The colour was a flesh white, two rose wings of colour spreading laterally, and in the centre of each blossom was a blotch of cinnamon tint with radiating lines. But it was altogether indescribable in the exquisite beauty of its hues. Nature has rarely been so lavish as over this gem.



A pretty scene on the Tweed River, N.S.W.



THE REAL AND THE MAKE-BELIEVE

By REX BEACH

(Copyright)

ON his way down town Phillips stopped at a Subway news-stand and bought all the morning papers. He acknowledged that he was vastly excited. As he turned in at the stage door he thrilled at sight of the big electric sign over the theatre, pallid now in the morning sunshine, but symbolizing in frosted letters the thing for which he had toiled and fought, had hoped and despaired these many years. There it hung, a dream come true, and it read: "A Woman's Thrall, by Henry Phillips."

The stage-door man greeted him with a toothless smile, and handed him a bundle of telegrams, mumbling: "I knew it would go over, Mr. Phillips. The notices are swell, ain't they?"

"They seem to be."

"I ain't seen their equal since 'The Music Master' opened. We'll run a year."

This differed from the feverish, half-hysterical praise of the evening before. Phillips had made allowances then for the spell of a first-night enthusiasm and had prepared himself for a rude awakening this morning—he had seen too many plays fail to put much faith in the fulsomeness of first nighters—but the words of the doorman carried conviction. He had felt confident up to the last moment, to be sure, for he knew he had put his life's best work into this drama, and he believed he had written with a master's cunning; nevertheless, when his message had gone forth a sudden panic had seized him. He had begun to fear that his judgment was distorted by his nearness to the play, or that his absorption in it had blinded him

to its defects. It was evident now, however, that these fears had been ill founded, for no play could receive such laudatory reviews as these and fail to set New Yorkers aflame.

Certain printed sentences kept dancing through his memory: "Unknown dramatist of tremendous power," "A love story so pitiless, so true, that it electrifies," "The deep cry of a suffering heart," "Norma Berwynd enters the galaxy of stars."

That last sentence was the most significant, the most wonderful of all. Norma Berwynd a star! Phillips could scarcely credit it; he wondered if she had the faintest notion of how or why her triumph had been effected.

The property man met him, and he too was smiling.

"I just came from the office," he began. "Say! they're raving. It's the biggest hit in ten years."

"Oh, come now! It's too early for the afternoon papers—"

"The papers be blowed! It's the public that makes a play; the whole town knows about this one already. It's in and over, I tell you; we'll sell out to-night. Believe me, this is a knock-out—a regular bull's eye. It won't take no government bonds to bridge us over the next two weeks."

"Did you get the new props?"

"Sure. The electrician is working on the drop light for the first act; we'll have a better glass crash to-night, and I've got a brand new dagger. That other knife was all right, but Mr. Francis forgot how to handle it."

"Nevertheless, it's dangerous. We came near having a real tragedy last evening. Don't let's take any more chances."

"It wasn't my fault, on the level," the property man insisted. "Francis always 'goes up' at an opening."

"Thank Heaven the papers didn't notice it."

"Huh! We could afford to kill an actor for notices like them. It would make great advertising, and please the critics. Say! I knew this show was a hit."

Under the dim-lit vault of the stage Phillips found the third act scenery set for the rehearsal he had called; then, having given his instructions to the wardrobe woman, he drew a chair up before a bunch light and prepared to read for a second time the morning reviews.

He had attempted to read them at breakfast, but his wife——. The playwright sighed heavily at the memory of that scene. Leontine had been very unjust, as usual. Her temper had run away with her again, and had forced him to leave the house with his splendid triumph spoiled, his first taste of victory like ashes in his mouth. He was, in a way, accustomed to these endless, senseless rows, but their increasing frequency was becoming more and more trying, and he was beginning to doubt his ability to stand them much longer. It seemed particularly nasty of Leontine to seize upon this occasion to vent her open dislike to him—their relations were already sufficiently strained. Marriage, all at once, assumed a very lopsided aspect to the playwright; he had given so much and received so little.

With an effort he dismissed the subject from his mind, and set himself to the more pleasant task of looking at his play through the eyes of the reviewers.

They had been very fair, he decided at last. Their only criticism was one which he had known to be inevitable, therefore he felt no resentment.

"Norma Berwynd was superb," he read; "she combined with rare beauty a personality at once bewitching and natural. She gave life to her lines; she was deep, intense, true; she rose to her emotional heights in a burst of power which electrified the audience. We cannot but wonder why an artist has remained so long undiscovered."

The dramatist smiled; surely that was sufficient praise to compensate him for the miserable experience he had just undergone. He read further:

"Alas, that the same kind things cannot be said of Irving Francis, whose name is blazoned forth in letters of fire above the theatre. He has established himself as one of America's brightest stars; but the role of John Danton does not enhance his reputation. In his lighter scenes he was delightful, but his emotional moments did not ring true. In the white-hot climax of the third act, for instance, which is the big scene of the play, he was stiff, unnatural, unconvincing. Either he saw Miss Berwynd taking the honours of stardom away from him and generously submerged his own talent in order to enhance her triumph, or it is but another proof of the statement that husband and wife do not make convincing lovers in the realm of the make-believe. It was surely due to no lack of opportunity on his part——"

So the writer thought Irving Francis had voluntarily allowed his wife to rival him. Phillips smiled at this. Some actors might be capable of such generosity, but hardly Irving Francis. He recalled the man's insistent demands during the rehearsals that the script be changed to build up his own part and undermine that of his wife; that many heated arguments which had even threatened to prevent the final performance of the piece. Irving egotism had blinded him to the true result of these quarrels, for although he had been given more lines, more scenes, Phillips had seen to it that Norma was the one to really profit by the changes. Author and star had been upon the verge of rupture more than once during that heart-breaking period of preparation, but Phillips was supremely glad now that he had held himself in control. Leontine's constant nagging had borne fruit, after all, in that it had at least taught him to bite down on his words, and to smile at provocation.

Yes! Norma Berwynd was a star in spite of herself, in spite of her husband. She was no longer merely the wife of Irving Francis, the popular idol. Phillips was glad that she did not know how long it had taken him to effect her independence, nor the price he had paid for it, since, under

ON THE SOUTH COAST, N.S.W.



Photos, M. Dixon.

(1) The Lookout at the top of Bulli Pass. (2) On Sublime Point. (3) A view of Austinmer from Sublime Point. (4) Bulli Park, showing the surf sheds in the distance.

the circumstances, the truth could help neither of them.

He was aroused from his abstraction by the rustle of a woman's garments, and leaped to his feet with a glad light in his eyes, only to find Leontine, his wife, confronting him.

"Oh!" he said; then with an effort, "What is the matter?"

"Nothing."

"I didn't know you were coming down town."

"Whom were you expecting?" Leontine mocked, with that slight accent which betrayed her Gallic origin.

"No one."

She regarded him with fixed hostility. "I came down to see your rehearsal. You don't object, I hope?"

"Why should I object?" Phillips turned away with a shrug. "I'm surprised, that's all—after what you said this morning. Isn't your interest in the play a trifle—tardy?"

"No! I've been greatly interested in it all the time. I read it several times in manuscript."

"Indeed! I didn't know that. It won't be much of a rehearsal this morning; I'm merely going to run over the third act with Mr. and Mrs Francis."

"You can rehearse her forty years and she'll never play the part."

"The critics don't agree with you; they rave over her. If Francis himself—"

Mrs. Phillips uttered an exclamation of anger. "Oh, of course, she is perfect! You wouldn't give me the part, would you? No. You gave it to her. But it's mine by rights; I have the personality."

"I wrote it for her," said the husband, after a pause. "I can't see you in it."

"Naturally," she sneered. "Well, I can, and it is not too late to make the change. I'll replace her. My name will help the piece."

"Leontine!" he exclaimed, in amazement. "What are you talking about? The

play is a tremendous success as it is, and Miss Berwynd is a big hit. I'd be crazy to make a change."

"You won't give me the part?"

"Certainly not. You shouldn't ask it."

"Doesn't Leontine Murat mean more to the public than Norma Berwynd?" she demanded.

"Until last night, yes. To-day—well, no. She has created this role. Besides—you—couldn't play the part."

"And why not, if you please?"

"I don't want to hurt your feelings, Leontine."

"Go on!" she commanded, in a voice roughened by passion.

"In the first place you're not—young enough." The woman quivered. "In the second place, you've grown heavy. Then, too, your accent—"

She broke out at him furiously. "So! I'm old and fat and foreign! I've lost my beauty! You think so, eh? Well, other men don't. I'll show you what men think of me—"

"This is no time for threats," he interrupted, coldly.

"Bah! I don't threaten." Seizing him by the arm she swung him about, for she was a large woman and still in the fullest vigour of her womanhood. "Listen! You can't fool me. I know why you wrote this play. I know why you took that girl and made a star of her. I've known the truth all along."

"You have no cause to—"

"Don't lie!" she stormed at him. "I can read you like a book. But I won't stand for it." She flung his arm violently from her and turned away.

"I think you'd better go home," he told her. "You'll have the stage hands talking in a minute."

She laughed disagreeably, ignoring his words. "I watched you write this play! I have eyes, even if Irving Francis is blind. It's time he knew what is going on."

"There is nothing going on," Phillips cried, heatedly; but his wife merely shrugged her splendid shoulders, and, opening her gold vanity case, gave her face a deft going over with a tiny powder puff. After a time the man continued: "I could understand your attitude if you—care for me, but some years ago you took pains to undeceive me on that point."

Leontine's lip curled, and she made no answer.

"This play is a fine piece of property; it will bring us a great deal of money; it is the thing for which I have worked years."

"I am going to tell Francis the truth about you and his wife!" she said.

"But there's nothing to tell," the man insisted, with an effort to restrain himself. "Besides, you must know the result if you start a thing like that. He'll walk out and take his wife with him. That would ruin—"

"Give me her part."

"I won't be coerced," he flared up, angrily. "You are willing to ruin me, out of pique, I suppose, but I won't permit it. This is the biggest thing I ever did, or ever will do, perhaps; it means honour and recognition, and—you're selfish enough to spoil it all. I've never spoken to Norma Berwynd in any way to which her husband or you could object. Therefore, I resent your attitude."

"My attitude! I'm your wife."

He took a turn across the stage, followed by her eyes. Pausing before her at length, he said, quietly: "I've asked you to go home, and now I insist upon it. If you are here when I return, I shall dismiss the rehearsal. I refuse to allow our domestic relations to interfere with my business." He strode out to the front of the house, and then paced the dark foyer, striving to master his emotions. A moment later he saw his wife leave the stage, and assumed that she had obeyed his admonitions and gone home.

The property man appeared with an armful of draperies and mechanical appliances, interrupting his whistling long enough to call out.

"Here's the new hangings, Mr. Phillips, and the Oriental rugs. I've got the dagger, too." He held a gleaming object on high. "Believe me, it's some Davy Crockett. There's a newspaper guy out back, and he wants your ideas on the American drama. I told him they were great. Will you see him?"

"Not now. Tell him to come back later."

"Say! That John Danton is some character. Why don't you let him have the gal?"



Photos, M. Dixon.

VIEWS OF BOWRAL.

Top inset, a shady walk; bottom, the private residence of Mr. Bruce Smith. (3) A panoramic view of Bowral taken from the Gib.

"Because—well, because it doesn't happen in real life, and I've tried to make this play real, more than anything else."

When Norma Berwynd and her husband arrived Phillips had completely regained his composure, and he greeted them cordially. The woman seemed awed, half-frightened, by her sudden rise to fame. She seemed to be walking in a dream, and a great wonder dwelt in her eyes. As for Francis, he returned the author's greeting curtly, making it plain that he was in no agreeable temper.

"I congratulate you, Phillips," he said. "You and Norma have become famous overnight."

The open resentment in his tone angered the playwright, and caused him to wonder if their long-deferred clash was destined

to occur this morning. He knew himself to be overwrought, and he imagined Francis to be in no better frame of mind; nevertheless, he answered, pacifically:

"If that is so we owe it to your art."

"Not at all. I see now what I failed to detect in reading and rehearsing the piece, and what you neglected to tell me, namely, that this is a woman's play. There's nothing in it for me. There's nothing in my part."

"Oh, come now! The part is tremendous; you merely haven't got the most out of it as yet."

Francis drew himself up and eyed the speaker coldly. "You're quoting the newspapers. Pray, be more original. You know, of course, how I stand with penny-a-liners; they never have liked me, but

as for the part—" He shrugged. "I can't get any more out of it than there is in it."

"Doubtless that was my fault at rehearsals. I've called this one so we can fix up the weak spot in the third act."

"Well! We're on time. Where are the others?" Francis cast an inquiring glance about.

"I'll only rehearse you and Mrs. Francis."

"Indeed!" The former speaker opened his mouth for a cutting rejoinder, but changed his mind and stalked away into the shadowy depths of the wings.

"Please make allowances for him," Norma begged, approaching Phillips in order that her words might not be overheard. "I've never seen him so broken up over anything. He is always unstrung after an opening, but he is—terrible this morning."

There was trouble, timidity and another indefinable expression in the woman's eyes as they followed the vanishing figure of her husband; faint lines appeared in the corners of her mouth, lines which had no place in the face of a happily married woman. She was trembling, moreover, as if she had but recently played some big, emotional role, and Phillips felt the old aching pity for her tugging at his heart. He wondered if those stories about Francis could be true.

"It has been a great strain on all of us," he told her. "But you? How do you feel after all this?" He indicated the pile of morning papers, and at sight of them her eyes suddenly filled with that same wonder and gladness he had noticed when she first arrived.

"Oh-h! I—I'm breathless. Something clutches me—here." She laid her hand upon her bosom. "It's so new I can't express it yet, except—well, all of my dreams came true in a night. Some fairy waved her wand and, lo! poor ugly little me—" She laughed, although it was more like a sob. "I had no idea my part was so immense. Had you?"

"I had. I wrote it that way. My dreams also came true."

"But why?" A faint flush stole into her cheeks. "There are so many women who could have played the part better than I. You had courage to risk your piece in my hands, Mr. Phillips."

"Perhaps I knew you better than you knew yourself." She searched his face with startled curiosity. "Or better at least than the world knew you. Tell me, there is something wrong? I'm afraid he—resents your—"

"Oh no, no!" she denied, hastily, letting her eyes fall, but not before he had seen them fill again with that same expression of pain and bewilderment. He's—not himself, that's all. I—You—won't irritate him? Please! He has such a temper."

Francis came out of the shadows scowling. "Well, let's get at it," said he.

Phillips agreed. "If you don't mind we'll start with your entrance. I wish you would try to express more depth of feeling, more tenderness, if you please, Mr. Francis. Remember, John Danton has fought this love of his for many years, undertaking to remain loyal to his wife. He doesn't dream that Diane returns his love, for he has never spoken, never even hinted of his feelings until this instant. Now, however, they are forced into expression. He begins reluctantly, frightened at the thing which makes him speak, then when she responds the dam breaks and his love over-rides his will power, his loyalty, his life-long principles; it sweeps him onward and it takes her with him. The truth appals them both. They recognise its certain consequences and yet they respond freely, fiercely. You can't overplay the scene, Mr. Francis."

"Certainly I can overplay it," the star declared. "That's the danger. My effects should come from repression."

"I must differ from you. Repressive methods are out of place here. You see, John Danton loses control of himself—"

"Nonsense" Francis declared, angrily.

"The effectiveness of the scene depends altogether upon its—well, its savagery. It must sweep the audience off its feet in order that the climax shall appear logical."

"Nonsense again! I'm not an old-school actor, and I can't chew scenery. I've gained my reputation by repressive acting, by intensity."

"This is not acting; this is real life."

Francis's voice rose a tone in pitch, and his eyes flashed at this stubborn resistance to his own set ideas.

"Great heavens, Phillips! Don't try to tell me my own business. People don't behave that way in real life; they don't ex-

plode under passion—not even jealousy or revenge; they are reserved. Reserve! That's the real thing; the other is all make-believe."

Seeing that it was useless to argue with the man, Phillips said nothing more, so Francis and his wife assumed their positions and began their lines.

It was a long scene, and one demanding great force to sustain. It was this, in fact, which had led to the choice of Irving Francis for the principal role, for he was a man of tremendous physical power. He had great ability, moreover, and yet never, even at rehearsals, had he been able to invest this particular scene with conviction. Phillips had rehearsed him in it time and again, but he seemed strangely incapable of rising to the necessary heights. He was hollow, artificial; his tricks and mannerism showed through like familiar trade marks. Strangely enough, the girl also had failed to get the most out of the scene, and this morning both star and leading woman seemed particularly cold and unresponsive. They lacked the spark, the uplifting intensity, which was essential, therefore, in desperation, Phillips finally tried the expedient of altering their "business," of changing positions, postures and crosses; but they went through the scene for a second time as mechanically as before.

Knowing every line as he did, feeling every heart throb, living and suffering as John Danton was supposed to be living and suffering, Phillips was nearly distracted. To him this was a wanton butchery of his finest work. He interrupted, at last, in a heart-sick, hopeless tone, which sorely offended the already irritated Francis.

"I'm afraid it's no use. You don't seem to get it."

"What is it I don't get?" roughly demanded the actor.

"You're not genuine—either of you. You don't seem to feel it."

"Humph! We're married!" said the star, so brutally that his wife flushed painfully. "I tell you I get all it's possible to get out of the scene. You wrote it, and you see a lot of imaginary values; but they're not there. I'm no superman—no god! I can't give you more than the part contains."

"Look at it in this light," Phillips argued, after a pause. "Diane is a married

woman; she, too, is fighting convention, every sense of right, every instinct of wifehood and womanhood. Now, then, you must sweep all that aside; your own fire must set her ablaze despite——"

"I? I must do all this?" mocked the other, furiously. "Why must I do it all? Make Norma play up to me. She underplays me all the time; she's not in my key. That's what's the matter—and I'm damned tired of this everlasting criticism."

There was a strained silence, during which the two men faced each other threateningly, and a panic seized the woman.

She managed to say, uncertainly: "Perhaps I—should play up to you, Irving."

"On the contrary, I don't think the fault is yours," Phillips said, stiffly.

Again there was a dramatic silence, in which there was no element of the make-believe. It was the clash of two strong men who disliked each other intensely, and whose masks were slipping. Neither they nor the leading woman detected a figure stealing out from the gloom, as if drawn by the magnetism of their anger.

"My fault, as usual," Francis sneered. "Understand this, Phillips, my reputation means something to me, and I won't be forced out of a good engagement by a—well, by you or by any other stage manager."

Phillips saw that same fearful look leap into the woman's eyes, and it checked his heated retort. "I don't mean to find fault with you," he declared, evenly. "I have the greatest respect for your ability as an actor, but——"

The star tossed his massive head in a peculiarly aggravating manner. "Perhaps you think you can play the part better than I?"

"Irving! Please!" breathed his wife.

"Show me how it should be done, if you feel it so strongly."

"Thank you, I will," Phillips answered, impulsively. "I'm not an actor, but I wrote this piece. What's more, I lived it before I wrote it. It's my own story, and I think I know how it should be played."

Francis smiled mockingly. "Good!" said he; "I shall learn something."

"Do you mind?" The author turned to the real Diane, and she shook her head saying, uncertainly:

"It's—very good of you."

"Very well. If you will hold the manuscript, Mr. Francis, I'll try to show what I feel the scene lacks. However, I don't think I'll need any prompting. Now, then, we'll begin at John Danton's entrance."

With the mocking smile still upon his lips, Francis took the manuscript and seated himself upon the prompter's table.

Once he began to voice the words he was seized by that same mighty current which had drawn them from him in the first place and left them strewn upon paper like driftwood after a flood. He had acted every part of his play; he had spoken every line many times in solitude; but this was the first time he had faced the real Diane. He found himself mastered by a fierce exultation; he forgot that he was acting or that the woman opposite him was playing a role of his creation; he began to live his true life for the first time since he had met the wife of Irving Francis. Clothed in the make-believe, the real Henry Phillips spoke freely, feelingly. His very voice changed in timbre, in quality; it became rich, alive; his eyes caressed the woman and stirred her to a new response.

As for Irving Francis, he watched the transformation with astonishment. Grudgingly, resentfully, he acknowledged that this was indeed fine acting. He realized, too, that his blind egotism had served merely to prove the truth of the author's criticism, and to emphasize his own shortcomings. The idea enraged him, but the spectacle held him enthralled.

