PROGRESS

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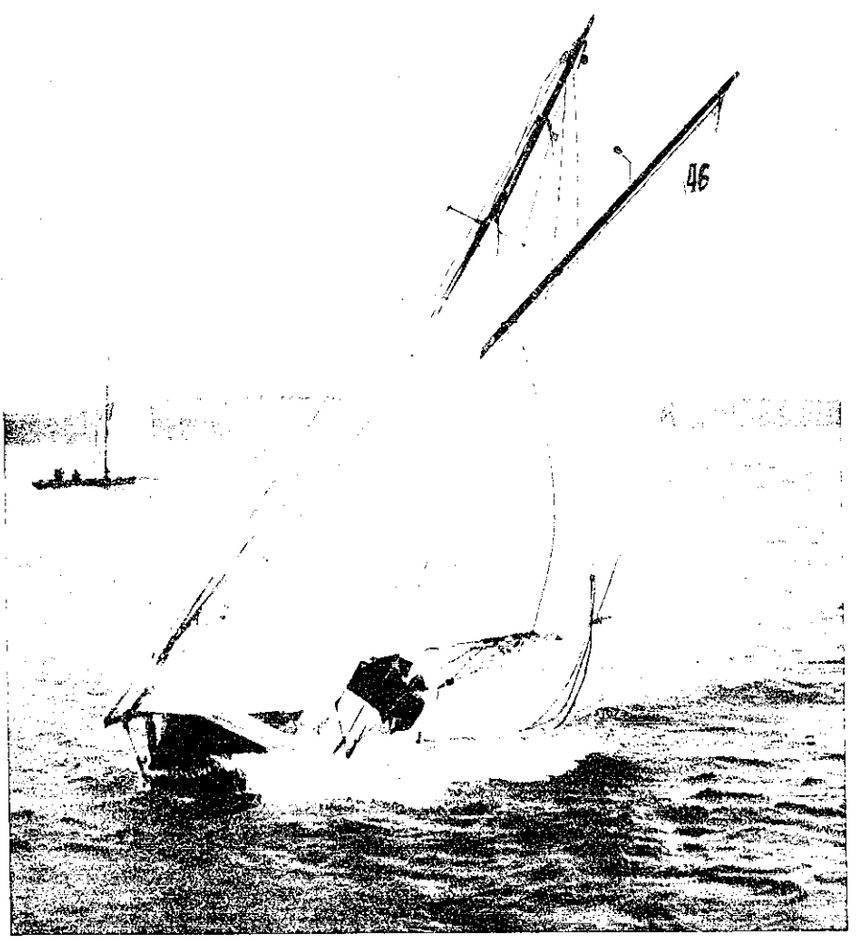

February 1912

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PROGRESS

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EDITORIAL COMMENT.

The wireless station at the top of Mount Tinakori, nearly 1000 feet above the sea, is approaching completion. When work begins there, it is expected that all the difficulty experienced now in communicating with vessels within a certain radius of the coasts, will be obviated, as the messages will not be impeded by the surrounding hills. Messages to Australia, Fiji, and many of the islands will be a matter of course. At present, in fact, the apparatus used on the Post Office tower enables the operators to talk to Fiji, 1700 miles off, with ease, as also with vessels between that group and New Caledonia. The new station is the highest wireless installation in the world. It consists of a suitable house built of blue stone quarried within a dozen yards of the site, standing about midway between two poles of 150 feet each. These carry an arrangement of four wires looking like a gigantic harp a hundred yards long. The harp receives the wandering messages and transmits them to the operator in the house by a single wire with a musical twang which is unmistakeable, and takes no denial. This is the "singing spark" of the wireless systems—a sharp, high note in the Telefunken system and a gruff, insistent sort of bark in the Marconi. The method of "tuning" is claimed to be such as to guarantee the secrecy of all messages. In this connection we may remark that nothing has been heard of late of the wonderful system of the Norwegian captain, described in these pages some months ago as probably the coming system of the world—that by which messages despatched in cypher are delivered at the proper office only in ordinary language. We may hasard the guess that something must have gone wrong with the invention, for otherwise the world would be filled with examples and no other would be used. The masts carrying the harp on the Tinakori hill are of Oregon Pine, that timber being selected by reason of its long grain, wherein it is superior to Kauri, and therefore tougher for resisting the tremendous blasts that devastate this mountain top at times. A station is to be built shortly at Macquarie Island, for the purpose of assuring communication with any explorers in the Antarctic who may be at work in those regions at any time, and also for meteorological purposes.