Norma Berwynd was not slow to appreciate the truth. Accustomed thoroughly to every phase of the make-believe world in which she dwelt, she recognized unerringly in the new John Danton's words and actions something entirely unreal and apart from the theatrical. The conviction that Henry Phillips was not acting came to her with a blinding suddenness, and it threw her into momentary confusion; hence her responses were mechanical. But soon, without effort on her part, this embarrassment fell away, and she in turn began to blaze. The flame grew as Phillips breathed upon it. She realized wildly that her heart had always hungered for words like these, and that, coming from his lips, they carried an altogether new and wondrous meaning; that they filled some long-felt, aching want of which she had been ignorant until this moment.

Never had the scene been played like this. It grew vital, it took on a tremendous significance. No one could have observed it and remained unresponsive. Francis let fall the manuscript and stared at the actors wonderingly. Since he was an actor, nothing was so real to him, nothing so thrilling, as the make-believe. He realized that this was indeed a magnificent exhibition of the artificial. With parted lips and pulse athrob he followed the wooing of that imaginary John Danton, in whom he could see no one but himself.

After a time he became conscious of a presence at his side, and heard someone breathing heavily. Turning with a start, he found Leontine Phillips at his shoulder. She, too, was aroused, but in her sneering visage was that which brought the actor abruptly out of his spell. She had emerged from the shadows noiselessly, and was leaning forward, her strong hands gripping the edge of the table littered with its many properties.

Instantly he saw past the make-believe into the real, and what he saw caused him to utter a smothered cry.

Leontine turned her face to him "You fool!" she whispered through livid lips.

Francis was a huge, leonine man; he rose now to his full height as a cat rises. But the drama drew his gaze in spite of himself; he could not keep his eyes from his wife's face. Leontine plucked at his sleeve and whispered again: "You fool!"

Something contorted the actor's frame bitterly, and he gasped like a man throttled. Leontine could feel his muscles stiffen.

But the two players were in Elysium. They had reached the climax of the scene; Danton had told his love as only a great, starved love can tell itself, and with swimming eyes and fluttering lids, with heart pounding beneath her folded hands Diane swayed toward him and his arms enfolded her. Her body met his, yielded; her face was upturned; her fragrant, half-opened lips were crushed to his in a fierce, impassioned kiss of genuine ecstasy.

Up to this moment the intensity of Francis's rage had held him paralysed, despite the voice which was whispering so constantly at his ear; but now, when he saw his wife swooning upon the breast of the man who had played his part, he awoke.

"She knows he loves her," Leontine was saying. "You let him tell her in front of

your face. He has taken her away from you!"

Mrs. Phillips's eyes fell upon the working fingers of the man as they rested beside her own. They were opening and closing hungrily. She also saw the naked knife which lay upon the table, and she moved it forward cautiously until the eager fingers twined about it. Then she breathed, "Go!" and shoved him forward fiercely.

It was Irving Francis's cry of rage as he rushed upon them which aroused Norma Berwynd from her dream, from her intoxication. She saw him towering at Phillips's back, and with a scream she tried to save the latter.

The husband's blow fell, however; it was delivered with all the savage fury that lay in Irving Francis's body, and his victim was fairly driven to his knees beneath it. The latter rose, then staggered, and, half-sliding through the woman's sheltering embrace, crumpled limply into a massive upholstered chair. He, too, was dazed by the sudden transition from his real world to his make-believe.

When his eyes cleared he saw Norma Berwynd struggling with her husband, interposing her own slender body in his path. Francis was cursing her foully for her unfaithfulness; his voice was thick and brutal.

"Yes! It's true!" she cried, with hysterical defiance. "I never knew till now; but it's true! It's true!"

"You've killed him!" Leontine chattered, shrilly, and emerged from the shadows, her dark features ashen, her eyes ringed with white. Mrs. Francis turned from her husband and flung her arms about the recumbent man, calling wildly to him.

The denouement had come with such swiftness that it left all four of them appalled at their actions. Seeing what his brief insanity had led him into, Francis felt his strength evaporate; his face went white, his legs buckled beneath him. He scanned the place wildly in search of means of escape.

"My God! My God!" Leontine was repeating. "Why doesn't somebody come?"

Now that his brain had cleared, and he knew what hand had smitten him, and why, Phillips was by far the calmest of the four. He saw the knife at his feet and smiled, for no steel could rob him of that gladness which was pulsing through his veins. He was still smiling when he

stooped and picked up the weapon. He arose, lifting Norma to her feet; then his hand slid down and sought hers.

"You needn't worry," he said to Francis. "You see—this is the new dagger I got for the end of the act."

He held it out in his open palm for all of them to see, and they noted that it was strangely shortened—that the point of the sliding blade was barely exposed beneath the hilt.

Francis wiped his wet face, then shuddered and cursed weakly with relief, meanwhile groping at the prompter's table for support. "Sold! A prop knife!" he cried.

"You—you're not really—" Norma swayed forward with eyes closed.

Leontine laughed.

"By God! I meant it," the star exclaimed uncertainly. "You can't deny—" He gasped and tugged at his collar.

"I believe there is nothing to deny," the author said, quietly. He looked first at his wife, then at his enemy, and then down at the quivering, white face upturned to his. "There is nothing to deny, is there?" he inquired of Norma.

"Nothing!" she said. "I—I'm glad to know the truth, that's all."

Francis glared first at one, then at the other, and as he did so he began to realize the full cost of his action. When it came home to him in terms of dollars and cents, he showed his true character by stammering:

"I—I made a frightful mistake. I'm—not myself; really, I'm not. It was your wife's fault." In a panic he ran on, unmindful of Leontine's scorn. "She did it, Mr. Phillips. She gave me the knife. She whispered things—she made me—I—I'm very sorry—Mr. Phillips, and I'll play the part the way you want it. I will, indeed."

Leontine met her husband's look defiantly; hence it was as much to her as to the cringing actor that the playwright said:—

"Your salary will go on as usual, under your contract, Mr. Francis—that is, until the management supplies you with a new play; but I'm the real John Danton, and I shall play him to-night and henceforth."

"Then, I'm — discharged? Norma—d'you hear that? We're cancelled. Fired!"

"No, Miss Berwynd's name will go up in lights as the star, if she cares to stay," said Phillips. "Do you wish to remain?" He looked down at the woman, and she nodded.

"Yes, oh yes!" she said. "I must stay. I daren't go back." That hunted look leaped into her eyes again, and Phillips recognised it now as fear, the ab-

ject physical terror of the weaker animal. I want to go — forward — not backward, if there is any way."

"I'll show you the way," he told her, gently. "We'll find it together."

He smiled reassuringly, and with a little gasping sigh she placed her hand in his.

WANTED—MEN.

There's the chap with the "Can't" and the chap with the "Won't,"

And the chap who betwixt, more or less; There's the chap with an "Aye," when it ought to be "Nay,"

And the "No" when it ought to be "Yes"; There's the chap who's too weak to get up when he's down,

Too bluffed to strike back when he's hit; And the chap who bobs up when he ought to stay down,

And the chap who does nothing but sit; There's the chap who is brave when he has nothing to fear,

And the chap who's afraid without shame. But the world wanting men have no patience with these;

What it wants is the fellow—Dead Game.

What it wants is the chap with the "Can" and the "Will,"

And the "Get up" and "Hustle" and "Do"; And the chap who comes back with a smile on his face,

When the world thinks he's beaten clean through;

The chap who'll back down, when he knows he is wrong,

And the chap who'll stand pat when he's right. And the chap who keeps faith when he pledges his word,

And will back up his stand with a fight. The chap who forever puts right above wrong, And honour o'er riches and fame,

Ah, he's the chap that the world's looking for— The trustworthy fellow—Dead Game!

* * *

The Success Family.

The father of Success is Work.

The mother of Success is Ambition.

The eldest son is Common Sense.

Some of the other boys are Perseverance,

Honesty, Thoroughness, Foresight,

Enthusiasm and Co-operation.

The eldest daughter is Character.

Some of her sisters are Cheerfulness,

Loyalty, Courtesy, Care, Economy, Sincerity and Harmony.

The baby is Opportunity.

Get acquainted with the "old man" and you will be able to get along pretty well with the rest of the family.

* * *

What Did He Mean?

A Young surgeon was asked to dinner by a woman who was at least fifty, but frivolous enough for twenty. She asked the surgeon to carve a chicken. He failed lamentably, and instead of attempting to cover his confusion, the hostesses called attention to it.

"Well," she said, "you may be a clever surgeon, but if I wanted a leg off I shouldn't come to you to do it."

"No?" he replied, politely. "But then, you see, you are not a chicken."

* * *

The Wicked Man.

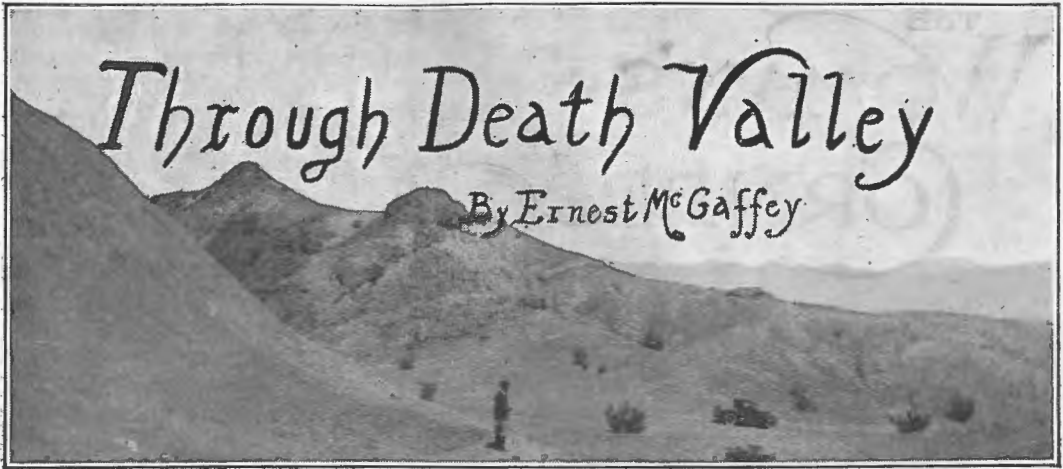
In a certain village church it is the custom for the vicar to await the arrival of the squire before he begins the service. On one occasion, the vicar being absent, his place was taken by a substitute, who started the service promptly at 11 o'clock, leading off with, "When the wicked man"

"Hush!" interrupted the verger, in a piercing whisper; "he isn't here yet."

* * *

Query.

How doth the gentle laundress
Search out the weakest joints
And always tear the buttons off
At most strategic points?



A view of one of the slopes of Death Valley, Southern California.

IN the beginning God created desolation; later on men named it Death Valley. During mediæval days one of the most devilishly ingenious and painful instruments of torture known was called "the Boot." It was a boot-shaped metal contrivance into which the victim's foot and leg were thrust, and the boot was then slowly tightened until the agony of the compressed veins, arteries and mangled flesh gradually drove the tortured person to insanity and death. Now Death Valley, strangely enough, is outlined somewhat like a boot. And when the hot blasts of summer blaze witheringly down on its arid floor, which is squeezeed in between the Funeral Range and the Black mountains on the east, and the Panamint Range on the west, then woe to the inexperienced traveller who may be clamped in by the inexorable rocky vise that binds that waste of burning sands.

Death Valley is a strictly irreducible medium. Its sands, its salt bogs, and its reaches alike all shift and change as the waves do at sea, and it is still, at least in its northern portion, a sea uncharted, perilous, and treacherous. Signs there are occasionally of The Automobile Club of Southern California and of the United States Geological Survey, but these, by reason of the varying conditions brought about by floods and wind-storms, are likely often to hold the word of promise to the ear, to break it to the hope. "Five miles to Stovepipe Wells" reads one legend.

Sometimes that sign may be useful. "Eight miles to Salt Creek"! It might as well be eight thousand miles to an automobile stalled in slippery sands when you have to "jack" up the rear tyres, plunge forward a couple of feet, and then sink to the hubs again, to repeat the "jacking" up process, in order to gain so much as twenty-four inches of an advance.

This is the story of "three men in a boat" who set sail in a rubber-tyred craft on a trail-blazing and sign-charting expedition through the desert country adjacent to Death Valley in its northern portion; including a trip into the Valley itself by way of Emigrant's Pass, and out of it through Boundary Canyon and on to Beatty. Starting from Los Angeles on April 5 at daybreak, O. W. Lewis, R. J. Behan and the writer, all employees of The Automobile Club of Southern California, turned north towards Bishop, California, with Lewis as Commander-in-Chief. Our car had been thoroughly overhauled, and furnished with a full supply of extra oil, gas, parts, tyres and accessories. Too much care cannot be taken to prepare a car to be used in a desert journey, especially a Death Valley trip. We were provisioned for two weeks, and carried with us a mattress, blankets, extra water canteens, an axe, frying-pan, and coffee pot. Each man wore the same suit throughout the trip, the only luxury allowed being

(Continued on Page 930.)

THE WOMAN'S CORNER



THE WOMANLY WOMAN.

LORD LEVERHULME has given the womanly woman a pat on the back. The original founder of the model city, of which Port Sunlight, in Lancashire, is the finest sample, he gives the credit for its smooth working to his wife.

"But for my wife, I doubt if there would have been a Port Sunlight or a firm of the dimensions of Lever's. She was a womanly woman. Wives who wish to hold their husbands should make them feel that they have every confidence in them."

Leverhulme is one of the few employers on a large scale who has straightened out the problems of his workers. He is the instigator of the wonderful "six hours a day" scheme, employees working on three shifts, and taking turns at the night shift, which falls on every man one week in the month. He is also in favour of banking accounts for working men, the firms to pay their salaries direct into the bank, eliminating the wages queue, which, he declares, is lacking in dignity, and is a great loss of time.

ONE MAN: EIGHT WIVES!

"All the world's a stage, and all the men and women want to go on it," runs the paraphrase, and, judging by the number of amateur dramatic clubs, operatic societies, etc., in and around Sydney, there is a good deal of truth in it. Of these two are good outstanding and have a strong following.

The Sydney Repertory Society has a membership of over seven hundred, and since its inception has produced a matter of twelve plays with complete financial and more than creditable artistic success. It is now looked upon as a permanent institu-

tion, like the famous Eliza, who "came to stay."

The other company is the French players and is even more remarkable in its way, though smaller and, in the matter of personnel, more exclusive. It grew out of the desire of the Belgian Consul (Monsieur Segaert) to aid the Belgian Benevolent Society, together with a few kindred spirits eager to help him. Monsieur Segaert recalled the enthusiasm of his early youth for amateur theatricals, when as a member of the dramatic society attached to the famous University of Louvain, he had full scope for his talent. Consequently, when the Belgian Benevolent Society found itself in need of funds about the middle of 1921, he got together a small company, drawn from the French and Belgian Colonies in Sydney, and personally produced Maeterlinck's "Le Bourgmestre de Silmonde," and, when all expenses were paid, was able to hand over a balance of forty pounds to the charity.

A remarkable feature of this performance was the inclusion of an Australian girl in the company of foreigners, whose accent was so perfect that it was impossible to distinguish her nationality. This was Miss Clarice Irwin, a pupil of Mr. Waterhouse (now the President of the Alliance Française), and herself a professor of French, teaching at the Sydney Girls' High School. She has since made several appearances with the French players, including "Il Sait," a one-act play that was given at a social gathering of the Alliance Française in the October of 1921.

The players about this time placed themselves at the disposal of the Alliance Française with a view to promoting interest in the soirées of the Society, which was then

being revived after the apathy and exhaustion it had necessarily fallen into through the world's war. The following April "Le Retour" was given, when Mademoiselle Henriette Segart, who had just then come out from Paris, created a great deal of interest in the leading rôle. The play was repeated during the month. Almost immediately followed "Kiratje," a Belgian play, given for the Belgian Benevolent Society once more. Two months later on the tricentenary of Moliere his "L'Avare" was presented, Miss Irwin again taking a leading part. Now, as this edition is going to press, preparations are well in hand for presenting a piquant comedy by Alfred Savoir, called in French "La Huitième Femme de Barbe Bleue," which captured Paris and ran there for two seasons, and is now being played in London, Madge Titherage, the Australian actress, playing the naughty pyjama-clad lady in the English version. It is the story of a multi-divorced American, who took on one wife too many, or at least one wife who was too much for him. She was not as easy to lead to the divorce court as the previous seven.

Mademoiselle Segart, Monsieur Segart's daughter, is cast for this enchantress, Mrs. T. H. Kelly plays a breezy American actress, and Monsieur Segart is the baffled husband. Monsieur Max Bruninghansen and Monsieur and Madame Brenac have the other principal parts.

The performance takes places in the Conservatorium on March 31. It was here that

the French players first functioned, and thus led the way for the new scheme of converting the platform of this hall into an adaptable stage for theatrical performances. Other leading lights of this little band of "entrepreneurs" are Madame Campana, wife of the French Consul, Madame Pirenne, Madame Dulieu, Mademoiselle Pognon, Monsieur Dulieu, Monsieur Droulers and occasionally Monsieur Campana.

The French and Belgian players have no commercial backing like the Sydney Repertory Society; there is no entrance fee. They are always assured of an audience of at least 300—the membership list of the Alliance Française.

IN A TUBE.

A smart frocker, fresh from Paris, gives some hints of what's doing in the Rue de la Paix. Gowned in sapphire blue silk jersey cloth, like the evening light in the Blue Mountains, with her initials worked in ivory silk across the heart, and a hat like an aeroplane dropped

to earth through engine trouble, the little tripper looked as though she knew something about it.

"Paris provided me with this frock, which, please note, is made out of seamless material, sold in the form of a tube, quite without a join anywhere. You can buy it in almost any width, suitable to either the svelte or the gobular figure, and in every shade under the skies of France. It is *le dernier cri* in the Rue de Rivoli. Nowadays you must have your initials on everything—frocks, undies, bathing suits. And



—Sidney Riley Photo.

Mademoiselle Segart.



Thou Shalt Be Sleeveless.

the Beatrice Cenci sleeve is the only wear. Mark! How they flow!

"Velvet is going to be popular—no, that word doesn't fit what I mean—universal is better. You simply must have a velvet hat to be *au fait*. Lots of them are trimmed with fungus-shaped bows, either across the back or ricocheting off the side. Velvet pull-ons have superseded the suede, and there are many others of tight feathers. Darling little things—like plovers' breasts.

"A colour which is being greatly used, both for hats and for lining bows and even brims, and for house and evening frocks, is foam green—not the old strident *eau de Nil* as we used to know it; but a delicious shade, just as near as possible to the colour of the waves submerging into foamy crests—in fact, just where the 'white horses' carry them in towards the shore. A deep

bisque colour is another favourite—like crunch foam or home-made honey toffee.

"The rulers of fashion are adamant in one respect: you may have your sleeves as long as you like in the daytime, but at night the edict has gone forth—'Thou shalt be sleeveless, and sleeveless we are, shamelessly sleeveless.'

"The Oriental trend was already over everything in feminine attire when I left. By now I expect the Parisians are swathed to the eyes. A fad of the season was to wear your veil round your throat instead of covering your face with it. The chin, neck and throat were swathed and the veil ends lost in some mysterious way in the brim of the hat after they had been passed over the crown. Cecile Sorel, a famous actress of the Comedie Francaise, set this going. When old lace is used it is a beautiful idea."

THE CROWNING GLORY.

A split hair never grows.

A split hair is the forerunner of a dead hair.

A split hair indicates that the scalp needs nourishment.

Seen under a microscope a hair is divided into visible sections or cells, each filled with a nourishing fluid. When the hair splits the nourishment is running out. American hairdressers contend that the hair should always be singed and never cut; that singeing closes the final cell and retains the fluid. The Viennese barbers—great authorities on hair, at least before the war—maintain that singeing is bad; that it closes the pores and prevents the hair from "breathing." However, the majority of American women have good hair, and this, without doubt, is the final test. They never have their hair cut, but always singed. To ask for a haircut in the States is to mean that you want a "buster."

While the violet ray is largely used in America (this being a process of electricity applied to the hair through a glass rake), the more common electric vibrator is still more popular. The vibrator is an excellent method of getting rid of concentrated headaches, and is found to be soothing in most cases of nerves, and this, doubtless, adds to its popularity. The violet ray has none of this charm for tired women.

The real secret of stimulating hair

growth is massage, digital or vibratory. Here are a few simple exercises for stimulating the blood vessels of the scalp as they are taught in the American schools of scalp massage and hair treatment.

Make a central parting from brow to base of the neck. Place the fingers of each hand on each side of the part and work the scalp backwards and forwards (so that you can feel it move over the skull) all the way down the parting.

With a sharp movement of the tips of the fingers massage the full length of the parting several times.

With a comb now separate the hair into strands, one inch apart, right to the base of the neck, and with the tips of the second and third fingers massage the sub-parting firmly. A quick, rotary movement, lifting the fingers each time. Let the strength be all in the finger tips and not in the muscles of the arm. The whole scalp should be treated in this way.

Brush the hair out, still keeping the central parting. Take the brush in the right hand—a man's brush is the best for the purpose—holding it very firmly, and turn the wrist upwards and outwards as you pass it through the hair, making each strand stand upright; do not remove the brush until the ends of the hair are reached, which practically means that the whole of the hair has been made to "stand on end."

There is nothing better for the hair than this standing on end; it circulates the electricity and separates the hairs, so that each receives its proper amount of friction. If a tonic is being used the time and the way to apply it is when the hair is separated into strands from the central parting. A dry shampoo may be applied in the same way with a piece of cotton wool. Powdered orris root is a simple one, and is generally found to be satisfactory, though for dark hair a brisk brushing must follow.

Never allow the split ends to remain if you would preserve your hair. Either visit a careful barber or spend a diligent half hour snipping off every split end you can find to coax the hair towards fresh growth.

MOTHS GO FOR YOUR BEST CLOTHES

The clothes moth, whilst working its worst havoc in early summer, is always with us, writes Henry Enwright in the "Sartorial Art Journal."

The clothes moth or miller does no eating



TOILET ECONOMY.

By Mimosa.

My advice to smart women, who demand the very best results, is to let most toilet preparations alone. When facial applications are necessary, get only the pure ingredients just as they come to the chemist himself. I will tell you in this column, from time to time, just what to get and just how to use it. Do not be persuaded into buying some cheap toilet preparation instead.

Care of the Hair.—Your hair needs the right kind of shampoo to bring back that softness and lustre. Get a package of stallax from your chemist, and dissolve a teaspoonful only in a cup of hot water. This is plenty for each shampoo. After the shampoo, rub a little boranium lotion into the roots of the hair. It is a remarkable tonic and hair stimulant. You can make it by mixing a package of boranium in a quarter pint of bay rum.

Superfluous Hair.—There is nothing so unsightly. Get a package of powdered pheminol, and apply a little directly to the hair, which will quickly shrivel up, fall away, and leave no trace behind. It is quite painless, and is especially suitable for removing hair from the underarms.

Slaves to Powder.—Face powders are not very satisfactory. You will find a solution of cleminite all that you demand. Dissolve a package in four ounces of water, and apply a little of this to the face in the morning, rubbing gently in till dry. There will be no more "greasy skin," and the effect lasts for many hours. Many ladies have discarded face powders entirely, and use this method only. It saves much trouble, and defies detection.

Don't Use Rouge.—If you really must have colour, just touch the cheeks with powdered colliandum, and you will be delighted with the change. It is quite harmless. It produces the hue of perfect health, and is not obvious like a rouge.

Face Peeling.—You can do it yourself at home if you wish. Get a package of mercolised wax and apply it nightly like cold cream. Wash it off in the morning. The action is quite painless, and so gradual that no one can detect what you are doing; about ten days is the average time. It works by gently absorbing the worn-out scarf skin that gives the face its sallow look, but it does not affect the healthy action tissue underneath. It is used to clear the skin also of freckles, and tan, and while some skins respond much more quickly than others to its action, I have never heard of a failure to benefit in the end. It cannot possibly grow hair.

Fading Hair.—Tammalite is the most satisfactory drug to restore grey hair to its original colour. One package of the concentrates mixed with three ounces of bay rum is all that you require. Non-greasy. It does not stain the scalp or pillow. Apply with a small sponge.

of the cloth herself; she lives on certain green leaves.

She flies in the night unless disturbed in the daytime.

She is extremely particular when she has her choice of woollen fabrics and clothes.

She selects only the best qualities.

Her eggs number about fifty; they are almost minute in size, and they take on the same colour as the cloth they are laid on; if on a black cloth the eggs are black, if on a white cloth the eggs are white, and so on.

This affords the eggs a greater safeguard from detection.

Any woollen clippings or any dark clothes that are kept in dark corners are liable to be good breeding places for clothes moths and the grub.

The larva or grub is grayish white, and looks like a caterpillar. This is the fellow that does the real damage.

It is amazing to note how many people use camphor, tar paper, cedar, and other such ingredients to kill the moth.

Once the eggs are laid, the larvae become acclimated to the smell of these ingredients, and they go on developing and feeding.

The female moth will refuse to lay her eggs in or about the odour arising from these so-called preventatives, yet when nothing else is about to lay her eggs on, she has been known to disregard the disagreeable smell and lay them in cedar chests and camphor boxes.

To keep woollens clean requires frequent whisking with a stiff brush; unless this is done Madame Moth will, despite your efforts and preventatives, instal herself in your very best and most expensive clothes and deposit her eggs.

Moths eggs by a gum moisture attach themselves so firmly to woollen fabrics that shaking a garment or cloth in the yard will not remove them.

You have no doubt noticed the places where the larvae have eaten clothes. The principal places are the waistcoat lapel and the coat and the dress side of a trouser. The reason is that the lapels are sometimes spotted with soups or greasy matter from the tables, and the perspiration from the body makes the dress side of a trouser the ideal place for a feeding ground, hence these spots are Madame Moths first choice for depositing her eggs.

The grub or larva feeds on the grease

left in the wool, and in order to get at this the grub has to eat away the woollen cloth.

You must have noticed where the grub has nibbled a bit here and there on a garment, and perhaps a dozen sections of the cloth have been eaten in spots.

That's because some greasy substance has existed in those spots.

HOW TO OUTWIT THE MOTH.

If people would only turn their clothes over to the tailor at the end of the season, and the tailor would there and then send them to the dry cleaners, and put them away immediately into an airtight bag or box where every crevice is sealed so that the moth miller cannot seek her haven, then there would not be any destruction of clothes.

Madame Moth will not degrade herself by depositing her eggs in any cheaply made factory clothes.

This may appear a strange statement, yet there is nothing strange about it. The moth wants food out of the cloth. The ready-made cloth is mostly shoddy. Shoddy is reworked woollen rags, worked over many times.

All the life and animal matter is eliminated.

You might as well ask cattle to feed on a desert as to ask a moth to feed on such pulp.

HOME HINTS.

TO MAKE LOTS OF TOAST—

Lay a sheet of asbestos across the top of your stove, and you can make a dozen slices of toast at once, which saves the housewife both time and gas.

TO HURRY PIE BAKING—

When making pie-crust, instead of cutting shortening in with two knives as formerly, use an egg-beater that has six blades. It lessens the time to get shortening properly blended into the flour.

WHEN YOUR CLOTHES MILDEW—

When any of your clothing has become mildewed, put it in a bucket of buttermilk and it will come out looking like new.

FOR THE NERVOUS INVALID—

Often the ticking of a watch is trying to the nerves of a sick person. This may be remedied by placing the watch under a tumbler near the patient's bed, when the ticking is almost inaudible.



By D. G. SOUTAR

MOUNTAIN COURSES.

SOME twenty years ago when golf links were first established at Leura they were looked upon as an asset to sell land. To-day golf links on the mountains are indispensable to the Sydney golfing business man, who knows the value of a change from the bustling city to the bracing air of the mountains. Within recent years golf has become a part, and a very prominent part, of the average city man's life, and much money has been spent to carve golf courses out of the bush in order that he may enjoy his favourite sport under the best possible conditions.

Leura Links.

At Leura the golf course has been transformed within the past ten years, and although at the present time it is suffering from the effects of the prevailing dry spell the set-back will only be temporary, and it will soon recuperate and regain its position as one of the attractions on the mountains. In that respect the courses at Wentworth Falls and Blackheath have a big advantage. Having an adequate water supply the greens can be kept up to their usual high standard, and a game enjoyed to the full. There is nothing more exasperating in golf than to have to play on bad greens. To have the value of one's skilful play to the green nullified by missing a bumpy two-foot putt is enough to test the temper of the mildest player, and take all the pleasure out of the game. It can be admitted at once that it is difficult and frequently a heart-breaking task to establish good fairways on the hungry soil usually to be found on the mountains, but with an adequate water supply laid on good greens can be established, and kept in better than passable order no matter how adverse the weather may be.

Blackheath.

Blackheath is particularly fortunate in that respect, the presence of numerous springs ensuring a constant supply of water for all the greens and most of the fairways. Situated in a valley a short distance from the main western road, about a mile or so on the Medlow side from Blackheath railway station, the links have been established about eight or ten years. The originator of the scheme to lay out golf links, Mr. Salmon, was an enthusiast with regard to their ultimate success, and spent a considerable sum of money in establishing a course and building a club-house. Like many others before him he, being at the commencement of the scheme, a new golfer, was more taken with the picturesqueness of the site, and failed to appreciate the golfing point of view. He built the club-house on a magnificent site from a panoramic point of view, but probably the worst that could be chosen from a golf club-house aspect. Built on the highest point of these grounds it commanded a view of the whole of the course, and many miles of surrounding country, but the position demanded that the first hole could only be into the valley some two hundred feet below, and the last hole from the depths of the valley to the heights above. The slope being a steep one meant that any player who did not get his tee shot at the last hole had a hopeless problem to face. The ground was a stiff proposition to climb, but playing was practically out of the question. The futility of that hole soon became apparent, and it was abandoned, but players still had the steep climb to reach the club-house, a feat which, especially on a hot summer's day, was not relished by even the best conditioned players. No expense was spared to make

the club-house everything that could be desired. The fittings and furnishings were the best procurable, and the bath-rooms luxurious, but it was of no avail; the site was the wrong one, and the handicap was too great. To-day the club-house is closed up, with only a caretaker in charge, a monument to the futility of following up a disastrous initial mistake. With little return for his lavish outlay the proprietor carried on until he realised that it was useless to entail further expense. He made a brave show, but the odds were against him, and he decided to abandon the links as a hopeless proposition. Realising the value of links to the district in particular, and the mountains in general, a few enthusiasts with Mr. Parke W. Pope (who had long ago established private links at his mountain home in Blackheath), Mr. John Q. Huie, and Mr. C. W. Bennett at their head, held a meeting to reconsider the position, and it was decided to open up negotiations with Mr. Salmon with a view to purchasing the links. After considerable delay, in which success was frequently in the balance, an agreement was ultimately reached, and a purchase price decided upon. A company was formed, and possession taken over in the early part of 1922. The directors have worked hard, and already the turning point towards success has been reached. As at present laid out some of the holes are open to improvement, and no doubt that will receive the attention of the management at an early date. The greens are excellent, but different to anything we have in New South Wales. With an abundant supply of water and a suitable climate English grasses have been sown, making the surface of the greens like a billiard-table. Two cottages, some little distance from the first tee, are at present used as a club-house, but plans are already in hand to build a suitable club-house in keeping with the future prospects of the club. That the new management will make a success of the venture there is little room for doubt, and the growing popularity of the game will create a demand for more courses in holiday districts. Keeping that point well in view an additional area has been secured to, if necessary, extend the course to eighteen holes. That it will be availed of in the near future is a certainty,

and before long players can look forward to a round at Blackheath on a remodelled course with most, if not all, of the present unsatisfactory features eliminated.

Wentworth Falls.

The history of the Wentworth Falls Club dates back to 1913. In that year a syndicate was formed, and land secured to lay out a nine-hole course. The original promoters of the scheme were Messrs. R. M. Pitt, J. C. M. See, John McLoughlin, E. A. Milford, R. B. Paterson, W. P. Wilson, Dr. McIntyre Sinclair, and J. E. Palmer. To the uninitiated the ground, being covered with thick scrub, gave little indication of being transformed into the delightful course of the present day. The foundation stone of the club-house was laid by the Hon. J. H. Cann in April, 1915, the event being signalled by an exhibition match, in which C. Campbell, the present open champion of Australia, Fred. Popplewell, D. G. Soutar, and the now world-famed J. H. Kirkwood—then a mere youth—took part. Like most new ventures of this kind there were differences of opinion as to the best and most suitable grasses to be utilised for the fairways. Mistakes were made, and most of the early work had to be done over again, and fresh grasses sown. It was not until early in 1917 that the links were actually opened for play. Mr. J. E. Palmer, the present hon. secretary of the club, took over that position in December, 1916, and the success which the club has achieved is due in no small measure to his untiring energy and unflinching courtesy. In 1917 the membership was 80, and to-day it has reached the total of 337. In 1917 the revenue from all sources did not exceed £900, whereas for the year 1922 it exceeds £5,500. Those are figures which most eloquently express the progress which the club has made. In 1920 considerable additions were made to the club-house accommodation, but to-day it is quite inadequate at holiday times and week-ends, so that further additions will have to be made to cope with the increasing popularity of the course. Those additions are likely to be taken in hand in the near future. The company has secured a further area of land, which will be sufficient to extend the course to eighteen holes. The land secured is most suitable for ex-

tending the course without interfering with the layout of the present course, so that those players who are desirous of playing only nine holes can do so without interfering with those who wish to play the full round. At holiday times when the course is crowded the players will, of course, have to play the holes in their proper rotation. To do otherwise would cause confusion and extreme congestion. The present course is generally admitted to provide an excellent test of the game. The holes are of varying length and character, and the element of luck is almost absent. A most compactly laid out course, the ever-changing variety of the

Situated about a mile from the railway station they are easily accessible by either motor car or horse-drawn vehicle. The higher and heavily timbered country shelters the course considerably from the westerlies, while the short holes towards the end of the round do not face the setting sun, an important point in the enjoyment of a round towards late afternoon. There is a great future for golf on the mountains, and extending the courses to eighteen holes is already a necessity. The future of the three clubs is assured, their close proximity to each other being a strong factor towards that end. It is much more interesting and enjoyable to be able



Members of the Casino Golf Club.

holes eliminates that monotony which is frequently met with, and becomes so tiring on other courses. The width of the fairways vary according to the length of the hole, and consist principally of avenues between the trees, the whole providing a pleasing picture to the eye, and not too severe a penalty to the player who has a tendency to wander from the straight and narrow way. The greens, unlike those of other mountain courses, are of couch, and therefore more holding. They vary in size and contour, and are at their best in summer, when the course is most in use.

to add variety to a golfing holiday by playing over as many different courses as are available.

The opening day for the next season at Goulburn has been fixed for Saturday, March 3, and the committee look forward to a successful season. Greens have been resanded, approaches top dressed, and arrangements made to cut the fairways. A team of Moore Park players and their professional, Soutar, are expected to pay a visit to the southern town for the occasion.

CAMMERAY GOLF CLUB

A FLOURISHING BODY

FEW golf clubs in New South Wales have such a splendid record of progress as that of Cammeray, which although only established in 1906 has long since won its way to a position of high esteem amongst golfers around Sydney.

The meeting at which the club was formed was held at the "Oaks Hotel" on October 3, 1906, those present being Messrs. J. M. Smail, J. S. Cargill, F. Aldersen, L. Whidden, R. Furber, and W. P. Vaughan.

A committee was appointed to draw up rules to govern the club, and subsequently another meeting was held at which these rules were adopted, and a copy was forwarded to the North Sydney Council, which had given permission for the links to be established on Cammeray Park. At this meeting Messrs. C. R. Crossman and L. Grieve were present. The annual subscription was fixed at £2 2s., with £1 1s. entrance fee, and the membership was limited to 40. It was further agreed that ladies, to the number of 25, should be eligible for membership.

Out of the first 27 male members who were elected on November 14th, 1906, Messrs. C. R. Crossman, F. Aldersen, L. Grieve, J. S. Cargill, and W. N. Cuthbertson are still going strong, and enjoying the membership of a now popular and prosperous club, of which they helped to lay the modest beginning.

None of the original lady members are now on the list.

The first officers comprised Messrs. W. T. Furber, W. P. Vaughan, and J. S. Cargill as president, secretary, and treasurer respectively.

The first club-house consisted of a cottage containing two rooms, and coincident with its acquisition the modest sum of £25 was spent in making the first greens. Three months after its establishment the club was in a sufficiently sound condition to justify the renting of a larger cottage as a club-house and the appointment of a caretaker.

During the first two years of its exist-

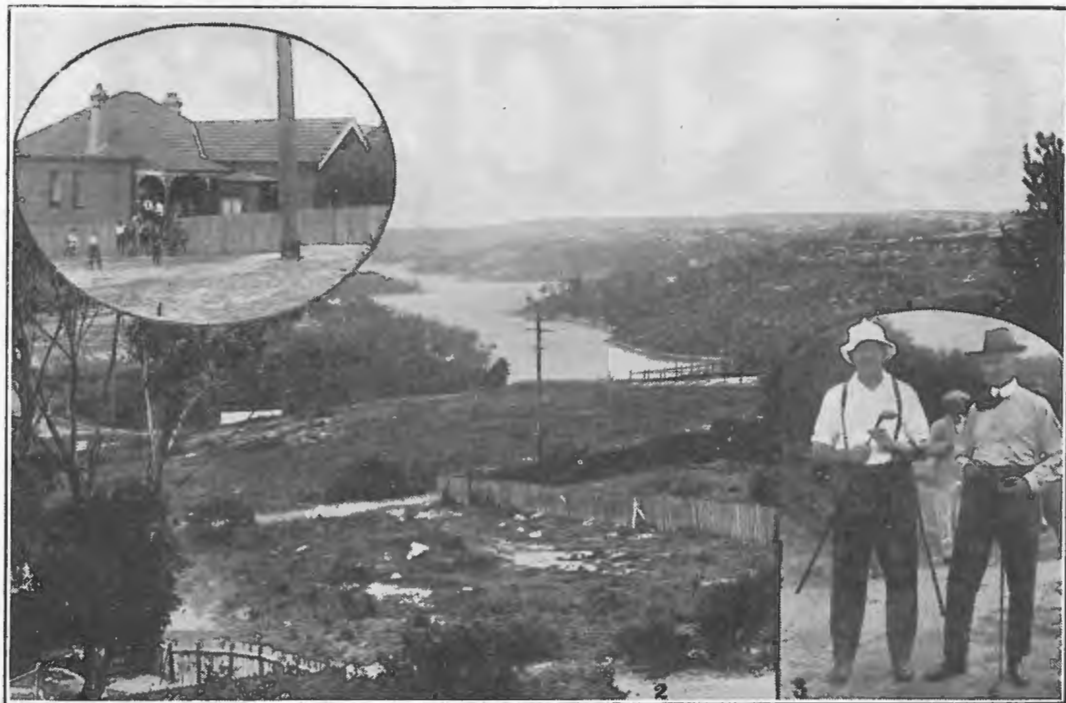
ence the course consisted of only six holes, but in 1910 an additional three were made. Early in the same year the club joined up with the Country and Suburban Golf Association, and about the same time the maximum membership was increased to 50 men and 40 ladies. A little later Mr. Vaughan resigned the secretaryship, and was succeeded by Mr. Cargill, who combined the duties with those of the treasurer. The following year Mr. Cargill resigned the former, but continued to act as treasurer until 1913, when he was succeeded by Mr. W. Hughes, who still holds the position. From 1908 to 1911 the secretaryship was held by Mr. E. Gallop, who was succeeded in the latter year by Mr. T. Michell.

In 1911 the club entered the B. and C. grades in inter-club competitions, and have regularly competed ever since. After filling the president's chair for two years Mr. F. Allerson retired, and was succeeded by Mr. C. R. Crossman, who was re-elected annually until the present year, when he voluntarily withdrew his nomination.

In 1921 Mr. Michell resigned after holding the secretaryship for 11 years. Mr. A. L. Grieve was appointed in his stead, and filled the position creditably until October, 1922, when he resigned, and was succeeded by Mr. J. H. Davies.