* * *

We observe with satisfaction that the Telegraph Department has ordered fifteen wireless private installations in Christchurch to dismantle under pain of the law. How they were ever allowed to start is one of those mysteries which ought to be investigated. Here the State has established for perfectly good and valid reasons a State monopoly of telegraph services, and the first rule of such monopoly necessarily must be the prevention of telegraphic work by all private individuals whatsoever. We may suppose that these being enthusiasts, and the science of wireless being in backward way, they were allowed to enter the forbidden sphere in the hope of getting some public benefit from their work. In that case, however inadvisable, the permission was inexcusable, as the sequel has proved. The Department having established the practice of wireless on a commercial basis, it was suddenly discovered that some of these improperly authorised persons have been tapping the messages. In fact, the steed has been stolen, and the Department orders the door to be shut. We trust it will never be opened again. For the cause of wireless would otherwise be lost irretrievably. One has only to recapitulate the circumstances. The one point of doubt regarding wireless is its liability to what in writing would be called being overlooked. All inventors declare that they have discovered a system which is untapable, but that all other systems are not to be depended on for a single minute. Hence the general belief in the almost impossibility of preserving the secrecy of messages is very great. There is quite enough to confirm doubts without the addition of a horde of irresponsible people feeling all over the air for anything they can pick up. These Christchurch men have given the cause of wireless a blow from which nothing can relieve it but the summary stoppage of their wireless apparatus.

This having been done, it is possible that the public will be more ready to take advantage of wireless. Necessarily, however, the implication must remain from this successful unauthorised tapping, that the system is not by any means perfect. The public mind will not be completely at rest about wireless until the "tuning" process has been brought to such perfection that it is utterly impossible for any message to find its way anywhere else than its right destination. The fact has been emphasised by the deplorable error of the Department in permitting these ill-starred private adventures.

* * *

We are told by the paradoxical special correspondents that everybody expected Mr. Balfour's resignation of the leadership of the Conservative party, and that, nevertheless, everybody was exceedingly surprised when it was announced. The fact, of course, is that there was no room for surprise because nothing could exceed the plainness of the language addressed by the Conservative organs and writers in the press to Mr. Balfour, unless it be its vigour. In every variety of polite hint and strained courtesy Mr. Balfour has been told during the last few months that he was totally unfit for the leadership, and seven times a week, and a little oftener, he was informed that his presence had caused all the disasters of the past, and was keeping the party from unity, as well as depriving it of all hope of success in the future. To pretend surprise after all that is one of the impostures of the situation. There may be surprise, because Mr. Austin Chamberlain has not taken the lead, as there will be disappointment at the leadership of Mr. Bonar-Law. But if there is not surprise at the non-appearance in the van of Mr. Chamberlain it is because the predominant feeling is resentment on the

part of men who have been playing for that contingency for many months past. The truth is that the situation was too strong for any of the Conservative leaders. There was not one of them strong enough to rule alone, as is incumbent on every leader worthy of the name. The party fixes the principles and chooses the leader, who must be left free to carry them out as he pleases. The great leaders of history always have so acted. When leaders act on advice which does not tally with their own temperament they must fail. The more contradictory the advice on which they act the sooner their downfall. The only matter for surprise is that Mr. Balfour, who changed his uncongenial line of tactics several times in obedience to contrary advice from his friends and supporters, should have lasted as long as he did. For him personally there can be no blame, because the crisis was one of those which are inevitable turning points in great histories, brought about by the explosion of great forces long repressed, under an artificial system. The system broke down with its administrators, and the old leader disappeared. That he did not do so sooner is, we repeat, the only matter of surprise.

* * *

The announcement that a new theatre is to be designed at Wanganui by a well-known architect for a local syndicate once more draws attention to the question of a national theatre. The question is not new, for the building of Municipal theatres has raised it often in the Dominion, for example at Invercargill and other places. The Municipal theatre is a step towards the national theatre, but it leaves a long way still to go. The Town Hall of Wellington, for example, is in some respects a municipal theatre. It takes the money for theatrical and other representations. A national theatre however, not only takes the money but likewise calls the tune. The ultimate object is to have plays represented composed by a national dramatic school and performed by actors trained locally. It seems a big order. But it may be contended that the materials exist among us for the accomplishment of orders that in this connection are not small. The proof lies in the success of the literary and musical competitions which have been held recently. These have displayed the existence of much talent among the young people of the Dominion, as also splendid vocal material. Of course the best has been but a small percentage of the whole. But the amount is enough to be encouraging for the project of a national theatre in the very best sense of the term. Another thing has been revealed, namely, the willingness of the public of several centres to support these exhibitions of talent. From which it may be implied readily enough that this feeling will be extended as the project develops. Why should not the talent for instrumentation which is so conspicuous not be trained so as to give us in all the centres a regular presentment of the best orchestral works and some very delightful chamber music? Why should not the voices so abundant among us be trained to regular performance of concert and operatic music? Why should not the dramatic capacity so large in individuals receive a stage for its displays regularly? The idea wants but a little organisation. The public would respond, and, being delighted, would cultivate high standards, and these would be set from time to time by the advent of star performers and good companies such as have made good dramatic history in the Dominion and established already a good tradition. We have here a power in the "Triad" which, though much criticised in certain quarters, has achieved a high reputation for severity of criticism and knowledge of dramatic and lyric history. The fact that a critic of such severity is tolerated at all speaks volumes for the improvement the public taste has undergone during the last few decades. New Zealand has been for a small country exceptionally well served by talents of great, indeed, first-class reputation, and the taste of the audiences tells, as every artist testifies, of the appreciation with which good art is received. Of course we shall be told that Rome was not built in a day. But the proposal is not to build anything in a day, but rather to set the pace and the standard of building towards a definite object which can, after many days, be accomplished. The Dominion has bred its own lawyers, doctors, divines, engineers, politicians, municipal workers, navigators, miners, metallurgists, horse breeders and trainers, jockeys, experts in every department almost of life. Of them all it is said with perfect truth that they conform to the highest standards. Engineers who read of the great viaducts of the Northern Trunk and the Midland, are astonished, especially when they learn that the designing was done by local men, locally trained most of them. When our lawyers go to the Privy Council, it is to earn the applause of the great men in London. Our legislation has led the world in many respects. In short, our whole life as a nation self-centred and self-developed is acknowledged everywhere to be a thing to be proud of. There is no reason why our achievements in musical, dramatic and literary art should not give as good account of our resourceful and most gifted race. All that is wanted is unity of purpose, high design, modest detail, and right guidance. Moreover, let us remember that no nation that confines its attention to utilitarianism, which is only another name for money grubbing, ever developes into true greatness.