The total membership is now just on 300, and the long and ever-growing waiting list testifies to the wide popularity which Cammeray Club has won for itself, both for the excellent manner in which it is conducted and the pleasant and convenient location of the links.

During the time the club has had the use of the park upwards of £6,000 has been expended on improvements, and despite the slight disadvantage of the course being rather short it is in excellent condition. The sporty nature of most of the holes, particularly the short ones, which demand a very excellent mashie shot played well up, more than counterbalances the already mentioned disadvantage.



(1) The Club House. (2) A view from the dining-room of the Club-house showing portion of Sydney Harbour. (3) Mr. J. H. Davies, Secretary, and Mr. C. R. Crossman, a past president of the Club, standing at the first tee.

A creek runs through the course, and forms a fine natural bunker for five of the holes. It has thus to be negotiated 10 times in 18 holes. The great need is for one or two long holes which are, however, hard to arrange owing to the restricted area of the park. The committee hope to make an improvement in this respect if it can possibly be done. Some of the improvements carried out last year, such as the building of foot bridges, extension of green and tees, have made the course one of the most enjoyable to play on. Old members re-visiting the course after an absence of a few years, can scarcely believe their eyes such has been the transformation wrought.

Mr. T. Popplewell, brother of the well-known Kensington professional, has been engaged to supervise the course and advise members re their play, and owing to his capable services the course and play have greatly improved.

Cammeray is one of the most picturesque courses around Sydney, the view from the first tee or from the club dining-room

(embracing, as it does, an arm of Middle Harbour) would indeed be hard to surpass.

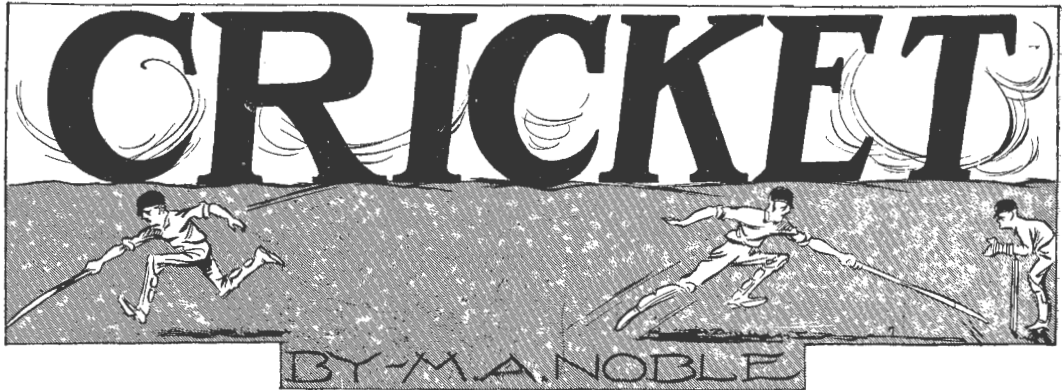
Such has been the expansion of the club that the committee have had to add two more rooms for the convenience of members, so that now the club-house is one of the largest and best equipped for a course of this nature. Additional lockers will soon be needed to meet the requirements this season.

Grade Golf.

The club has for some years been entering teams for both B. and C. grade, and these generally give a good account of themselves. In 1921, the C. team played off with Manly C. in the final, and was just beaten by a putt on the last green. In 1922, Cammeray B tied with Manly B for second place in the B grade competition. Owing to possessing only a 9-hole course the club is precluded from entering a team for A grade, though some of its players are well up to that standard.

By reason of its accessibility the Cammeray Golf Club, provided that its tenure

(Continued on Page 935.)



Importance of Practice.

IT is almost impossible to over-estimate the importance of 'practice' in laying out oneself to record a good season on the cricket field. It is vitally important that every budding cricketer should know how to practice, and a study of the following suggestions will prove decidedly helpful.

When you go to the ground to practice, which should be twice a week, early in the season, change into your cricket clothes, and when batting be as well padded and gloved as you would be in a match. Many young men have been sorely disappointed and have never realized their ambition of playing in a representative team because of a blow on the inside of an unprotected knee, or a hard knock on an ungloved hand. Practice is intended to get you into form. Of course it is not nearly so effective to that end as match practice, but if you do not avail yourself of it, at all events for batting purposes, it is most unlikely you will stay in long enough to strike form in a match. The men who succeed take their practice very seriously, they apply themselves rigorously to the task, and bring intelligent methods into operation. For instance, in practising bowling, first learn to bowl straight, and keep a good length. A good method is to note some mark on the pitch, a worn patch or a green piece of turf, just where a good length ball would pitch, and keep pegging away at it many afternoons until your bowling becomes fairly accurate. Cultivate also the bowling of what is commonly but erroneously called a "yorker," but which in reality is a "creaser," i.e., the ball pitches right on to the crease. A "yorker"

is a ball which lodges right at the base of the stumps. The "creaser" is a ball which has of late years fallen, for some unaccountable reason, into disuse. We very rarely see one bowled now, yet I know of no more dangerous delivery than a fast "creaser" when a batsman takes his first strike. The accurate bowler should be able to bowl this ball fast or slow, at will. That is a big thing to say, but it is nevertheless true, and is something to which young bowlers should aspire. Having attained accuracy of length and direction you must now learn to spin the ball, either from the off or the leg side, and keep at it until length and direction are as good as before attempting the break. This is very hard, and requires months, very often years, of practice before success is achieved. Then there is flight to master, i.e., deceiving the batsman as to the actual contact of the ball with the pitch after delivery. This in combination with accuracy of length, direction and spin is so difficult that very few bowlers make a success of it. Most of them give it up in disgust, and rely wholly upon length and spin.

Disguise Your Intention.

Then, again, there is disguise in action, i.e., bowl a fast, medium and slow ball with the one action. The value of being able to do this is quite obvious. The batsman does not know, by any change of delivery on the bowler's part which ball is coming until after it has left his hand, and therefore he has less time to make up his mind what to do with it. Very few bowlers have acquired the art of successfully disguising their action; the batsman can generally tell by some mannerism of the bowler while running up to the wicket which one he is

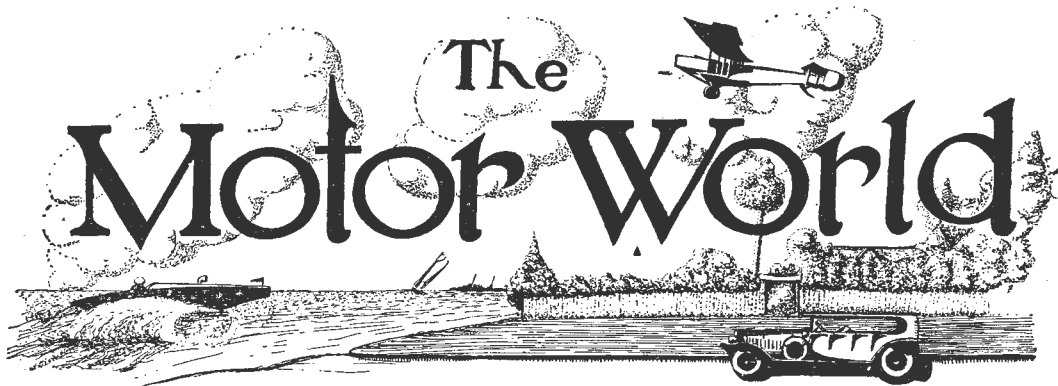
going to bowl. This is commonly called "telegraphing it." As "Reggie Duff" used to say, "Fast ball coming." Then in conjunction with all these variations there is the "swerve" to be mastered. Is it any wonder that champion bowlers are few? Then there is the intelligence or mentality behind each delivery—the schemes and the arts employed to trap the unwary, which lure even the champion batsman into doing something which he does not want to do. These are some of the things that an ambitious young player has to learn. If he could look ahead in the full knowledge of what is in front of him, he would be staggered at the prospect of ever succeeding even to mediocrity. But even a bowler must practice zealously and experiment continually, and so in like manner must a batsman. He must devote all his time for two or three years to cultivating defence; he must learn to play forward and back with a straight bat, and play the ball along the ground, not in a cramped and ungainly style, but with a freedom of arms, body swing, and supple wrists. He must learn to use his feet, and get right out to the pitch of a slow bowler, and take the sting out of the ball before it has time to break. He should acquire the art of playing back by a backward movement of the right leg as far as possible without the possibility of stepping on his wicket, or hitting it with the bat. This latter position makes a good length ball far easier to play, and gives more time to play it because it makes the delivery just that much shorter. It does not matter, however, how much shorter it may be, you must play always with a straight bat. After passing the preliminary stages we must now learn to make strokes, still keeping the ball along the ground. Of course in learning defence, one naturally cultivates a number of strokes. Some are far more difficult than others, and require much practice.

Therefore it is true for the batsman, as well as for the bowler, that he should experiment in practice but never in a match. Ask the bowlers at the nets to bowl short ones outside the "off" stump for the "cut" so that you may get used to standing up straight with the right leg across the wicket in the direction of third man. Then hit the ball with a downward motion of the bat and do likewise for all the

strokes; the drive, square drive, leg glance and so on, and keep at each of them until you feel sufficient confidence in your ability to reproduce each one in a match with the same degree of accuracy and certainty of execution.

Remember when practising that you have to do your share of the work—it is only reasonable and fair. If the bowling creases are full and you are not batting, chase the ball for those who are, and thus save their time. Ten minutes is the usual time given each batsman, and it is little enough. If you work for others your unselfish effort will surely bear good fruit, for they in turn will speed up and return the ball for you, and so add to the number of balls delivered during your ten minutes practice. I have frequently seen many young men go to practice, and instead of working they stand about, talking and smoking cigarettes. If by chance a ball is hit in their direction each one eyes the other to see who is going to make a move to recover it. These men never do any good for themselves, and have a baneful influence upon their associates.

Victor Trumper, excepting at the commencement of the season, rarely practised more than once a week, yet if any player needed to be in the very finest of form he did. He used to do such extraordinary things with such consummate ease that his colleagues and opponents all agreed he was a freak. Trumper was not a defensive cricketer as the term is generally applied, yet his defence, which was also his offence, particularly on bad wickets or where the bowlers were keeping an extraordinary good length, was just as effective, if not more so, than any other method. I saw him in a match against Victoria in Sydney bothered considerably on a bad wicket by Saunders, the left-hander, who very nearly bowled him twice in the first over. Trumper then took his courage in both hands, and jumping in to Saunders hit him over the fence for six, and proceeded to lay the wood on so effectively that Saunders lost his length and Victor got 100. That is just where he overshadowed everyone else. The English professional bowler used to say: "There are plenty of good batsmen about, but there is no one like 'Vic.'"



Conducted by "MAX MILEAGE"

ON THE EDITOR'S MIND

£1,500,000 of New Cars: Australia's Two-Months' Purchase: A Conservative Calculation.

THE gentleman who marshalls the figures in Spring Street, Melbourne, has just released returns which show the remarkable development that is taking place in motoring in Australia.

In October and November last 4,531 chassis were brought into the country. Of these, 923 were already fitted with bodies, and 3,618 bodies had to be turned out by local industry to enable the others to be offered to the public.

The value of the chassis for Customs purposes was £807,000. The value of the bodies fitted to chassis imported was £81,500. Reckoned on an average price of only £100 per body required to be built in Australia, the body building industry's contribution towards these two months' supply of motor cars for Australia would be £361,800.

The tyre equipment on the 4,531 cars may be very conservatively estimated at £33 per car. This represents a total of £150,000 for tyres for the two months' purchase.

Thus taking into consideration only the value of chassis and bodies, and ignoring altogether spare parts and chassis built in Australia (with the bodies required for them), Australia bought £1,400,000 worth of new cars in October and November of last year.

We have not taken into consideration the value of Australian-built cars, nor the cost of extra equipment of accessories added after the landing of the chassis. Moreover, the Customs figures do not, of course, take into consideration the money paid in freight, insurance and other charges to land the chassis in Australia.

From this maze of figures emerges the fact that in the last two months for which figures are available, Australia must have paid well over a million and a half of money in the purchase of new cars alone.

Happily the day has almost ended in which some carping critic will rise in meeting to declare that this is a stupendous total to be spent on a luxury. The distances of this country and the difficulties of communication have come to be more sensibly appreciated by the man in the street in recent years.

This million and a half's worth of motor cars has gone for the most part into just as positively productive work as though it had been agricultural or industrial machinery. The outlook for motoring in Australia is most heartening, and is, moreover, reassuring to those whose money is invested in its trade, because it is a promise bred of necessity. Already Australia follows the United States, England, Canada and France in that order in regard to the number of motors in different countries. May the million and a half of October and November last double itself into a million and a half a month in the near future. Motors and roads are pulling the one way. Each helps in the development of the other, and both are important factors in the development of Australia.

United States Tyres are GOOD Tyres



Watch Your Tyres

Never run your motor car with the wheels out of alignment. It wears down the tyres unnecessarily, and increases your annual tyre bills. Take care of your tyres and they won't have to be replaced so often.

**THE UNITED STATES
NOBBY TREAD**

For heavy going—rough and sandy roads—frequently overloaded cars—the Nobby Tread.



**OBTAINABLE
EVERYWHERE**

United States Tyres are GOOD Tyres

Paddy's River and Auto (mobilists') Suggestion.

Last month we attacked the failure of the Wingecarribee Shire Council to realise responsibilities in the matter of the Paddy's River Bridge.

At the time of a certain recent Melbourne crime which shocked the feelings of a continent, the suggestion was made that at a set hour everybody should point an accusing finger towards the Victorian capital and *will* that the guilty party should surrender himself to justice. With any reasonable chance of success the scheme would seem to have much to commend it in meeting the impasse which exists in regard to the building of the bridge

given previously, and with an utter neglect of what the people expect.

Were it any other than case-hardened local authority councillors, who are under notice, I would suggest that every motorist should point his radiator and toot his horn in the direction of Moss Vale at the hour of the next meeting the Council, *willing* at the same time a change of hearts in the obstructionists. The individual imprecations of all who have been "stuck" at Paddy's have failed to bring satisfaction; maybe Coué's theories would draw some response.

Turning in Its Grave: The Parramatta Road.

The Parramatta Road has had many uses



How much is one man power? Not sufficient to propel the punt across the George's River at any but a snail's pace.

across Paddy's River. Following the rumble of a years-old protest, the Government decided to build a bridge across Paddy's River, conditional upon the local authority's given promise to maintain it. A sigh of relief arose from all those who have occasion to use the Southern Road. It was interrupted by the Council's greeting of the Government's announcement, the interruption taking the form of a rescission of the previous maintenance resolution. Three or four aldermen with a vision that does not extend beyond the bank of Paddy's River, upon which they live, have decided to block the construction of the bridge with a casual disregard for the undertaking

at different times. For very many years it was "the worst road in Australia," and was the ever-handy warning for every orator who wished to declaim upon the topic of "Roads—Good and Bad." Then a Labour Government, with a fine appreciation of the value of contrast, took this wretched, worn out track, spread £100,000 neatly over the top of it, and sat back, smiling in grateful acknowledgement of all the kind things that were being said. Thus for the time the Parramatta Road had another use—that of an attractive highway between the capital and another important centre. Only for a brief period could it be expected that the Parramatta

Road would serve the purpose for which it exists. Already the pot-holes and ridges are beginning to turn in the grave in which they were buried. In a very short time the Parramatta Road will again be the orator's stock example of the evil of constructing roads unscientifically. And the taxpayers will withdraw their congratulations, and have something much to the point to say about a Government which built a road to last about three years at a cost of £100,000.

As it stands to-day, the Parramatta Road is beginning to disintegrate. Unless the processes of Nature, aided by those of Muddle, are arrested promptly, the State will be faced with the necessity of rebuilding the whole of this expensive highway.

A little determination, a little more money and a great deal more application of road building science, may save this road before it is too late. The motorists call most loudly for action, because they see what is happening. Something must be done, and that quickly!

What Is a Horse-Power?

It would be a fairly safe gamble to say

that not one motorist in ten could tell you what constitutes one horse-power.

When the average man has decided to chance the wet-looking patch at the dip in the road, and has sunk into the mire with the back wheels spinning, and the sun getting lower in the sky, he hails the coming of a horse and tow rope with delight, and presently he continues on his way, wondering vaguely why 41 horse power should succeed so easily when 40 horse power has failed so dismally. The secret, of course, is apparent to wise ones like you, reader and me. We know that the purchase that the horse has been able to get upon the road with his hoofs is the key to the puzzle.

The power developed by a horse has nothing to do with the matter. In the earlier days of engineering, however, the unit of power was taken as the amount of work expressed in foot lbs. capable of being performed by an average draught horse in the space of one minute.

To-day the unit of power which is marked by that mystic symbol "H.P.," is the amount of power needed to raise 33,000 lbs. to a height of 1 foot in 1 minute.

DODGE BROTHERS MOTOR CAR

"SELLS ON ITS MERITS."
OVER 800,000 OWNERS.

There is a very pronounced and definite public opinion now in this country concerning Dodge Brothers' Motor Car.

Nearly every man or woman you meet has a clear-cut idea of the kind of car it is.

How friendly and how favourable that idea is you probably know so well that it is not necessary to go into details.

But you are almost sure to ask yourself—how is it possible to incorporate such quality at so moderate a price?

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5 32 x 4 Cord Tyres.

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March, 1923.

MOTOROLOGY.

Six Handy Hints from the Editor's Verbal Tool Kit.

SUFFICIENT FOR THE DAY—

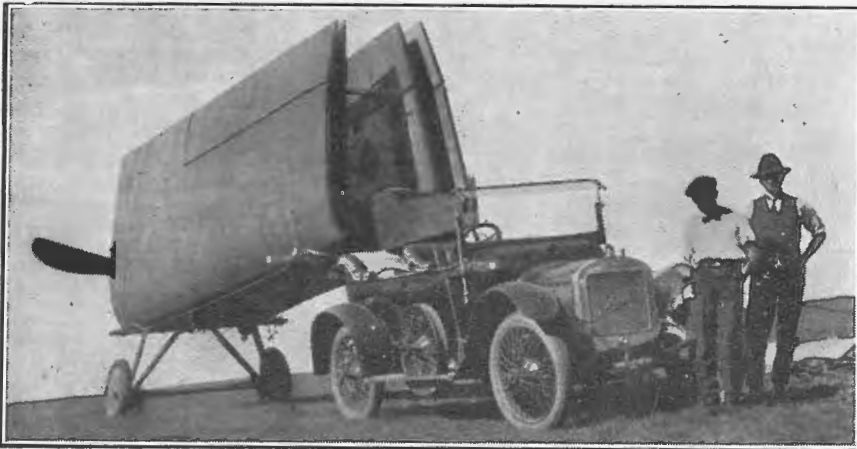
FROSTING THE HEADLIGHT LENS.

Two or three packets of the salts which bear the ancient and honoured name of Epsom, dissolved in a tumblerful of water, gives a solution which can be effectively used to frost the lenses of the headlights. Apply the liquid with a soft brush, or let it wash across the inside of the glass. Evaporation leaves behind it an evenly-frosted lens, which will need no attention for several months.

you want all the power you can get on a pinch. It is a mirror, which reflects what goes on below it. An oily plug informs you of over-lubrication, or leaky piston rings. A plug that has acquired a coating of soft soot (like lamp soot) tells that the mixture is over rich. The adjustment may be wrong at the carburettor, or there may be a leak in the intake manifold. If the plug ends are both oily and sooty, look for a leaky valve, as it shows that burnt vapour is being drawn with the mixture, resulting in bad combustion and poor compression, allowing the oil to pass and foul the plug.

“WHAT VOLTAGE, PLEASE?”

Have you ever had a garageman ask you this question when you have pulled up with a “blind” headlight, and got out



An aeroplane, packed on the trailer of a motor car, ready to be brought from Stanwell Park to Sydney.

WASTE OIL FOR SPRING LUBRICATION.

The oil that is drained off from the crankcase periodically (or should be, if you care for your car) is usually thrown out. Why not let it remain in a tin in a corner of the garage? Into this tin every morning or so dip an old brush and paint the sides of the spring leaves. It will be a matter of surprise to find how effectively the oil soaks in, and how the riding of the car improves.

THE TELL-TALE SPARK PLUG.