* * *

It is perfectly natural that the farmer should be anxious for a complete systematic forecasting of the weather, which is such a supreme factor in his life's work. At the same time it is only right to point out that the forecasting of the weather is done admirably well in this Dominion. In fact, when one comes to think of the difficulties in the way and the small means at the disposal of the Weather Department of the Government service, the only feeling proper to the case is one of astonishment. The Rev. Mr. Bates has just come back from a semi-holiday trip to Australia—one of those combinations of business with pleasure which result in undiluted business day after day, with a fine account of what is done on the continent in this connection. Indeed, when he tells of the large number of men employed in the weather forecasting, it is impossible to avoid the feeling that he must in his secret heart be a little envious of the superior treatment accorded by the larger country. All the more impossible is it by reason of the great success with which his predictions are almost invariably followed. It must, therefore, have been astonishing to him to receive a request from a branch of the Farmers' Union to furnish some more systematic and prompt forecast of the weather. It really looked as if the man who drafted that resolution wanted to pass a vote of censure on the weather department. Now we know that the only censures are jocular passed by holiday folk who, wanting fine weather, are angry with the clerk of the weather when it rains, and pretend to extend the feeling to Mr. Bates because he is known to have said, "I told you so." Almost as bad would it have been for the skippers of the coastal craft and others to have sent a similar proposal to Mr. Bates. That gentleman in the communication he had to make to the Union hit the nail on the head when he complained of the credit given to the makers of almanacs who live on lucky guesses. The Union, however, on reflection, quite understood the position and very sensibly came to the conclusion not to pass the resolution. The time will come when the forecasting business will improve. For example, there is the spread of wireless which ought to vastly increase the amount of information at the command of the patient investigators of the department, and there is the growing public opinion in favour of the department, earned by the success of its well-directed industry, which will make increased expenditure popular with a people who feel they can rely by sea and land on their forecasts. But though a better time is coming, it must be borne in mind that the present is a good time indeed. The farmers in council have so borne in mind and they deserve commendation.

* * *

The speciality for this issue, yachting, has many votaries in this sea-girt land of ours. The spirit of our fathers makes us turn to the salt water to a far greater degree than any other nation, for deeply implanted in an Englishman's breast is the love of the sea and the ships that sail her broad blue expanse. The traditions of a thousand years of voyaging and discovery, trading and sea fighting, make our people regard the old ocean as peculiarly our own, and naturally any pastime connected with seafaring is bound to be popular. Upon the sea is our strength as a fighting nation, and it behoves us to do all in our power to assist the Navy in the maintenance of our place in the world.

We hope that the proposal to form a Yachtsman's Naval Reserve, which is being considered at Home, will be carried out, and that we New Zealanders will be allowed to form our branch here. The idea is for motor-boat owners to register themselves and their craft for patrol duties in the vicinity of the ports to which they belong, and thus to free the regular scout vessels for other work of wider range.

A certain amount of drill and practice would be required, and would no doubt be cheerfully given. The idea is an excellent one, as the small swift motor-craft, equipped with a small wireless plant, would fulfil the ideal of a scout, that of seeing all without being seen.

Yachting and Motor Boating

Hints to Marine Motorists.

BY E. W. HURSTHOUSE.

The successful running of a marine motor engine—as the expert very well knows—depends not only upon the mere fact of knowing how to start the engine, but upon a thorough knowledge of the principle of the explosion and generation of power, a close intimacy with all the working parts, including the electric outfit, and by being conversant with the symptoms leading to irregularities.

One soon learns to know how to start an engine, and is inclined to the belief that so long as it runs nicely, no further knowledge about it is requisite.

There are, however, so many points to be learned, and so much pleasure in learning them, that I am inclined to the view that many of us would find motoring a very dull pastime, had we not at some time or other an opportunity of displaying our knowledge, and getting at the root of the trouble.

Before you can be considered expert enough to take charge of a motor, for instance, during a race, you must have studied every point about your engine, found out all its peculiarities, in smooth and rough water, running with or against the tide and wind, be conversant with the causes of all failures to run at its best, and to be so much a part of your engine that if anything goes wrong you can in an instant place your finger on the defect. This, of course, aplies also in ordinary cruising, but how much more when racing.

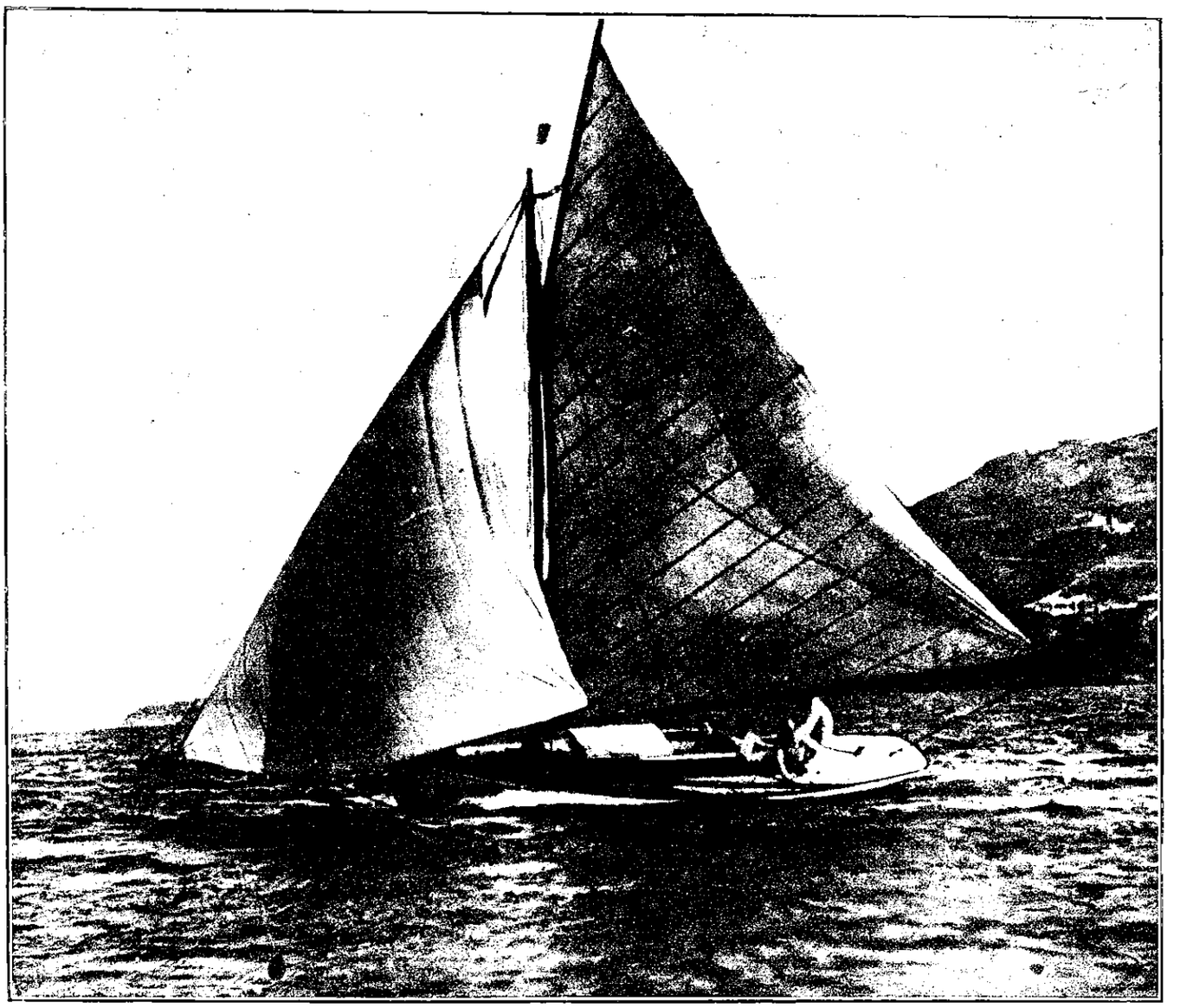
The object of this article, then, is to point out some of the causes of failure, and generaly to offer suggestions for the successful running of a marine motor engine.

It will be taken for granted that you have some knowledge of the various parts and the functions each performs; these will have been explained to you, either from catalogues or by the firm from whom you purchased the engine. This suffices for a beginning—other knowledge is, however, required later, either from your own or another's experience.

Possibly the two chief causes of failure are found in a faulty ignition or incorrect explosive mixture.

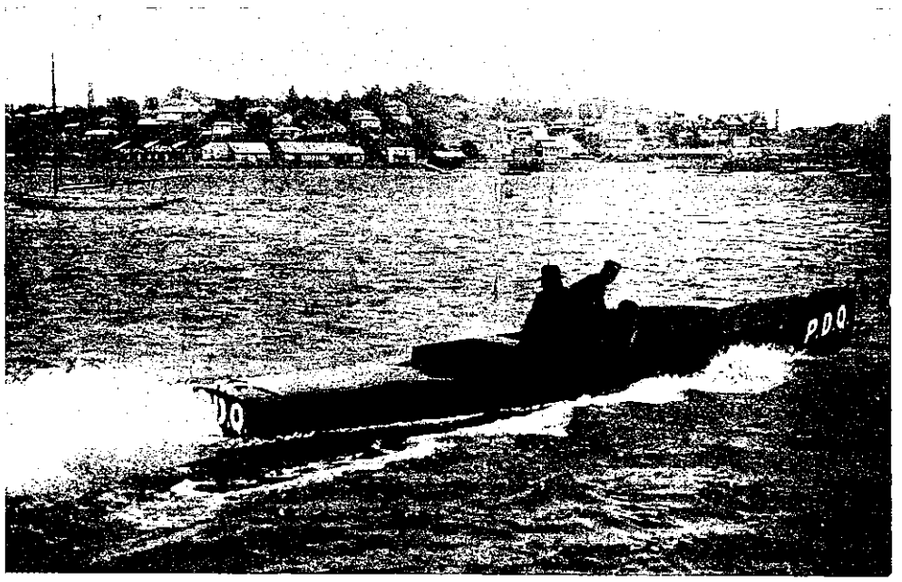
Taking the first cause. There are three common methods of generating the current –