A spark plug is something more than that contraption which misses just when

to buy a new bulb? So that you may always have the ready answer, count the number of cells in your storage battery and multiply by two. Thus, if there are three cells, the bulbs should be six volt. It is important that you get the right type.

A 1 IN 6 GRADE: WHAT'S THAT?

A fair number of people are not clear as to what exactly is meant by a grade being described as one in six or one in four and a half. If you were able to drop a plumb line from the top of any gradient you have ascended to a point on the level with the place at which the grade commenced you would have a right-angled triangle,

the hypotenuse of which is the gradient, the base is the imaginary line drawn from the starting point to the foot of the plumb line, the latter being, of course, the perpendicular. If in climbing to the top of any grade you rise 100 feet, and you have had to cover 1,000 feet to go the same distance forward on the level, the grade is 1 in 5. Many people consider that if they rise 100 feet in travelling 500 on the grade, the degree is 1 in 5. As a matter of fact, it is slightly more severe than that. Always remember that the distance upon which the percentage is reckoned is the base-line of the hill, and not the distance travelled up hill.

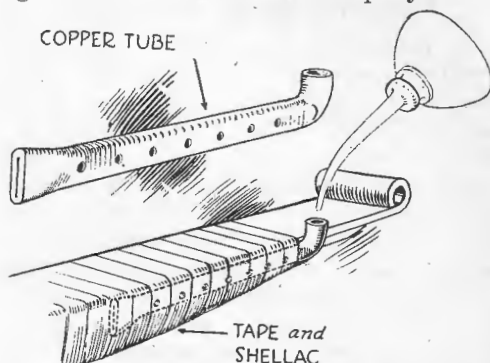
TUNING: A "HOT" JOB.

I am frequently asked when is it correct to adjust a carburettor—when the engine has been idle and is cold, or when it is warm? The very question implies a recognition of the fact that the result will not be the same. The best reply is afforded by another query: "When do you expect to get the advantage of any adjustment made—when the car is standing cold in the garage, or when it is running on the road,

and the engine consequently warm?" Obviously you cannot expect good warm motor performance from an adjustment made to suit a cold engine, can you?

A Home-Made Spring Oiler.

If you have a small piece of copper tubing and a roll of adhesive tape you can



An oil duct taped to the car spring provides adequate lubrication

readily supply the means of keeping your springs well lubricated. Bend an "elbow" at one end of the tube, which should be

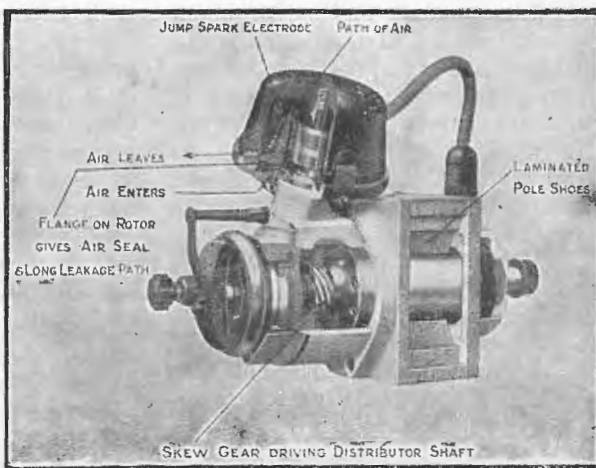
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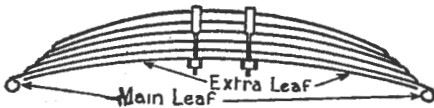
30-32 Wentworth Av., Sydney

And at 100 FLINDERS ST., MELBOURNE

eight or ten inches long. Flatten the rest of the tube so that it will fit snugly against the side of the spring. Drill holes at short intervals, and tape it securely to the spring. Then the leaves may be kept well oiled by pouring oil in now and again. The tape will need renewing from time to time.

Improving Spring Suspension.

In practically any form of suspension, whether transverse, quarter elliptic, semi-elliptic or cantilever, the strain of the rebound is taken by the main leaf, and it is this leaf which most often breaks. The result of such a break is generally a serious matter, and my idea has been to reinforce the main leaf and at the same time do away with the rebound to a large extent. I, therefore, had fitted to each spring an extra leaf just short of the shackles and on the side opposite to the subsidiary leaves of the spring. (See diagram.)



The extra leaf should be shaped to fit as accurately as possible the curve of the main leaf when loaded, and be of about the same thickness. I first tried it on the front spring of a *Ford* and the result was astonishing. The car would go through an ordinary water furrow at 20-25 m.p.h. without any suspicion of tossing up its bonnet and trying to hit one on the nose. I then had it fitted on my bigger car, a *Grant Six*, with cantilever rear springs, and the result was very pleasing. Now all my springs have been so fixed up, and I find that there is no danger of breaking a spring. The car is very steady at speed, and holds the road beautifully. The idea is worth a trial, especially for *Ford* owners.—(*Medico*, Trompsburg.)

A NEW VAUXHALL CAR.

A feature of the new engine in the latest 23/60-h.p. *Vauxhall* is the Lanchester balancing device to counteract the out-of-balance forces set up by the angularity of the connecting rods. At no engine speed is it possible to detect any critical vibra-

tion, although when sudden acceleration is called for there is that feeling of great power being developed, which is present with all four-cylinder engines, and which is by no means unpleasant.

Of the control of the car generally it can be said that it is a delight to drive it. The steering is extremely light, the clutch is smooth in action and requires but little pressure on the pedal, while to effect a noiseless and easy gear change calls for but average skill. The controls are well placed within easy reach.

Regarding the comfort afforded, the suspension system, which consists of semi-elliptic springs both front and rear, is undoubtedly good and the car holds the road well, even on surfaces which are very far from smooth, while the coachwork has admirably chosen seat angles, and make a long day's run possible without any feeling of fatigue.

It should perhaps be stated that an impression has gained ground that the new 23/60-h.p. car will displace the popular 30/98 model, but this is not the case, for the *Vauxhall* programme for 1923 consists of the 30/98-h.p., 23/60-h.p., and the 14-h.p. cars also.

There is no doubt that the new 23/60-h.p. *Vauxhall* car makes a decided advance upon the well-known 25-h.p. model, which it is designed to supersede. The N.S.W. distributors (Messrs. Boyd Edkins, Ltd.) report a growing demand for this high-grade super car, and anticipate no difficulty in placing the shipments of all models now landing and to arrive.

A Case of Trespass.

A visitor on holiday at Folkestone (Eng.) was sued in the local county court by a firm of motor car hirers for causing damage to a taxi by boarding it and jamming on the brakes in an endeavour to ascertain the name and address of the driver, who in his judgment had been driving dangerously down a hill. The driver was fined by the magistrates for the alleged dangerous driving before the county court proceedings came on for hearing, but the county court judge held that the visitor was committing a trespass in boarding the car as he did, and that he was consequently responsible for the damage.

MOTORGRAMS.

Varnish will not stick to the surface of a car that has been waxed.

Skidding into curbs and side swipes from other cars will cause wobbly wheels.

A good washing will harden the varnish of a new car and lengthen the life of the lustre.

Keep the engine clean. Oil gathers dust, which works into the working parts and helps wear them out.

A "knock" in an automobile engine of present design is due largely to carbon deposits inside the cylinders and to lime deposits in the water jackets surrounding the cylinders.

When going down very steep hills shut off the switch and use the second gear as a brake. This not only adds to the safety of the passengers, but also tends to cool off the motor.

When an extra passenger is to be carried in a seven-passenger car, a section of board placed across the two auxiliary seats will accommodate the extra one in the party nicely.

WHEN THE MOTOR COUGHS.

Coughing in the carburettor, followed by sharp explosions in the muffler, indicates a wrong adjustment of the auxiliary air valve. On the other hand, coughing followed by a choking down and stopping of the motor indicates that there is water in the gasoline.

PROPER ENGAGEMENT OF CLUTCH.

To let the clutch in it is not necessary to race the engine. As the clutch is engaged the throttle should be opened just enough to prevent the engine from losing any speed. By "meeting the clutch with the throttle" it is possible to have the engine maintain practically a constant speed while the clutch is being let in.

SUGGESTION FOR STARTING.

The best way to start a motor, when the electric starting system refuses to work and the crank has been left in the garage, is to jack up one of the rear wheels and turn it by hand with the clutch in and high gear engaged. The spark should be retarded and only a small throttle opening allowed. Before removing the jack the gears should be shifted to neutral again.

TO SHIFT GEARS.

Disengage the clutch before shifting of

transmission gears to allow easy movement of the gears and shifting lever, and to prevent grating and possible breaking gear teeth when the shift is attempted. It is possible on some cars to change gears without first disengaging the clutch, but considerable practice and familiarity with them is necessary, and danger of stripping the teeth and strain on the entire driving system is greatly increased.

Never fill the oil reservoir above the proper level.

NEW CARS COMING.

The near future will see the addition of two more makes of cars to the already long list of those represented in Australia. These we refer to are the new Chenard-Walcker, one of the best-known and longest-established of French cars, and the all-weather Phoenix, a British five-seater 18-h.p. car, described by a recent Newcastle (N.S.W.) visitor to the Olympia Exhibition in London as the best car for the money in the show. Proof of the fact is that he bought one, which will arrive in a few days. The Chenard-Walcker, which was already known in Australia prior to the war, has been brought right up to date in construction and design. Quite recently a 15-h.p. car of this make distinguished itself by registering the fastest time in the French "Circuit des Routes Pavees," described as the most gruelling test ever applied to motor car trials. Some 61 cars out of 65 entries faced the starter, but of this lot only 37 finished within the maximum time allowance. Lack of space forbids a detailed account of the test to which "The Motor" (London) devoted several pages, a perusal of which shows that all the leading French cars and some American and English productions took part.

The British Phoenix 18-h.p. five-seater embodies a distinctly new feature in the complete glass-enclosed front, which really makes a closed car without curtains as we know them. For doctors it will be the beau ideal car, combining as it does the advantages of both the open and closed car. The very best results of modern British engineering practice has been incorporated in the design. The engine is of the four-cylinder monobloc type, with detachable head and overhead valves operated by push rods. Lubrication is by force feed, and the engine is effectively cooled on the thermosiphon system, a radiator of unusually large capacity being fitted. An inverted leather cone clutch drive to four-speed gearbox is thence transmitted by open propeller shaft to semi-floating rear axle with spiral bevel final drive.

The well-known and long-established firm of H. I. Clements, Ltd., of Sydney, have secured the agency for both the above-mentioned cars, and at the prices quoted should have no difficulty in establishing their popularity in both town and country use throughout New South Wales.

THROUGH DEATH VALLEY.

(Continued from Page 909.)

a tooth brush apiece. Sartorially and aesthetically considered, we were equipped almost as simply as three Comanches.

At Little Lake we bore north-easterly across the high grade towards Coso Hot Springs, our first objective point. At the top of the grade we ran into a blinding snowstorm, which required a cleaning of the wind-shield every few yards in order to pick our way. At the Springs we stayed all night. It is the old, the more than century-old medicinal rendezvous of the Indians, and their signs and hieroglyphics are scrawled and cut on the cliffs and rocks along the trails leading to Coso. Dozens of springs of nearly every colour of the rainbow boil and bubble up from the ground, and steam is constantly issuing from many fissures in the earth's surface. The largest pool, a favourite with the early red pilgrims, we christened "the fountain of youth."

Next morning we drove to Bishop, diverging at Olancha to sign-chart two roads branching easterly and north-easterly. That night we laid over at Keogh's Hot Springs, with its wonderfully built structures of glittering many-coloured quartz, its pioneer cabin bulwarked by a huge boulder which had rolled down from the mountains ages ago, its elaborate equipment of swimming pools and grottoed basins, and its incomparable view. Dawn found us heading south-west, and by afternoon, with Lewis doing the driving, and Behan busy sign-charting and recording mileage, we were in Darwin. At Darwin we stopped to take oil, gas, and water. The owner of the little store came out and looked us over critically. "Where you fellows going?" he asked. "Death Valley," we answered. "Got plenty oil?" he continued. "Yes." "Plenty gas?" "Yes." "Plenty grub?" "Yes." "Plenty water?" "Yes." "Plenty blankets?" "Yes." "Know the country?" "Yes." "Well, you may get through. I don't know. But, say, look here, we been pulling fellows out of the Valley for the last two months. Two fellows got froze up and lost their legs! Both died! Better look out! Been storming over there for four days!" We thanked him and pulled out.

As evening came on we halted the automobile, and made our first camp in the Panamint Valley.

Jerking the bale of bedding from the rear seat, starting a fire with greasewood and dead roots, ripping open a couple of cans of beans and rustling out the coffee-pot, we soon fed, watered, and hopped to the "hay." It was a typical night, with a golden moon serenaded by a million billion stars. The Big and Little Dipper hung their votive offerings of branched stars over us, and Orion, Mars, Venus and Pleiades shone blazingly above us. As in Joaquin Miller's line:

The red, ripe stars hung low overhead.

We wrangled as to the position of the North Star until we fell asleep. Lewis located it to the south-west, Behan had it fixed in the north-east, and I placed it due west.

At dawn we breakfasted, and pointed for Trona, by way of Ballarat. At Ballarat, a little desert outpost, a few men were lounging about, and "shorty" Harris, the old-timer, was conspicuous among them. Shrewd, keen, experienced and resourceful, he typified the "hard boiled" desert prospector and frontiersman. He was smilingly affable. "Yes, going into the Valley? Stovepipe Wells? Yes? Furnace Creek! You'll find some sand." (We found it, all right.) "Yes, oh, I guess you gentlemen will get through. Yes. Well, good-bye, good luck." If a man were to pick out a comrade to "tie to" in a pinch in Death Valley he might select Harris out of a million, and not make a mistake. Cool, pleasant, and not to be "stampeded" in a crisis, he certainly appeared to be. Dry as the desert around him, but all "he" man. The wind blew in a small hurricane when we wheeled toward Trona, and about twelve miles from the town a furious sandstorm enveloped the car. All the curtains had been fastened down, but the fine, blinding particles of sand whistled into the interior of the car like salt fired from a double-barrelled shot gun. Lewis glued his goggles close to his eyes and "stepped on her" for every ounce of speed the car could develop. We made the twelve miles in about ten minutes, and arrived in Trona in the midst of a howling gale. Given quarters in a very comfortable building,



A sign posting truck of the Royal Automobile Club of Southern California negotiating a mountain grade.

through the courtesy of the Superintendent of the Trona Company, we spent the rest of the day there.

The next day we retraced our course on through Ballarat and entered Wild Rose Canyon. The man who bestowed that name on this verdureless and flowerless gash across the barren peaks must surely have had the imagination of a poet. This twin-brother to "the rocky road to Dublin" led into the famous, or, rather, infamous, Devil's Causeway, known as Emigrant's Pass. This is a first cousin to "Thou Shalt Not Pass," and is without doubt the roughest stretch of rock-ribbed half-trail that an automobile ever hop-scotched over. The alleged road followed the crooked meanderings of a so-called "wash" or dry bed of a mountain stream of varying depth, garnished thickly with boulders and pebbles of unequal sizes and shapes. The car did not move six inches in the same direction, but ducked, side-stepped, wobbled and criss-crossed along this shifting debris at the rate of about three miles an hour. At one point of the Pass a huge rock stood, which we named "The Sphinx of Emigrant Pass." Stolid, serene, and granite-carved by the hand of the Almighty, it seemed mocking at the departed wraiths of the Mormon emigrants who had passed through the gorge, each one of them but a speck of sand compared to this iron-featured bas-relief of eternity.

Emerging from this welter of stony ruts and seams, we came out on a narrow plateau, which showed the dim impression of waggon wheels. Just before we left the

Pass we had encountered an Indian and his family of a squaw and two papooses travelling through the defile in a rickety spring waggon. Met in this lonely crevasse, he seemed a coppery Rip Van Winkle trailing down the mountain-side after a twenty-years' slumber. The imprint of these iron tyres was the only sign of traffic along this high tableland. And now, as we halted and looked south and north, before us lay Death Valley.

It presented a weird sight. Over the floor of the Valley, curving and swirling like figures in a ballet, tall, yellowish sand spouts twisted and gyrated in a veritable dance of death. It was an exhibition of demoniacal Terpsichorean genuflections, both fascinating and repulsive. These desert Salomes seemed to be dancing for our heads before an unseen Herod. Was it minuet, gallop, or waltz? It was unique, magnetic, distinctive. The wind waltzed that day with the sand for his partner.

As we descended from this elevation we thought the worst travelling was over. But we were mistaken. From the summit stretched a slope, which is aptly known as "Hell's Toboggan." It is twenty miles long, and valley-wide, extending to the sandy edges of the Valley's level. Clawed at by the rushing floods which drop down intermittently from the surrounding mountains, crossed and recrossed from stem to gudgeon by a network of both shallow and deep gullies, all of these strewn thickly with rocks, shale and flinty fragments, some on the surface, and others half buried in the sand, it made a surface difficult to

travel across. There was no road to follow, and only an occasional strip of sand disclosed the faint traces of the Indian's waggon wheels. Progress down this rocky slide was painfully slow, but at last we reached the floor of the Valley.

Here we found everything blanketed by a four days' blizzard of circling sand spouts, the entire Valley being swathed in sandy folds of a tawny-grey colour, in which the automobile struggled valiantly to make headway. Southward the sands still whirled and rose and fell. East and west the sullen and bare mountain ranges stared at us. Overhead the sun beat down on the sodden expanse of powdery sand. A few stunted creosote bushes, or "greasewood," in desert parlance, made shift for vegetation. Not a tree, not a shrub, not a flower, nor even a blade of grass. Of animal or bird life there was none. Not a buzzard, nor a crow, not a centipede, gopher, wolf; not even a rattlesnake, as it was too early in the season for these Valley favourites. Sand, sand, sand, and utter desolation.

We finally came across a sign which read "Stovepipe Wells five miles." *Prima facie* evidence indicated that some one might have crossed that way, possibly in the Fall of 1872, or the Spring of 1873. At any rate, we turned in at this point, and began to "buck" the dunes. It meant "jacking" up the rear tyres every three feet in the worst places, and a rate of progress which, mathematically figured out, would bring us to Stovepipe Wells in approximately four months. Not being provisioned for any such siege, we backtracked to our starting point.

Making a detour to the right, and then, finding some less sandy but very rough going, we at last arrived at Salt Creek Crossing. The Salt Creek was there all right, but as for the "crossing" it was nowhere in sight. This spot was a salt marsh, with a shallow saline current running through it. On our side of this little stream for about 100 yards the near-road was slashed and cut into deep ruts and holes in the boggy, sticky soil. On the opposite side of the creek the same condition existed for a distance of at least 300 yards. These ruts and holes were from a foot to two and one half feet deep. It was a regular Slough of Despond, and its course was as crooked as a dog's hind leg. The sandstorm had apparently not touched

it, for the surface was just marsh, mud and mire. We halted at the edge of the soft ground on our side, and held a council of war. The result of our talk was a determination to "buck" the crossing in the morning. Anything was better than a return over the ground we had traversed. It was true that we would have to risk breaking some part of the car, or getting stuck in the deep mire, but back of us lay "Hell's Toboggan" and "Emigrant's Pass," and to retrace our journey over either of these was unthinkable.

That night we camped out in the Valley. We laid our mattress on a rocky slope, spread out the blankets and turned in, using our heavy coats for pillows, and sleeping, as usual, in our clothes. There was not a sound to be heard. The stillness of death was not to be compared to the dense silence. You felt as though you were leagues underground, or at the bottom of the sea. There was a hushed expectancy in the air which would have made the barking of a coyote seem like music to the ear. No hum of an insect, no breath of a wandering night-wind, no velvety passing of a bat's wing. Just quiet, and the fields of heaven sown thick with flaming stars. I tried to find Jupiter (Mushtari) in this maze of coruscating light. It might be that in that planet some one was watching this earth as I was watching now. A falling star to the south lit up the sky for a moment. Will this star, our world, so disappear? It may be so!

*"And thus the race of Being runs, till
haply in the time to be
Earth shifts her pole, and Mushtari-men
another falling star will see."*

In the morning we discovered that we had slipped from the mattress, as our heads were lying on its edge, and from the neck down we had slept on the hard couch of the desert. As we shook our blankets a huge spider dropped off, and was killed by a blow from the shovel. This spider, and a cloud of gnats, later, made up the only signs of life in the Valley. After breakfast one of us took the axe and cut down a cord of scrub mesquite to corduroy the worst places at the crossing, but this stuff was found to be too thorny to trust the tires on. So, after putting in dry sand and brush in the deepest ruts, we put on the chains and decided to rush the ford.