1. By means of storage batteries and an induction coil or coils. 2. By means of a low tension magneto machine. 3. By means of a high-tension magneto machine. The object of each system



"LIZZIE." Commodore, C. J. Ward, P.N.Y.C.

being to produce a spark of sufficient intensity to cause the compressed charge of gas to explode. Whatever the system be, you must get a thorough hang of it, because you will find nearly all your trouble arises from a faulty electric system.



P.D.Q. MOTOR LAUNCH. Speed 18.7 knots.

The failure to produce a good spark may be caused by—

1. A dirty sparking plug. This should be examined first and tested. 2. The trembler of the coil having become loose and out of adjustment, or the contact points become corroded. 3. Comutator dirty or out of adjustment. 4. Wires loose or broken. 5. Driving mechanism to magneto at fault. 6. Magneto itself out of order.

When a defect occurs examination should be made in some systematic order —the writer prefers that as given above.

If you are using an accumulator, the following will be worth remembering:—

Care must be taken that the + terminal of accumulator is always connected to the + wire of supply, which may be readily found by applying a piece of wetted pole-finding paper to the two supply terminals. The negative wire will then discolour the paper in its neighbourhood. Note.—If pole-paper is not available connect a length of wire to each terminal of the supply, and clean the other ends and hold them apart in a vessel containing slightly acid water. The wire connected to the negative pole will give off bubbles of gas.

The battery may be known to be fully charged when the bubbles are given off very freely, the fluid becomes very milky, and the voltmeter shows 4.4 volts when connected, which gradually drops to 4.2.

N.B.—Care must be taken that the + wire of supply is always connected to the + terminal of accumulator, the latter being painted red.

Accumulator Troubles.—If the cell takes longer to charge than usual, does not show more than 2.2 volts when charged, and lasts a short time only, buckling or internal short circuiting is probably the cause. Charge fully, shake gently and pour out acid quickly. If acid is very muddy and fine powder present, powdering has taken place. If acid is clear but there is a granular deposit, buckling is the cause.

1. Acid should cover plates; if not, add water, not acid, unless cell is leaking or some has been spilt. 2. To add acid use mixture before mentioned. wait till it is cool before filling. 3. Do not leave cells discharged. 4. Never "spark" the terminals of the cells to see if they are charged; this does great harm and produces buckling.

As so much depends upon the condition of the cells, special care should be given to them.

Defects which may appear are:—

Internal Short-circuiting.—Due to charging at too high a rate, discharging too rapidly, careless or rough handling. Caused by pieces of the lead dropping out and making short circuit between the plates.

Buckling.—Caused by charging or discharging too rapidly. Plates warp and short circuit sets up.

Sulphating.—Shown by white spots or patches on the edge of plates, caused by allowing cells to become and remain empty. This insulates the plates and reduces their output greatly.

Sulphating may be remedied by putting a pinch of washing soda into each cell and charging with a very weak current for a long time.

Powdering of Paste.—Due to weakness of acid, paste softens and crumbles away, falling to the bottom, and short circuiting.

Leaky Casing.—Be careful always to guard against leaks. A leaky battery is a never-ending trouble, and may mislead you.

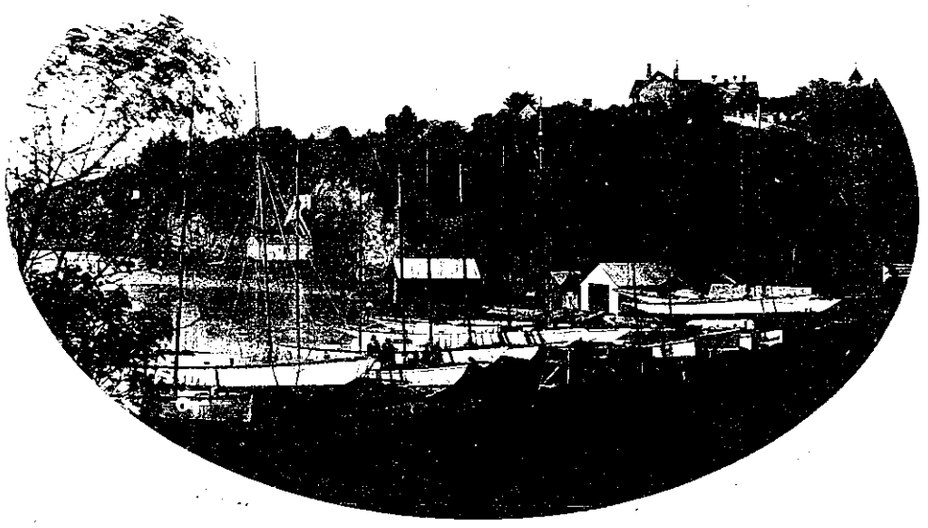
Terminals.—Much depends upon securing good connections throughout the electrical circuits and particularly on the low-tension circuit, that is, from the battery to the comutator and coil. The ends of the wires should be made clean and bright; the wires should be twisted round the terminal screws in such a manner that they are not likely to shake or pull loose, and the set screws or nuts should be set up to hold the wires securely. It is a good plan to cover the terminals on the accumulators with a good coat of vaseline after the connections are made, as this serves to protect them from corrosion by the fumes of the acid in the cells or from any liquid that may be slopped over. All wires and connections should be properly covered and protected from water, spray or rain, as otherwise there may be a risk of short circuit.