One of the men stood across the creek as a sort of human "Exhibit A," to give the man driving the car a point to head for after getting over the water. A quick turn was necessary by the driver in order to get over the winding course of ruts, these giving the only possible chance of reaching the solid ground beyond the bog. It was a forlorn hope, at the best. Lewis took the driver's seat and started at a point a little way back of our side of the crossing. Talk about "Sheridan's Ride" or the "Charge of the Light Brigade," they were not in it with this mad rush. As John Hay wrote in one of his Pike County Ballads:

*And hell-to-split over the prairie
Went team, Little Breeches, and all."*

30 miles to a settlement, and more miles to get water than any of us would have covered in many hours. The slightest deviation from the crooked line of trail during that wild ride would have locked the car for probably a day or two. However, we won by a hair.

After getting on to the sandy and shale-strewn ground beyond the salt marsh we found another sign, almost buried in the sand, with the inscription "8 miles to Stovepipe Wells," and "18 Miles to Furnace Creek." The arrow to Stovepipe Wells pointed to an abrupt rise over a bank of sand. No tracks of any sort of vehicle were apparent. We got out and made a reconnoitering trip; Behan one



A sign posting party on the road.

The car struck the soft ruts on the west side of the crossing, bounced into the ditch, leaped out, hit the salt marsh on the other side, dodged the man-post, swerved to the 300 yard stretch of deep ruts to the left, and then plunged with stiff buck-jumps along these twisting holes at a pace and under circumstances which seemed to inevitably mean the wrecking of the machine. How that car managed to stand the strain it went through is still a mystery to me. It was in the air more than half the time, with daylight showing between its tyres and the mud-holes. As for Lewis, he was doing a flying trapeze act most of the time.

The slightest pause would have meant the car's sinking to the hubs. The breaking of any part would have meant walking

way, Lewis another, and myself in still a different direction. The winds and sand-augers had made turbulent havoc during the late storm, and the sand dunes had been stripped of their top surfaces to cover the Valley. And on all sides the winds had carved and fashioned the most curious and sculpturesque effects on the glimmering sands.

Friezes, gargoyles, arches, fanes, grained and fluted columns and pillars of sand were scattered about. Architectural resemblances to the Doric and Ionic (not to mention the ironic) architecture of Mythology appeared here and there, as smoothly build by the action of the tempest as by the square and trowel of a master-workman. It seemed incredible that the winds

could mould this almost impalpable substance into such shapes and figures, and leave them etched like intaglios upon the shield of the desert. And they all had a peculiar glamour, an alluring magnetism of unreality that was uncanny, and hinted of peril. It was as though one were looking through the bars of a cage at a blinking yellow-eyed Bengal tiger, and was tempted to draw nearer and stroke his shining fur.

But road, or sign of road, there was none. We came back to the car, and started to "buck" the sandy rise that pointed Stovepipe Well-ward. At the first plunge we sank hub-deep, chains and all. We then "jacked" up the rear tyres, built up the ruts with sand wet down by the water from an adjoining well, and made another effort. The car lunged forward about a foot, sank to the hubs once more, and the rear tyres spun backwards when power was applied. Again we laboriously raised the machine, packed in sand, wet it down with salt water, and put greasewood brush on top. A third plunge netted us the usual 12 inches of advance. We examined the slope above where the car was stuck, and the route beyond. Soundings with a stick gave a depth of sand ranging from three to ten feet. There was nothing to do there but "pass up" Stovepipe Wells.

The next recourse was to try for Furnace Creek. This route led down the Valley. Again we scouted for possible road signs, but found practically nothing. The sand had swallowed the "highway system" of Northern Death Valley for the time being, and storm, the premier map-maker of the district, had taken charge of the roads. We were derelict on a sea of sands. The sun shone, the air twinkled and trembled, the dusty mountain ranges on either side of the Valley looked menacingly down, and the sand basked and dilated like embers in the enveloping sunshine. Everything in the shape of a trail was blotted out, and to reach our destination by trying to cut through these sand-beds was more uncertain than a 1,000 to 1 shot. There was nothing that we had lost at either Stovepipe Wells or Furnace Creek, so we came back to Salt Creek Wells. When the sands have been sifted over Death Valley for a few days by means of whirling sand-augers

there are two kinds of roads left, the impossible and the impassable.

We left the Valley and headed for Beatty, by way of Bullfrog and Rhyolite. It was 30 miles away. We still had hundreds of miles of uncharted roadways to cover to the north-east throughout Northern Nevada, and our route lay in that direction. The road to Boundary Canyon from the Valley was not even a trail in many sections, but once we struck the canyon the rest was easy, except for a few rough places. We stopped at Bullfrog to pay our respects to the clouds of ghosts that inhabit that deserted mining town.

Everything was empty, deserted, abandoned. Not a man, woman or child was visible. Not a cat, rat or chicken in the town. Where 20,000 people once gathered there was blank silence. It was a place of spirits, a mausoleum of memories, a shattered vase of loneliness. To walk about the streets and peer into bare rooms and stripped interiors, to meet no one, to see no one, to hear neither human voice nor childish laughter, to find not even a stray dog or wandering burro about, was to feel that a plague had fallen on the town. And yet, if a "strike" were to be made in the vicinity all those dead structures would teem with life again, and the naked streets resound with the tramp of thousands.

From Beatty we drove to Las Vegas and Moapa, and from there we came to Maynard Lake, with Alamo as our next stop. Again we were faced by a tough situation, and again we decided on chancing an uncertain passage through the lake. By climbing the steep hills close to the lake shore one of us reached a camp at the upper end of the lake and hired a team to tow the car through the lake. Once more Lewis was elected to do the steering. The engine was "killed," the coils lifted up from all possible contact with the water, and the watery procession of horses and automobile started through from three to four feet of water close to the lake's edge. Guiding the car was solely a matter of faith, as the road had been washed away by high water. Again luck favoured us, and the car got to the camp safely.

By reason of the flooding of its floors and interior, the car balked, and refused to run that night. So we turned into a little tent with our mattress and blankets, sharing the small space with a "flu"

patient, who barked vociferously all night. At daybreak we made coffee, cooked breakfast, and then left for Alamo. From there we branched off to Caliente, and swung back to Hiko, where we saw one of the old Mormon waggons which had made history in those parts.

From there we took the Corn Creek road and returned towards Las Vegas. We camped that night on a wind-swept plateau as cold as Greenland. The man in the middle slept peacefully, but Messrs. Starboard and Larboard Watch, respectively, lay awake and counted the stars until daylight. After breakfast and a cursory summary of the situation we decided to drive day and night until we reached Los Angeles. One meal at Barstow (the last time I will eat ham and eggs for 20 years), and we wheeled into Los Angeles, happy, un-

shaven and unshorn. We had covered 1,779 miles, and made many hundreds of miles of roadways ready for signs which would vitally aid travellers in getting to Southern California, and in getting through the country from many hitherto unsigned and remote localities. We had reached every necessary point in our journey for completing our sign-posting programme later, and the trip, though difficult, was entirely successful.

Death Valley! Oh, sombre-clasped and sinister abode of weaving sands and dazzling sunlight, half-obliterated trails, and funeral drapery of withered greasewood and dull-coloured mountain ranges. Land of tragedy and bitter waters. A land that is lonelier than ruin. The graveyard of hope, the fitting home of Doubting Castle and the Giant of Despair.

CAMMERAY GOLF CLUB.

(Continued from Page 919.)

of the park be secured, can look forward to a long and prosperous future. It is only a little more than half an hour from the G.P.O., and during the summer months offers a chance to the business or professional man of a few holes after the conclusion of his daily duties.

CLUB PERSONALITIES.

K. J. Pope, the captain, is the leading player of the club. He has won the championship five times during the last eight years, which is, with but one exception, every time he has competed for it. He was absent for two years at the war. Mr. Pope has a free natural style, drives a long ball, is a fine mashie player and deadly putter. He needs only the time and opportunity to play more on longer courses to become one of the best scratch men around the metropolis.

Mr. C. B. Smith and Mr. J. H. Davies are ranked next to Mr. Pope by the handicappers, there being only one stroke between their handicaps and his in match play. Mr. Smith is a very promising player. He learnt his golf at Cammeray, but lately has been playing mostly at Manly, where he did the sensational score of 74 off the club. He also did a fine score of 77 in the Concord Cup, and won

the concurrent handicap event. He won the Cammeray championship in 1921, defeating Mr. E. McElhone in the final. Perhaps the outstanding feature of Mr. Smith's play is his phenomenally long driving, which leaves his opponent playing the odd most of the time.

Mr. Davies won the club championship in 1918, and was runner-up to Mr. Pope in 1920. He has been a member of the club since 1916, and has qualified each year since 1917 for the knock-out competitions for the championship.

Mr. E. McElhone, who was runner-up to Mr. Smith in 1921 in the championship, has the distinction of being the only player to defeat Mr. Pope in a championship game—the semi-final of the club championship of 1921. However, he was indisposed in the final match, and did not do himself justice. He is a very steady player, with a fine match playing temperament.

Mr. A. F. Smith is a rising young player. He reached the final of the championship in 1922, but was beaten by Mr. Pope. He drives a very long ball, and is a good firm putter. His pitching is the weakest part of his game, but that is improving, and he should soon prove a formidable opponent.

Mr. G. F. Allman is a greatly improved player, and always figures in the prize list. He did a 69 recently.

In Radio Land

A HETERODYNE WAVEMETER FOR TRANS-PACIFIC TESTS

RANGE 150-485 METRES

By C. D. MACLURCAN.

CONSIDERABLE interest is now being taken in the forthcoming Trans-Pacific Wireless Tests, which are to take place early in May next.

For the successful reception of these C.W. signals it is practically essential that a separate oscillator be employed, in order to avoid interference between various stations listening-in.

The Heterodyne Wavemeter to be described hereunder has been designed especially for this purpose, and will have a wave length range of about 150-485 metres, so that it will be equally useful for reception of an Australian amateur transmitting wave lengths 400-425 metres. It may be used for a variety of purposes, either as a wavemeter for measuring received or transmitted waves, or as an independent oscillator for the reception of C.W. signals. It can be very easily constructed, as both the design and circuit are extremely simple. The filament battery used for the main receiver may be employed

for the wavemeter valve, but it is better to use separate L.T. and H.T. batteries.

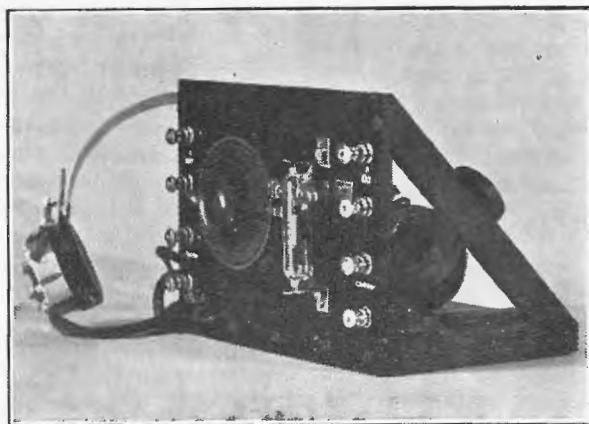
The circuit is given herewith.

The valve is preferably a V-24, owing to its low capacity and also the low value of H.T. voltage necessary to make it oscillate. When completed with one of these valves the instrument will usually oscillate

with only 6 or 8 volts, H.T., though the writer uses a 31 volt Ever-ready unit for convenience. Any other make of valve may be used however, provided it does not require too high a voltage to make it oscillate.

If a four-volt accumulator is used to light the V-24 filament, no series resistance will be necessary, but if preferred a six-volt accumulator may be employed with a

fixed resistance of about $1\frac{1}{4}$ ohms., mounted behind the panel. It is neither necessary or desirable that a variable filament resistance be used, as, once the heterodyne has been calibrated any variation of filament brilliancy will result in an alteration of wave length. For the same reason the



This compact and efficient heterodyne wavemeter, with a tuning range between 150 and 485 metres, was specially designed and built by Mr. Charles Maclurcan for use in conjunction with the forthcoming Trans-Pacific Tests. At the extreme left is seen the single Brown head-set receiver; left side of panel variable tuning condenser; right side of panel "V-24" valve; and at extreme right of photo., mounted behind panel, will be seen the coupling coil.

H.T. voltage should be kept the same as that used at the time of calibration.

The inductance coil L^1 is wound on a cardboard tube $2\frac{1}{2}$ inches diameter by $2\frac{3}{4}$ inches long. The tube should be well shel-laced to keep out all moisture. The wind-ing consists of 60 turns of No. 28 gauge D.C.C. wire, with a tapping taken out half way at the 30th turn. This centre tap should be connected to the positive side of the filament battery. By using a single coil with a centre tap in this manner the construction becomes easier, and it is im-possible to have the coils reversed. The circuit can then be connected up without previous trial, and is certain to oscillate.

The variable tuning condenser C^1 has a maximum capacity of approximately 0.0005 M.F. A suitable condenser for this purpose is most conveniently purchased ready made, but if it is preferred to build it up from component parts, it will be convenient to use eight mov-able plates of diameters $2\frac{7}{8}$ inches and $3\frac{1}{4}$ inches respectively, spacing between the plates being $\frac{3}{32}$ of an inch. The

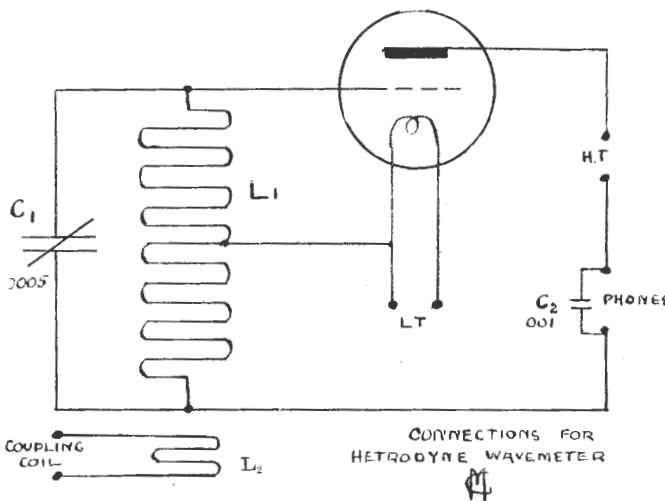
condenser scale is of the flat metal or cel-luloid type, and not the usual bevelled-edge ebonite dial. The former kind of dial lends itself to more accurate readings, as a small metal pointer may be bent over the scale markings, which are usually much finer and more accurately spaced. The condenser may be calibrated either in actual wave lengths or degrees. The later method is, of course, to be preferred, and when used a card is required, giving the wave lengths which correspond to the different degrees on the condenser. This system allows of a periodical checking of the accuracy of the wavemeter.

L^2 is a small coil of six or eight turns of wire suspended inside the cardboard tube of L^1 in such a way that it can be

turned through an angle of 90 degrees. The ends of this coil are brought to two terminals marked "coupling." By means of this small coil the heterodyne may, if desired, be coupled to the receiving circuit, if it is incon-venient to place the instrument close enough to the receiver to cause beats of sufficient strength. It may be wound on a wooden or cardboard spool $1\frac{1}{2}$ inches diameter by $\frac{3}{4}$ of an inch thick. It is rotated by a wooden spindle with an ebon-ite knob coming out at the back of the panel.

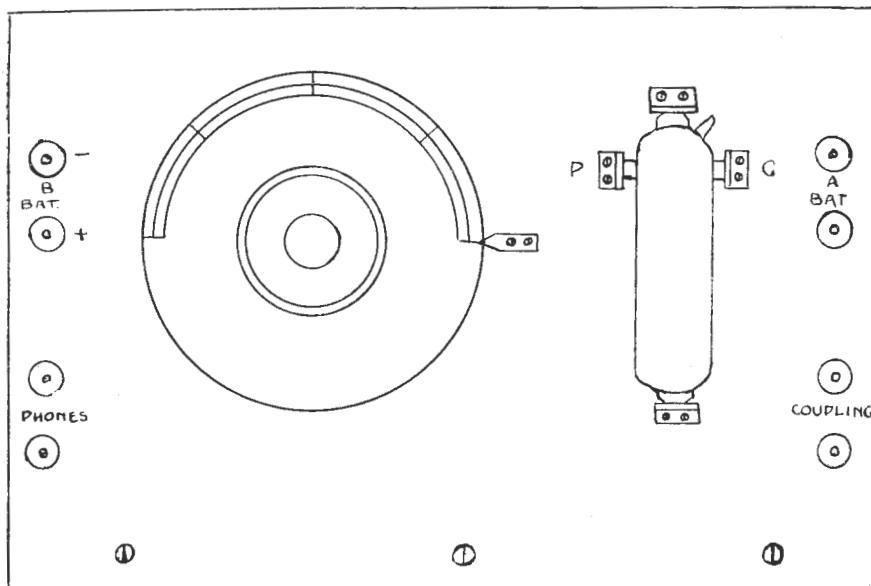
The parts are mounted on a $\frac{1}{4}$ inch ebon-ite or an $\frac{1}{8}$ inch bakelite panel, 6 by 9 inches. This is screwed to a wooden base 6 by 9 by $\frac{3}{4}$ inches. Two light wooden side pieces support the panel from the top to the outer edge of the base.

The tele-phones are of the low resist-ance type, although high-resistance 'phones can be used. Changing from high to low resistance 'phones causes an appre-ciable change in wave length however. High-resistance tele-phones give the plate oscillatory circuit a slightly



greater wave length. To obviate this effect on wave length a small fixed condenser C^2 of about 0.001 M.F.D., is placed across the 'phone terminals. This condenser does not affect the tuning, but offers an easier path for oscillations than through the 'phones, which, even when of the low resistance type, possess considerable imped-ance, which tends to prevent the valve oscil-lating. Comparison of results obtained with and without this condenser shows that the oscillations are appreciably feebler without the condenser.

The terminals marked " 'phones" may be short circuited with a brass link, if it is desired to use the wavemeter solely as a separate oscillator; but if extreme accuracy is required it must be remembered that



—Chas. D. MacLurcan.

Plan of heterodyne wavemeter. Half full size.

removing the 'phones will cause an alteration in wave length; that is, of course, provided the instrument had been calibrated with the 'phones in circuit.

The "B" battery may consist of six or seven ordinary flash-lamp batteries, giving about 30 volts. The valve will easily oscillate on about 10 volts, but it is better to use a voltage which will give fairly strong oscillations.

Calibration.

The wavemeter should be calibrated from a standard heterodyne meter for extreme accuracy. It can, however, be fairly accurately calibrated from an ordinary buzzing wavemeter. The standard is set at known wavelengths and the oscillating meter brought near it, so that the damped waves are "heterodyned." The condenser is turned until the buzz is heard in the telephones. The loudest part of this buzz is found and the condenser scale is marked with the wave length as given on the spark wavemeter. In a similar manner the whole scale is calibrated at intervals of, say, 25 metres.

Once such a standard wavemeter is calibrated any number of similar wavemeters

may be calibrated from it in a like manner with very great accuracy—in fact, to within a few metres. It will be noticed during calibration that the capacity of the hand will cause an inaccuracy of a metre or two in the wave length denoted, unless the hand is taken right away. For a similar reason there should be no earthed objects in the vicinity of the wavemeters. A metal foil casing round the wavemeter, preferably earthed, will overcome largely these capacity effects.

An instrument of this description is extremely sensitive and the slightest changes of wave length can be observed to within a few metres. Even the changing of the valve would necessitate a recalibration of the instrument if particularly great accuracy were required. For practical purposes, however, one or two metres make no difference, and sufficiently accurate results may be obtained by the use of the wavemeter described.

Readers who decide to construct a wavemeter like the above may bring them to the writer, who will be only too pleased to carry out the calibration for them.

PATENTS

IN a recent editorial a contemporary undertook to inform the public regarding the Patent possibilities in Australasia. This is a most involved subject, and we would not attempt to enter into details, but that we fear some well-intentioned persons will be grievously misled by the article in question.