For the same reason, wires, however well insulated, should not be led through the bilge, where they are likely to be subjected to continual splashing with oil and water. Oil will rot the rubber insulations and water may then penetrate and set up short circuiting.

The failure of the engine to run satisfactorily is also very often due to—

1. Insufficient petrol supply (nozzle may be choked, or tank empty. 2. Too much petrol (carburettor flooded)—this will be seen by the blackish fumes from exhaust. 3. Needle valve in float box jammed.

(To be continued.)



YACHTS AT JUDGE'S BAY, AUCKLAND.

Some Craft I have Owned.

BY O. FREYBERG.

From my earliest childhood, when I played with toy boats, I have always had a great love for the sea and the ships that sailed her great blue bosom; and while I did not finally adopt seafaring as a profession, it has become an all absorbing passion as a pastime. Naturally enough, after sailing in other fellows' boats, I yearned to possess a craft of my own; and a craft I got as soon as funds permitted. I tried to get one before that, however, and as a boy of thirteen ran off with a fishing boat to be a pirate; but that, as Kipling say, is another story.

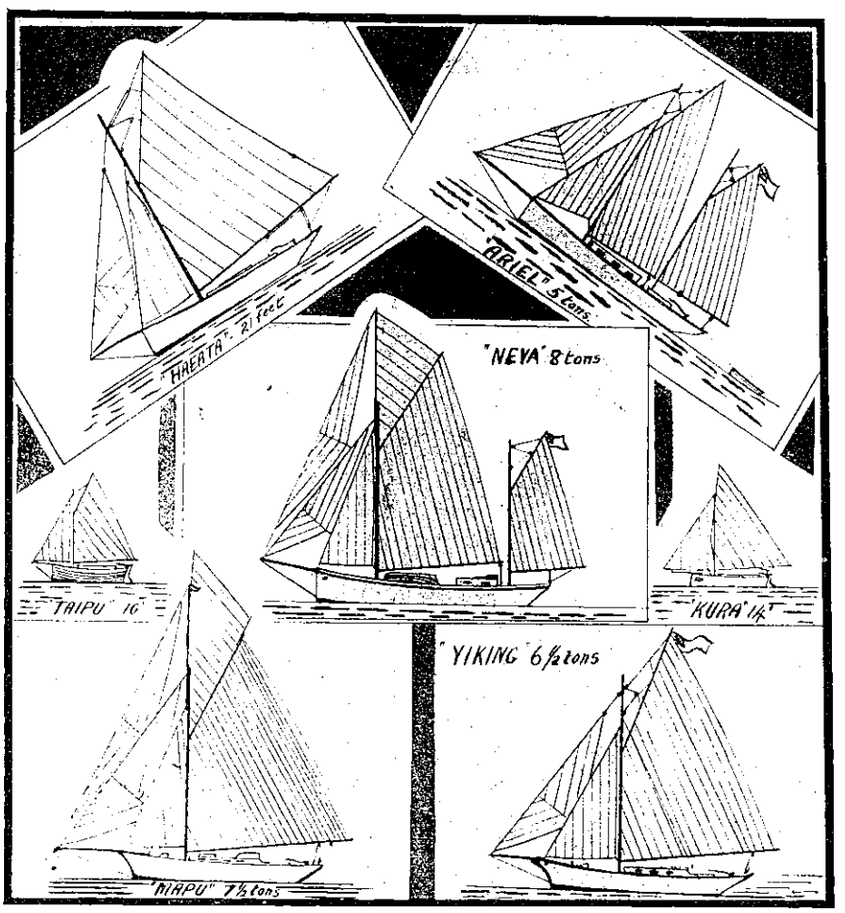
After a succession of flat bottom punts and canvas canoes, my first real live boat was the ten-foot half-decked dingey "Taipu." She had a false keel and a small sloop rig and her principal virtues were that she was tight and would beat to windward, features that were lamentably lacking in my previous craft. Small wonder, then, that to my youthful ideas she was a wonderful and beautiful ship, and I well remember the pride with which I turned out to swell the fleet on Opening Day, 1893. My bosom swelled when I claimed right of way from the big 50-foot "Maritana," and was accorded it with a huge grin by the late George Martin, her skipper. I had a very hazy idea of "Taipu's" limitations as a sea-going craft, and once with Lees Brown—now Chief Engineer at the Nelson Freezing Works—started to cross the Strait in her. Fortunately a stiff southerly stopped us before we got far, or these lines might not have been written.