Amalgamated Wireless (Australasia) Ltd., with over 400 patents undoubtedly controls the situation, and we earnestly counsel any person contemplating entering the wireless sphere, especially as manufacturer or dealer, to seek the best legal advice from a Patent Attorney rather than act in accordance with ill-considered advice, such as that in the article we refer to.

Without concerning ourselves with those patents of detail connected with manufacturing processes or parts such as potentiometers, grid leaks, and variable condensers, we especially draw attention to some of the fundamental patents which are entirely overlooked by our contemporary.

For example, it is stated that, "using the secondary of an inductance as a feed back coil in the plate circuit, is covered by the patents of Major Armstrong," and manufacturers are further recommended to communicate with his (Major Armstrong's) solicitors to find out if they can use the Armstrong regenerative circuit. Also one is told that to a simple non-regenerative circuit a one, two or three stage audio frequency amplifier may be added without infringing patents.

We advise our readers to have nothing to do with counsel of this sort. In the first place the Armstrong circuits referred to are not patented in Australia at all, but similar circuits are covered, and covered in an even more comprehensive manner, by patents issued to Arco, Meissner, and H. J. Round, while both radio frequency and audio frequency amplification are completely covered by patents issued to Schoemilch and Von Bronk.

In another part the editorial quoted states "that a valve receiver employing a tuning inductance, loose coupler, vario coupler, or a pair of honeycomb coils can be manufactured having the secondary coil of any of these inductances for the purpose

of energising the grid circuit of the system." The veriest amateur knows, however, that such a receiver would be useless for the reception of signals, unless a potential is applied to the grid. This would immediately bring the manufacturer into conflict with a patent issued to Reisz and Strauz, or if the necessary effect were obtained by the use of a grid condenser and grid leak resistances Langmuir's patent would be immediately involved.

Any form of value oscillation generator is protected by a Commonwealth patent issued to Arco and Meissner conjointly, while the use of a separate heterodyne for beat reception is covered by another patent of Langmuir's.

We think that we have indicated sufficient to show our readers the danger of taking advice from any but the most expert.

For our own part we would not attempt to cover such a field as touched on herein.

Let us add, however, that there are hundreds of patents, perhaps of slightly lesser importance than those mentioned, which support the design and application of valve receiver accessories, such as radio frequency transformers of both high and low resistance, and the connection of valves in cascade or radio and audio frequency amplification by the resistance capacity method.

As for transmission our contemporary wisely says very little.

We can, however, assure our readers that there is no method of valve transmission known in Australia to-day which not conflict with one or other of the many patents, the rights to which are held by the Amalgamated Company.

The importance of this subject cannot be too strongly emphasised, for it must be remembered that the patent laws operate, not only against the manufacturer and dealer, but the user or even the possessor of any infringing apparatus, whether he is holding the same for purposes of pecuniary gain or not, and we once more advise any person contemplating the manufacture of wireless apparatus to seek advice from the best patent attorney. The small sum such advice will cost will be money well spent.

WHAT THE CLUBS ARE DOING

WIRELESS INSTITUTE OF AUSTRALIA.

N.S.W. DIVISION.

ON February 1 the members of the Wireless Institute of Australia (N.S.W. Division) were treated to one of the best and most instructive and illustrative demonstration lectures ever given before that body. Mr. Edgar Booth, M.C., B.Sc., was the lecturer, and the meeting was held in the Physics Hall of the Sydney University. Mr. Booth chose for his subject, "Sound Ranging in Peace and War." Several gentlemen prominent in scientific circles in Sydney were present at the invitation of the Council, including Rev. Father Pigot, of Riverview College, and H. H. Dare, Esq., M.E., Commissioner for Irrigation in N.S.W.

Sound has a great bearing on Wireless Science. As is well known, the indication that a wireless signal has been detected is made audible by the oscillation of a sensitive diaphragm actuated by the oscillating magnetic field, which causes the air to vibrate; then if the head receiver is placed close up against the ear, the sound waves in turn operate on the membrane of the ear. Mr. Booth mentioned that the human ear was one of the most sensitive detectors of sound known at present. He demonstrated in a most practical manner that the ear is also a most accurate direction finder.

A noise is made, and immediately the human being commences to search for the direction in which that noise came by turning his head to the side of whichever ear heard it the strongest. The difference in the frequency of two rotating machines is easily discernible, in fact experts can tell the characteristics of many machines by listening to the noise when the machines are running. The lecturer gave demonstrations of how the direction and location of enemy guns was obtained in the late war. An illustration was thrown on the screen depicting the various oscillations set up by several detecting microphones when a gun was fired, and with these detectors located at various pre-determined spots, it was possible to accurately determine the direction and the exact location together with the calibre of the enemy gun. Then there was the application of sound ranging to "tunnelling." All are quite familiar with the press reports of the blowing up of huge mines during the war. The importance of this sphere of warfare was very great, and it was also imperative not only to dig under the trenches and blow up the enemy, but to ascertain if the Hun was doing likewise; then if so, to counter his moves.

Many other means of obtaining information by sound methods were demonstrated. Then there was the detection of enemy aircraft and submarines, all brought about by the sound ranging section of the army.

So far as the application of sound rang-

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“RADIO”

A NEW WIRELESS MAGAZINE.

Commencing with the April issue, “Sea, Land & Air” will be incorporated in a new magazine, to be issued fortnightly under the title of

“RADIO”

This new magazine, which will sell at 6d. per copy, will be issued each second Wednesday, the first issue to appear on April 4. It will be on sale at all Bookstalls and News Agents in Australia and New Zealand, and the contents will be devoted wholly to Radio.

Experimenters and enthusiasts will soon find in “Radio” the magazine they have been waiting for. It will be up-to-date in every respect, and will cover the field more thoroughly than any other similar publication in Australia has been able to do. The subscription will be only 10/- per annum for a total of 26 issues.

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ing to civil life is concerned, the lecturer ably demonstrated the many advantages to be gained in furthering this branch of science.

It is quite possible to register in a most accurate manner minute earth tremors both in direction and magnitude. Mr. Booth showed a film which clearly indicated the normal vibrations of the earth, these often reaching quite a large relative value.

The piloting of ships in a fog was possible with sound detecting instruments called the "Geophone." A further application in that of detecting criminals was mentioned by testing the sudden response to certain parts of the nervous system during interrogation.

Mr. Booth delighted the members with a practical demonstration of amplifying the ticking of a watch. The watch was placed on a carbon rod transmitter, and the ticking was amplified by a 5 valve set of V 24 tubes to a Browns loud speaker, and the audience was able to hear the sound. Mr. Booth mentioned the desirability of further research in the subject of sound ranging, but deplored the apparent lack of money and interest displayed by the powers that be.

At the conclusion Mr. Bartholomew (President of the Institute) moved a hearty vote of thanks to the lecturer, which was carried by sustained acclamation. Mr. Booth suitably responded. Members and friends were then invited to gather round the huge table of interesting apparatus that really reflected great credit on Mr. Booth for having gone to so much trouble.

Seeing that the Institute has embarked upon a new era in regard to more scientific lectures, etc., the members can count themselves very fortunate in having such an interesting lecture and demonstration to commence the year 1923. An earnest endeavour is being made by the Council to continue along these progressive lines. At the last meeting of the Council it was decided to appoint a sub-committee to investigate the advisability of holding a wireless exhibition in Sydney in the near future. Messrs. Crocker, Basil Cooke, and Mingay were appointed to the committee. A complete report on this matter will be delivered to the Council immediately, so that the organising can be pushed on with. It is recommended by the sub-committee that the ex-

hibition of wireless and allied apparatus be held in Sydney Town Hall basement in June next, for the duration of a whole week, from 10 a.m. to 10 p.m., open all the time. All the wireless traders and manufacturers have consented to support the project, and it is anticipated that this exhibition will be one of the best displays held south of the line. Further details concerning this will be published in our next issue.

The Institute has increased the subscription fees to £3 3s. for members, and £2 2s. for associate members. The hon. secretary, Mr. Phil Renshaw, can be communicated with c/o. Box 3120, G.P.O., Sydney.

The next meeting will be held on Thursday, March 1, at the Railway Institute Rooms, when an entertaining lecture will be delivered.

ILLAWARRA RADIO CLUB.

The Illawarra Radio Club (N.S.W.), just over seven months old, has made considerable progress. Formed in July last with the object of bringing together wireless experimenters in the Illawarra suburbs, it has undoubtedly filled a long felt want, which is shown by the large number of local amateurs who have joined up, the membership roll now being well over thirty, and new members are still steadily rolling in.

Since its inception regular fortnightly meetings of the club have been held, at which lectures, buzzer practice, demonstrations, talks on constructional details of apparatus, questions, debates, &c., have been given for the edification of members.

To augment club funds to enable apparatus to be purchased a successful picture show and wireless entertainment at Kogarah was held in December last. Although conditions were far from ideal for best results, Mr. C. A. Gorman skilfully operated the set—constructed by him—and in conjunction with a Magnavox, remarkably good results were obtained. The musical numbers (which were transmitted by Mr. C. D. Maclurcan) came out very clearly to the enjoyment of the audience. The entertainment served to bring the local amateurs before the public, and show what they were capable of in the way of wireless musical entertainment, as well as

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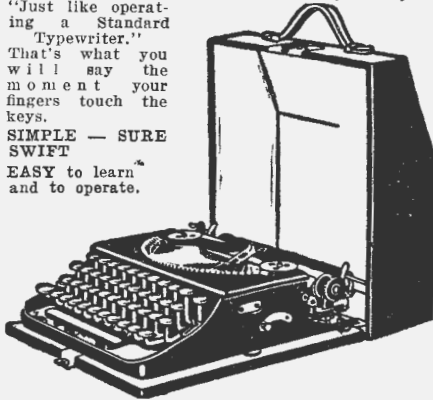
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resulting in a substantial addition to the club funds, enabling the acquisition of the various important items towards the set.

The question of sets for the club has been the subject of considerable discussion at recent meetings. A single valve receiving set is now about to be put into operation in the club-room, and in the not far distant future it is intended also to instal a transmitting set. A transmitting and receiving license has already been applied for, and will be held by Mr. C. A. Gorman as trustee for the club.

The forthcoming Trans-Pacific tests have created keen interest among the members, and have come in for a great deal of discussion. Although the club will probably not enter as such, several of its members will no doubt take part in the tests.

The club is represented by Mr. C. A. Gorman (delegate) on the Council of the Radio Association of Australia (N.S.W. Division), whose activities and development are watched with much interest.

An exceptionally well-attended meeting of the club was held on February 1, on the occasion of a lecture by Mr. J. G. Reed, (radio engineer, Amalgamated Wireless, Australasia, Ltd.), on "Short Wave Transmitters and Receivers." Mr. Reed dealt with this comprehensive subject in a most illuminating and instructive manner, illustrating the lecture throughout with innumerable circuits and diagrams. At the conclusion of the lecture Mr. Reed was accorded a hearty vote of thanks, and had conferred on him honorary membership of the club. In responding Mr. Reed spoke in appreciation of the warm reception given him by the members, and hopes to visit the club on many future occasions.

The club meets every alternate Thursday at the club-room, 75 Montgomery Street, Kogarah, where visitors are assured of a cordial welcome at any time. The secretary (Mr. W. D. Graham, 44 Cameron Street, Rockdale), invites inquiries concerning the club, and would be pleased to hear from anyone interested, or desirous of becoming a member.

LEICHHARDT AND DISTRICT RADIO SOCIETY.

Members of the Leichhardt and District Radio Society commenced New Year activities by holding their twelfth general and fourth business meeting in the new club-room, Victory Hall, Johnstone Street, Annandale, on January 9 last.

After formal business, including the election of four new members, had been dispensed with, members were introduced to Mr. A. Atkinson, hon. secretary of the recently formed Radio Association of Australia, who addressed the meeting at considerable length on the past and future work of his association. Mr. Atkinson supplied members with much valuable information, and was accorded a hearty vote of thanks by acclamation at the conclusion of his address.

The thirteenth meeting held on January 16 was a purely informal one, and members spent the evening at Morse practice, and a discussion on wireless matters generally.

On the following Tuesday the fourteenth meeting was held, and members were addressed by Mr. Malcolm Perry, chairman of the Trans-Pacific Radio Tests Organisation Committee. Mr. Perry spoke at length on the many phases of this very important subject, and was accorded a vote of thanks by acclamation after he had concluded his very interesting and informative address.

Mr. W. J. Zech delivered the first part of a lecture on Inductance at the fifteenth meeting held on January 30, and was accorded a vote of thanks. Later, members entered into a general discussion on the subject of the erection of an aerial on the Society's premises, and many useful and valuable suggestions were put forward by members and adopted.

THE NORTH SYDNEY RADIO CLUB.

Despite the set-back received by the North Sydney Radio Club through the damage sustained to their apparatus, the members have not allowed this to restrict their activities in any way, and a number of technical lectures by Messrs. McIntosh and McClue helped to make last month's programme a most successful one.



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The return of one of the oldest members of the club, Mr. C. Lisle, from his trip to England, should benefit the club considerably, inasmuch that Mr. Lisle during his stay in England gained an extensive knowledge of the conditions and developments with regard to radio ruling there.

A very attractive syllabus has been arranged for the current month, including the following lectures:—February 3, "C. W. Receivers," by Mr. C. McClure; February 27, "Methods of Using the Valve as an Amplifier," by Mr. Raymond McIntosh. The above lectures will be delivered at North Sydney Radio Club's rooms, corner Alfred and High streets, North Sydney, at 8 p.m. on the dates mentioned.

METROPOLITAN RADIO CLUB.

ANNUAL MEETING.

A large attendance of members filled the Laurel Cafe, Sydney, when the first annual meeting of the club was held.

The following executive officers were elected:—President, R. C. Marsden; Vice-president, Atkinson; Hon. Secretary, C. R. McKenzie; Hon. Treasurer, Miss F. V. Wallace; Committee, Messrs. D. McIntyre, S. Atkinson, W. Cotterell, and P. Sewell; Delegates to the N.S.W. Radio Association, Mr. Marsden and Mr. Atkinson.

The club has decided to officially enter for the Trans-Pacific Radio Tests, and will also later conduct experiments in wireless telephony. Meetings are in future to be held on Monday nights instead of Wednesday.

BALMAIN RADIO SOCIETY.

At the annual meeting of the above society held in St. John's Hall, Balmain, on January 9, the following gentlemen were elected officers for the ensuing year:—President: Dr. R. Stopford, M.L.A. Vice-president: Dr. R. G. Cookson.

Mr. A. Bogle was appointed acting secretary during leave of absence of the secretary, Mr. W. F. W. Riccord, and Mr. Preston was elected treasurer.

Technical Committee: Messrs. Dickens, E. Every, P. G. Stephen, and J. Mort.

The society has applied for a receiving (5 valve) and transmitting license, and is fortunate in having the expert services of Mr. P. G. Stephen, who has had practical radio station experience.

The committee's aim is to make the society the premier amateur radio society in Australia. Within a couple of months it expects to be housed in a permanent depot, which will be an up-to-date receiving and transmitting station equipped with the most modern apparatus.

The membership is steadily increasing, and at each weekly meeting there is always something of interest to hold the attention of all present. For particulars re membership, etc., apply F. W. Riccord, 77 Grove Street, Balmain. Phone, City 8602.

BOX HILL RADIO CLUB.

The fortnightly general meeting was held at the Recreation Hall, Box Hill, on January 25, Mr. Howden, President, occupying the chair. The reading and confirmation of minutes of the previous meet-

COUPON

Editor, "Sea, Land and Air,"

97 Clarence Street, Sydney.

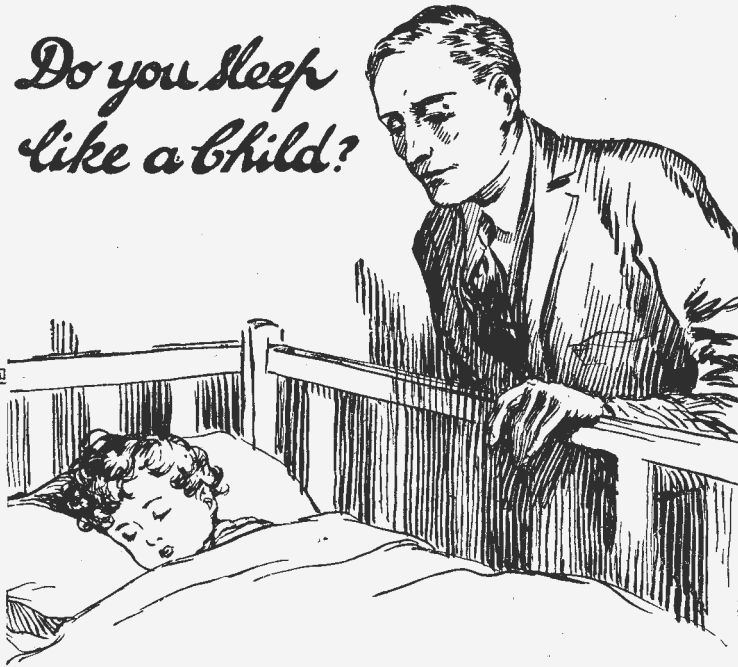
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ing and the report of the council meeting were followed by a lecture.

An Easter camping party to Britannia Creek is one of the functions now being organised by the club, and arrangements are already well in hand.

Social matters are also receiving attention, and the first dance of the season was held on February 12, Thereafter these functions will be held monthly.

One of the points incorporated in the rules of this club is that the council is to dispose of all business, leaving the general meeting to deal with wireless matters, lectures, buzzer practice, etc.

CAMPSIE AND DISTRICT RADIO CLUB.

The inaugural meeting of the above club was held at "Loch-Vennachar," Evaline Street, Campsie, on Monday, Jan. 8, at which there was a fair attendance. It is expected that the membership will be increased when the existence of the club becomes more widely known. After various proposals regarding the club had been discussed the following office-bearers were elected:—President: Mr. R. Shelton. Secretary, Mr. W. Hughes. Committee: Messrs. A. E. Steel, A. E. Keep, and G. Allingham.

After a number of points of general interest had been discussed the meeting adjourned.

The second meeting of the club was held at the previous meeting place on Monday, January 22, and the attendance was distinctly encouraging.

A proposal that the club meet weekly instead of fortnightly was agreed to.

A key and buzzer is now available for the use of members who desire to practice Morse code. The application for the club license has been left in the hands of the President, Mr. Shelton, who will hold the license on behalf of the club.

Efforts are being made to obtain a suitable hall for club meetings. The club extends a hearty invitation to members of other clubs to pay a visit on any meeting night, and offers from any radio enthusiasts to deliver lectures will be deeply appreciated.

Inquiries as to activities and membership should be addressed to the hon. secretary, W. Hughes, "Loch-Vennachar," Evaline Street, Campsie.

NEWCASTLE AND DISTRICT RADIO CLUB.

The membership of the above club, which meets every Wednesday at 8 p.m. at the club room, 25 Winship Street, Hamilton, now exceeds 60, and new members are joining up every meeting.

A radio exhibition was held on January 10 last, and some of the exhibits displayed—the work of members—were really excellent. At the last meeting on Wednesday, January 24, Mr. Stanfield gave a very interesting lecture on volt and ampere meters. Mr. Jerome, who donated 10s. to the club funds, received the thanks of the meeting.

The club's aerial has been erected, and is of the inverted L type, twin wire, 170 feet long and 50 feet high. It is situated on top of Cameron's Hill, Hamilton, directly over the club room.

Mr. Metham, a club member, has loaned his valve-receiving set to the club until its own set is installed.

The club is making application for a transmitting licence, and when this is secured intends giving all those who have suitable receiving apparatus a few radio concerts.

WESTERN SUBURBS AMATEUR WIRELESS ASSOCIATION.

During the last month a great deal of satisfactory and useful work has been

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carried out. In the first case transmission tests were carried out, but unfortunately no startling results were obtained, this being mainly due to an inefficient aerial and a very low power transmitter. The members then got together and quickly erected a single wire aerial, 60 feet high and 140 feet long. The results, although much better, were not considered good enough. A cage aerial consisting of four wires spread on hoops 2 feet 6 inches has now been completed, giving excellent results. The new transmitter is also nearing completion. Unfortunately the power for transmission is not yet available at the club station, therefore it is necessary for a power plant and generator to be constructed. This leaves members little time for other experimental work. Considering the club has now practically completed a 3-horse power petrol engine and $\frac{1}{4}$ kilowatt generator, it will be seen that members have been exceptionally active and energetic. The receiving set is a three-coil four valve set with one stage of radio and two stages of audio amplification, giving

excellent results. The complete set has been entirely constructed by the members. Not being satisfied with the receiving set as it was, members have gone so far as to undertake the construction of a loud speaker of the moving coil type. The club has also lady members, who first became interested by an invitation to listen to radio music. They greatly contributed to the success of the function held on October 28 last. They have also become very proficient in the handling of the club apparatus. The work carried out during February consisted of the completion of the transmitting apparatus and the erection of a tuned counterpoise, also a charging plant for members' accumulators.

The club meets every Wednesday at the club rooms, 77 Park Road, Auburn, the first Wednesday in each month for the transaction of club business, and other weeks for lectures, buzzer practice and demonstrations.

Intending members should communicate with the Honorary Secretary at 4 Charles Street, Lidcombe, N.S.W.

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A NOR'-WEST WILLY WILLY

By **GEO. J. WESTON**

Late Chief Operator, Roebourne (W. A.) Telegraph Repeating Station.)

OCCASIONALLY the newspapers publish reports of a cyclone visitation to which the north-western and north-eastern coasts of the continent of Australia are subject, but very rarely is a description of these storms published for the simple reason that they are indescribable, and an adequate version impossible to obtain.

This omission is also largely accountable for, first, those who have experienced these awe-inspiring manifestations are overwhelmed by the immensity of Nature's forces and their own puny insignificance and helplessness, they are more than satisfied they have been "permitted" to live through the experience and have no desire to "talk" about it; secondly, any relation of an experience of a cyclone savours so much of "Baron Manchausen" that one does not like to risk even a small reputation for veracity by relating quite a mild story of cyclones and their effects, especially to city friends.

Having experienced three of these storms, two in the North-West and one in North Queensland, the writer is prepared to affirm that it is impossible to exaggerate. The wildest stretch of imagination cannot conceive a 100 to 120 mile an hour wind with gusts of higher velocity, nor the effect of heavy rain when driven by such a force. One must actually see to believe.

The "willy-willys" of the North-West have collected their toll of brave lives. In one cyclone a whole fleet of pearling boats, consisting of upwards of 100 vessels, were

totally wrecked with great loss of life. An ocean-going steamship, the "Koombana," disappeared from human knowledge with every soul on board during a "willy-willy."

On the North-East coast, the steamer "Yongala," a ship large enough to go anywhere, disappeared in a cyclone without leaving anyone to tell the tale.

"Willy - willys" usually "strike" the North-West coast between Roebourne and Broome. Occasionally cyclonic disturbances reach as far south as Carnarvon, and as far north as Derby, but the most severe are those which centre about Broome and a little south.

The principal feature is the terrific wind force and the heavy rain. This combination is remarkable in its effects. The rain does not "fall," but is driven in sheets horizontally, and with fearful force. Another peculiar effect is that the wind lifts the gravel from the ironstone plains and drives particles of appreciable size mixed with the rain. One of the sights of Roebourne some years ago was a window which had been literally frosted by this ironstone gravel driven by the wind and striking against the glass. Houses are fastened



Jarman Island Lighthouse, off Cossack, W.A., is built of iron, and weighs many tons. Note the stays to prevent it being blown over by a "willy-willy."



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RADIO NOTES AND NEWS

THE TRANS-PACIFIC TESTS.

The organisation work is now nearing completion, and the closing date for experimenters entering their stations is February 28, 1923.

Final arrangements have not yet been made with the organisers in America, but as soon as these are available, they will be published.

It is expected that the tests will last over a period of from two to three months, so experimenters will have any amount of time to make alterations to their sets even whilst the tests are going on.

The following is a list of firms and persons who have generously given prizes, particulars of which will be announced in our next issue:—"Sea, Land, and Air," Austral Electric Ltd., Colville Moore Wireless Supplies, Electric Utilities Supply Co., Miss F. V. Wallace, Malcolm Perry, F. E. O'Sullivan, Radio Company, W. Harry Wiles, Electricity House, Wireless Weekly, Western Electric Co., Sydney Dynamo and Motor Co., Universal Electric Co., J. H. Dewis.

N.Z. RADIO AMATEUR'S RECORD.

Hears American Amateur Stations.

Since November 5, 1922, Mr. R. Slade, of Timaru, N.Z., has been regularly receiving signals from American amateur radio stations. Reception was principally at nights when there was no atmospherics, and the signals are so clear that he can recognise the various notes of the stations, some having purely CW notes and many low ICW notes.

Mr. Slade is only using one valve, an Expanse A, but he states that V 24 brings in the signals just as good and with less interference. He claims that he is the first amateur in New Zealand to hear American amateur radio stations, although since he has been successful in receiving these signals several other New Zealand experimenters have also succeeded in hearing them. Mr. Slade contends that the secret of the whole thing is in the tuning.

[We would like to hear from other experimenters who have heard American amateur stations.—Ed.]

A FEW TIPS ABOUT VALVES.

Don't burn vacuum tube filaments above their rated amperage and voltage.

Don't rely on an ammeter for proper current consumption; filament should be burned at constant voltage rather than constant amperage.

Don't insert vacuum tubes in sockets unless absolutely certain that rheostats are turned off at the proper setting for normal operation.

Don't make the drastic error of connecting the plate battery to the filament terminals; watch all battery connections.

Don't energise the filaments of all the tubes in a cascade circuit at once, unless the circuit has been used before.

Don't take one tube out of a cascade circuit in which the filaments are in parallel; it causes a rise in current in the remaining filaments, and may burn them out. Cut off all the power first.

Don't make any alterations in your wiring while vacuum tubes are in their sockets. It is quite a common thing for 40 or 60 volts to become twisted up in the filament circuit as a result of this practice. High voltage for the filament spells disaster for your tube.

Don't expect to have a loud speaker operate from a detector tube; you will be disappointed. At least one stage of audio frequency amplification is generally necessary.

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Don't forget that vacuum tubes cost from twenty to thirty times the price of an ordinary electric lamp; they deserve a little respect.

Don't expect to get the best results if you use an amplifier tube as a detector, or *vice versa*.

HINTS TO EXPERIMENTERS.

About Aerials.

Generally speaking the best wire to use for guy wires on the mast is No. 12 galvanised iron. This is quite strong enough for masts up to 50 feet in height, and if it is desired to make the guys stronger, a simple method is to place two wires alongside one another on the ground, tie two ends to one post, and with a carpenter's brace at the other end, twist the two together. The main point in using No. 12 galvanised wire is to make sure that there are no kinks in it.

The question is often asked, "What timber shall I make my spreaders of, and what sizes?" 3 x 1 Oregon battens dressed all round and tapered to 2 x 1 at the ends make very good spreaders. For the bridle, use lin. Europe rope, which can be obtained at all ship chandlers.

For the halyard, practically any kind of rope can be used, but 1½ Europe is the best, as this rope will withstand the weather better. Care should be taken, however, to see that the rope does not swing in the wind against the guy wires, otherwise the constant tapping will very quickly wear the rope through. Remember, also, that all rope shrinks in wet weather, and when the aerial is hauled up, allowance should be made of, say, three feet for the shrinkage that will occur when the rope gets wet with the rain.

About Voltmeters and Ammeters.

Put an ammeter giving a reading of, say, 2 amperes over the whole scale in series with the filament of the valve. You will then know what current the valve is taking, and this information will be very useful to you when you add extra valves. Put also a 40 volt voltmeter across the leads from the high tension battery with a press button in series; by pressing the button, you can make certain of the actual voltage that you are using in the plate circuit, and the voltmeter will come

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in very handy for checking the A battery. Meters are to a wireless station what account books are to a business. Both show what is happening.

About Fuses.

All electrical installations are protected by fuses and circuit breakers. If your accumulator is shorted for any length of time, and the connecting wires do not melt, considerable damage will be done to the accumulator. Therefore insert a small piece of fuse wire in the A battery leads. The easiest method is to take one strand of wire out of a piece of lighting flexible, remove the lead bar joining two cells of the accumulator, and replace the connection with the fine strand of wire. If a short circuit occurs, the small strand of wire will melt, and the accumulator will be automatically cut out. The same advice also applies to the high tension battery.

Aerial "Don'ts."

Don't run your aerial over a public highway; you will probably have to take it down.

Don't allow it to cross overhead wires; there is always a risk of its falling on to them, with perhaps disastrous results.

Don't neglect to include a lightning protector or an earthing switch that will put the aerial to earth.

Don't forget that the insulation of the aerial is one of the most important points if efficiency is desired.

Don't use insulators that are unnecessarily heavy.

Don't use any common bit of rope to support the ends of the aerial.

Don't omit to make some provision for the contraction of the aerial ropes that will take place in wet weather.

Don't forget that soot on an insulator makes an excellent conductor and that the efficiency of the set will suffer as a consequence.

Don't contemplate using a frame aerial if you only have a crystal receiving set.

Don't try to economise by using a thin wire for the aerial.

Don't omit to clean the insulators occasionally, especially if the installation is near the sea or in a smoky atmosphere.

Don't forget that the earth connection is an important adjunct to the aerial.

Don't use very light supporting masts; they bend too easily.

A New Experimental Radio Receiver.

For some months past the research engineers of Amalgamated Wireless (A'asia), Ltd., have been investigating the pros and cons of designs of apparatus suitable for radio experimenters.

The usual type of apparatus manufactured for this purpose is a complete set in a wood case, which, whilst having a good appearance, has many disadvantages in actual practice.

Having in mind the wonderful progress that has taken place in radio, and the unlimited field available to the experimenter in trying out new circuits, the research engineers endeavoured to design a radio set which, whilst offering all the advantages of a complete set, had not the disadvantages and limitations of rearrangement necessary with the experimenter's usual installation.

The result of their efforts is a set based on the Panel Unit system, which represents a revolutionary departure from the usual type of experimental apparatus. There is no doubt that it will prove an invaluable and economical piece of apparatus, being handsome in appearance, and having great flexibility, thus giving the operator great facilities for the addition, subtraction and transposition of the various pieces of apparatus that are used in radio experimenting.

"WIRED WIRELESS."

Successful Long-Distance Demonstration.

A demonstration of wireless telephony of a character not hitherto attempted in this country was given at the Polytechnic, Regent Street, London, recently.

Sir William Noble, Chairman of the Broadcasting Committee, speaking from Marconi House, introduced the Lord Mayor of Bristol, who delivered an address from his residence in that city, which was transmitted over the "wired wireless" circuit to Paddington, thence to Marconi House by wire, and there broadcasted. The Lord Mayor-elect of London was also heard speaking from the Guildhall.

The Chairman pointed out that the evening's demonstration of broadcasting was probably the most remarkable which had yet taken place, either in that country or elsewhere.

NEWS GATHERED.

(By RADIO.)

For the first time, it is believed, in the history of radio broadcasting, news messages were recently gathered from the air for publication in a newspaper.

The usual order of things was reversed. Instead of the paper supplying the news to be "put on the air" the air was directly furnishing the material for the newspaper.

The unusual feat was accomplished by "The Examiner" in reporting the navy airplane crash at Catalina Island, the powerful K W H radio station in "The Examiner" office being pressed into service for the purpose.

While "The Examiner" correspondent at Avalon spoke into a radio receiver thirty miles from the mainland the details of the fatal accident were being reproduced in "The Examiner's" receiving station in Los Angeles with a clearness of tone and enunciation as if the reporter were sitting in the same room telling the story of the crash.

STATIC FORETELLS WEATHER

By PAUL F. GODLEY

Use your radio receiving set as a barometer.

It's easy—if you are a careful observer of natural electrical phenomena.

Static has a direct connection with the condition of the weather. Exactly what this relation is has never been definitely determined. Scientists have made innumerable efforts to correlate the observations of hundreds of radio operators in an effort to discover the natural law that governs the connection.

One of the earliest attempts to utilize electrical disturbances in the ether was that of Professor Popoff, a Russian. He showed that naturally produced electromagnetic waves were associated with barometric changes.

Detectors and recorders which were available at that time could give no indication of any disturbances at great distances. But since the perfection of receptive devices, experienced radio opera-

tors have learned to predict the approach of unsettled weather.

An unsettled state gives rise to "cross" air currents which, conflicting with each other, generate electric charges on the vapour clouds. When these charges have grown sufficiently strong they break down intervening insulation and a spark jumps between clouds, which may be only a few feet or many hundred feet apart.

Even during major changes of weather in the winter time these phenomena make themselves known by slight crackling noises in the receivers. Storm centres moving eastward or northward toward the Atlantic states have been sensed by radio two or three days before their arrival on the coast.

During the summer local thunder showers are frequent. One may note the electro-static discharges in the later afternoon almost any day.

At such times the arrival of a storm at the receiving station is usually indicated only by extremely loud and crashing noises. As is well known, thunder storms which pass within a few miles frequently are never actually seen.

These summer storms may be heard in the radio receiver, and then die out before ever reaching the place where the observer is stationed. They can even be detected by the small crystal receiving sets. The type which may register itself some 48 or 60 hours prior to arrival is generally perceptible only on the more elaborate kinds of receiving equipment.

The greatest accuracy in prediction of weather change through the use of the radio receiver is accomplished during the fall, winter and spring.

A gradual increase in the strength of the natural electrical disturbances will indicate that the storm is approaching.

A lessening in the strength of the disturbances means that it is moving away.

A consistency in the strength of the signals indicates a storm that is moving along a path which is approximately equally distant from the observer at all points.

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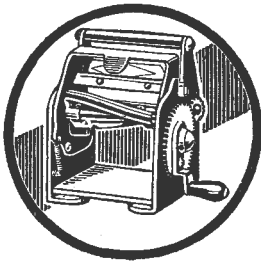
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NOR'-WEST WILLY WILLY.

(Continued from Page 950.)

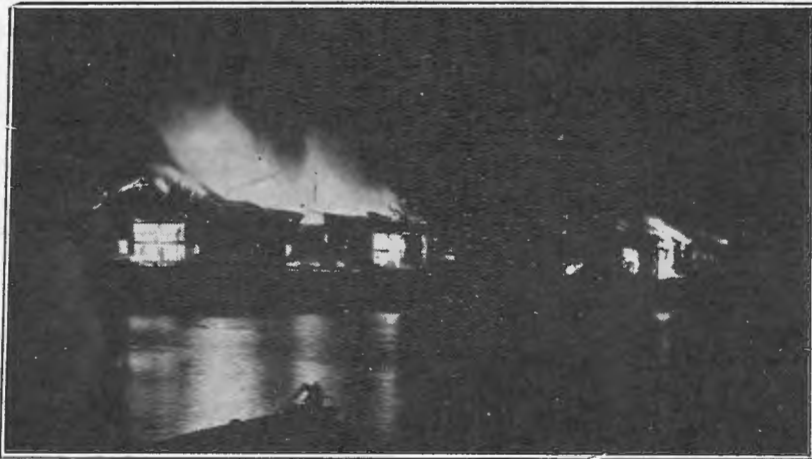
down either by chains or wire rope passed over the roof, and anchored to the ground front and back; sometimes the roof rafters are fastened by means of long iron bolts to the floor joists, and in every case the galvanised roofs are protected by external battens, which are *bolted*, not nailed, to the internal rafters.

Windows are furnished with wooden shutters outside, and the doors are provided with bars inside, for should a door blow open it would be practically impossible to close it from the inside, and once the wind gets inside the house, the total

urgent help were required it would be quite impossible to render assistance.

A few examples to illustrate the force of the wind, which are not exaggerations, are mentioned.

The roof of a six-roomed brick villa in Roebourne was lifted clean off and dropped intact in the middle of the street fifty feet away from the building. It was damaged only by the fall. A bush forge at Balla Balla was constructed of bush timber without walls, but roofed with galvanised iron. On top of the galvanised iron were three or four lengths of bar used for tyres of wheels of bullock waggons; these bars were 4 inches wide by $1\frac{1}{4}$ inch thick, and



This remarkable photograph shows the big fire at Rabaul which occurred on the night of Jan. 3. The damage is estimated at £100,000.

wreck of the whole structure would follow in a few minutes. For this reason the principal object is to keep the wind out—it is useless trying to keep the rain out; that will drive in through anything.

One redeeming feature of a “willy willy” is that it gives reasonable notice of its approach, and there is usually ample time to take any precautionary measures which may be available.

Naturally, it is quite impossible to go out of doors during the height of the storm, and it is equally impossible to stand and face the wind, and the force of the rain is like the water from the jet of a fire-hose in full blast. One does not know how one's neighbour is faring, and even if

about 12 to 14 feet high. After the “willy-willy” (described later on) the galvanised iron roof had totally disappeared, and the tyre iron was found 20 yards away. Thirty-seven miles of telegraph wire were blown flat down, only six poles left standing in the whole distance. The Post Office at Balla Balla was completely demolished, only the floor left. The Postmaster spent the night under a bullock dray hanging on to the wheels.

The writer was attached to the Roebourne Telegraph Office when the “willy-willy” which was responsible for these incidents passed over the district. The path of the storm was less than 50 miles wide, and although there were only one or two

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fatalities in the district, the damage to property and loss of stock was immense.

The storm commenced during the night with a freshening gale and heavy rain, and in the morning the wind was blowing fiercely which, with a steadily falling barometer, indicated that worse was to be expected.

During the forenoon all preparations were made for the expected "willy-willy." Windows were closed, wooden shutters fixed, doors barred on the inside to resist the wind pressure, and every precaution taken. The rain continued incessantly, and during the storm 24 inches of rain were recorded between 6 a.m. and midnight—18 hours—and solid sheets of water were driven before the wind. By afternoon, it was dangerous to be outside, and where absolutely necessary it was only by crawling on hands and knees that progress could be made.

As the wind continued steadily in the one direction, it was possible to open the door on the opposite side of the house, thus permitting us to look outside. The clouds appeared to be just above the roofs of the houses, and travelling with incredible velocity. They were shapeless, and comparable only to a huge volume of smoke. The horizontal rain presented a most peculiar appearance. A sheet of iron caught by the wind struck a picket fence a few feet away from the writer. Although the impact was almost inaudible, yet the force of the blow was so great that the corrugations in the iron were not only flattened out, but fresh corrugations were formed by the interstices between the pickets. This sheet of iron remained where it had struck for months afterwards.

At six o'clock in the afternoon the barometer was at 28.80 and still falling. It was getting dark outside which, added to the roar of the wind and the noise of the falling rain, made an awe-inspiring ex-

perience. Telegraph communication north and east had failed early in the afternoon, but the line was still intact to the south..

At eight o'clock the barometer reached 28.38, which proved to be the lowest. At this point the mercury was very jumpy, and varied three to five points every few seconds.

Fortunately, the wind direction had not changed very considerably, and with care we were able to continue our look out through the back door. The whole surface of the ground was covered with water, running down hill against the wind; as it flowed it was blown into spume and driven before the wind in sheets, giving a most wonderful effect.

Overhead was intense blackness, not an outline of cloud or shadow or any definite shape could be discerned—all unfathomable blackness. One could not help feeling that nature was showing her strength and illustrating how insignificant humanity was in comparison.

Cyclones are, as the name implies, circular storms, and we were beginning to feel anxious about the location of the centre. There was a decided lull at nine o'clock, and our anxiety was increased, as we knew that if the lull was due to the centre of the storm, we should in a few minutes have it all over again from the opposite direction, perhaps worse than ever.

As, however, the lull continued and the barometer rose steadily, at 9.30 we knew that the storm had passed. By 10 o'clock the wind had dropped to fitful gusts, and the rain had practically ceased. Before midnight the clouds had all disappeared, and the stars shed a bright lustre on the flooded river and water courses which, with the wreckage and debris, alone remained to indicate the war of the elements which we had been permitted to witness but a few hours previously.

A New Valve.

Australelectric, Ltd., have just landed a shipment of Marconi R valves direct from the Marconi works. This valve, which is of the electric bulb type and fitted with the standard 4-prong English plug, is an excellent detector with 40 volts on the

plate. The filament is lighted from a four-volt accumulator, and can be used without any filament resistance. As an amplifying valve, it gives wonderful results with a plate potential of 70-100 volts. We think the valve will be very popular with experimenters.