My next craft was the 14-foot, dagger fin, half-decker "Kura," a brand new and remarkably fine little boat; although she came to me with the bad reputation of having capsized several times, the last time drowning a man. After shifting her mast ten inches aft, altering the sail plan slightly and ballasting her differently she performed remarkably consistently, and I brought her through some very heavy weather, making many trips outside, including one journey round Cape Palliser, from which the "Kura" returned in a strained and leaky condition.

My first deep-keeler that I owned outright was the "Haeata," a well-known third-class racer built by the McKeegan's in the late eighties. She was about 21 feet over all, 5ft. 10in. beam, and drew a little over 4 feet. She carried over 400 square feet in her total sail plan, and had 16cwt. of lead outside, and about the same weight inside.

As the drawing shows, she could not be called a handsome craft, her low stern and sharp bow making her very wet, but I had a good deal of fun out of her and some good racing. There was plenty of sport in the third class in the "nineties" with such boats as "Greyhound," "May" (still afloat), "Dido," "Ripple," "Pearl," "Haeata," and "Iris" (now a launch at Waitara). There was keen competition and many close finishes before the class gradually broke up, owing largely to the lack of anchorage in the Harbour.

My next purchase was the dismantled hull of the cutter "Ariel," a craft in which I had had a quarter share some seasons before—my one and only partnership. The "Haeata" had grown too small for me, and I wanted a craft I could go to sea in with some slight degree of comfort and safety. I paid quite a trifling sum for the Ariel and her mainmast and standing rigging. She was, as nearly as I can remember, 30ft. over all, 27ft. on the water line, 7ft. 6in. beam, and 6ft. draught, and was a regular old timer of the cod's head and mackeral tail variety. She had a nice sheer line, but she had a long, straight keel, which extended right forward, and the stem met it with only a slight round off, forming a forefoot which necessitated a truly awful headrig. The bowsprit was a formidable spar nearly 18ft. outboard, with watch tackle purchases on guys and bobstay. I determined to alter this as I had had enough trouble with that bowsprit in a seaway when part owner, so I altered the sail plan to a ketch rig—the very handiest for cruising—and balanced



her nicely with a bowsprit only 10ft. outboard. I took the lead off the "Haeata," as the two boats laid side by side on Huffam's slip, and bolted it on, without recasting, to the "Ariel." The "Haeata's" mast I used for a mizzen, as well as her boom and gaff for the mizzen rig. All her gear was used one way and another in rigging the "Ariel." The sails I made myself of 10oz. cotton duck. They were a labour that I should be very loath to undertake again, but cash was scarce. Anyhow, they stood the weather and set fairly well, although, as a sailmaker told me, they wouldn't bear inspection. Below decks she was fairly comfortable. I built in two bunks under the bridge deck aft, each extending under the deck alongside the cockpit. They were rather difficult to get into, but once in, they were very comfortable. In the main cabin, owing to her draught and coach house, there was almost headroom for my six feet of length, and the side benches, which slept four, were wide and comfortable, and underneath there was ample locker space. A table was rigged suspended from the coach roof at the after end and screwed to the mainmast on the forward end. In the fo'c'stle were the stove and cooking gear, and many were the good feeds prepared there, for I ran her winter and summer, rarely missing a week end at one of the bays or down at Palliser where we used to go pig and goat hunting. I made several trips to Port Underwood and the Sounds, and once each to Flaxbourne and Kapiti in the old "Ariel" before she was wrecked in the early part of 1898 by some "friends" who had borrowed her without leave. As the drawing shows, she was a homely looking craft, and although archaic and clumsy in design, according to modern ideas, she was very weatherly; in fact, I have never been in a more weatherly vessel, the "Rona" alone excepted.

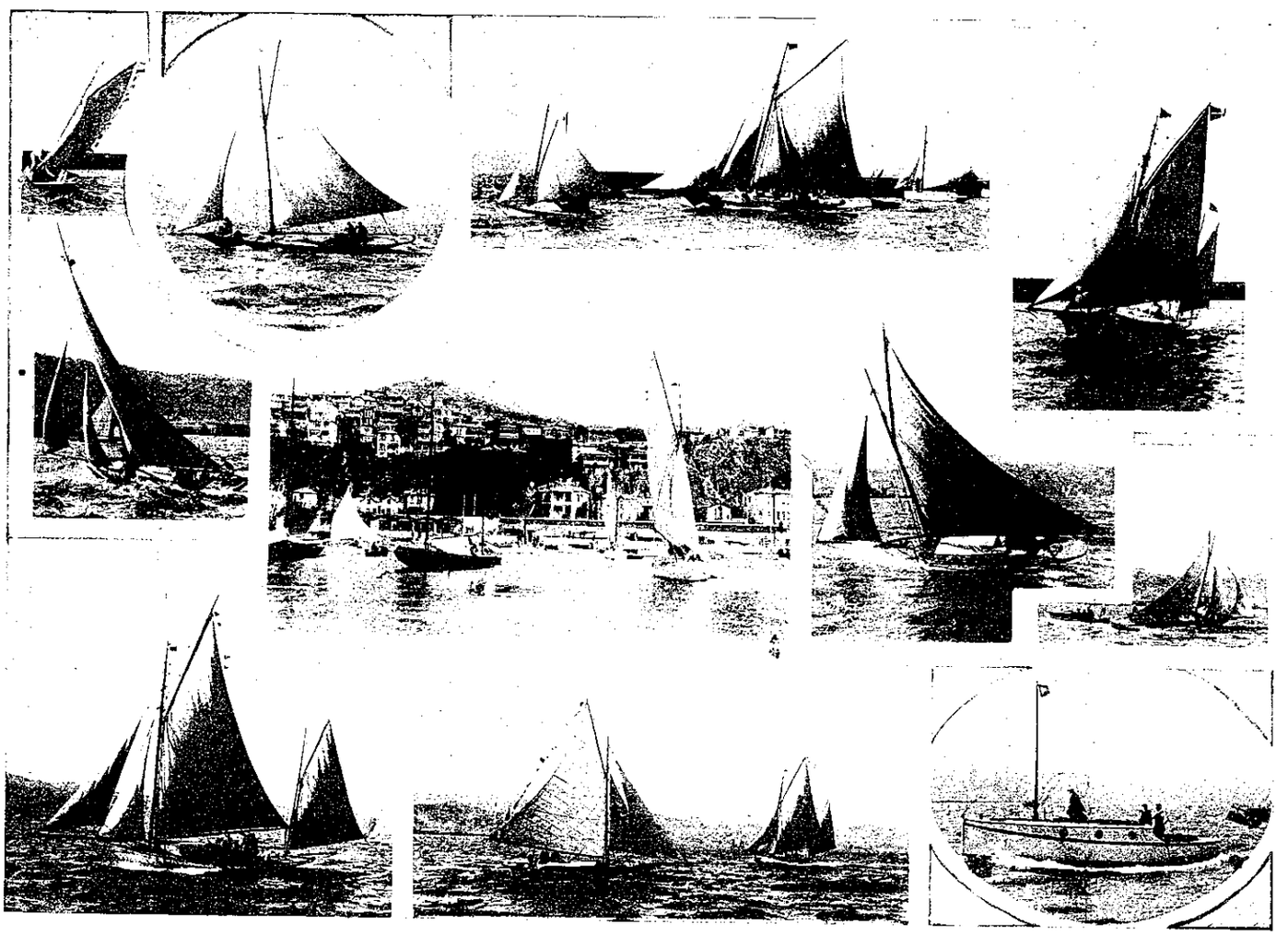
While I was fitting out the "Ariel" I became possessed, under rather peculiar circumstances, of the ketch "Neva," 8 tons, a vessel I had brought up from Lyttelton some time before for a friend of mine who wanted to cruise in the Sounds, and afterwards, having to leave New Zealand hurriedly, presented her to me. She was originally built as a yacht for Mr. J. C. Martin, by Westlake, at Lyttelton, and was then cutter rigged. Afterwards she was converted into a trader and ketch rigged. Her dimensions were, roughly, 38ft. x 9ft. x 4ft. 6in., and she was a splendid seaboat and fast off the wind, but when we set sail from Lyttelton in her, and ever after, she was incorrigibly leaky. We took as many as

forty buckets of water a watch out of her on a wind coming up the coast. She eventually foundered at her moorings and became a total loss.

After the loss of the "Ariel" I bought the cutter "Mapu," 7.54 tons, from Mr. John McLean. Lead was at a high price then, £22 I think, and Mr. McLean had taken the 4-ton keel off, and sold it. I bought the hull, gear and dingey.

With my crew, who had stuck to me through the "Ariel" and "Neva," I got the "Ariel's" lead sawn up, added some more to it, and cast a 30cwt. keel for the "Mapu." This was enough to make her uncapsizable, and we brought her down to the marks with inside ballast. It was not very successful, however, though we made two trips to the Sounds and one to Port Underwood during the season in this trim, so during the winter we cast another ton on, and with this she was entirely satisfactory. She was a very comfortably ship, and I made many trips across the Straits in her. She was, roughly, 38ft. over all, 8ft. 6in. beam, and 5ft. 6in. draught. There was comfortable accommodation below for six, four on proper built-in bunks in the main cabin, and two in the fo'c'stle. The main-cabin was all panelled and varnished except the coach roof and beams, which were enamelled white and gold, and she looked very cosy below with plush cushions, linoleum on the floor, and a nice cover on the table, although the headroom was not very great. The galley was aft, where there was still less headroom, but we managed many glorious feeds all the same. I sold her and delivered her in Nelson, where I saw her a year or two ago, converted into a trawler with her rig cut down, schooner bow cut off, and a great big greasy oil engine in her main cabin. She seemed in good condition and sound. She was well and faithfully built and should last for years yet. I hope she will; she served us well on some wild nights in the Straits.

My next ship was the "Viking," 6½ tons, that good little craft that won the Ocean Race to Port Underwood and back last year. She is so well known she hardly needs description; in addition to the drawing of her under the cutter rig there is a good photograph of her in another column, under yawl rig. During the time I owned her I made no fewer than sixteen trips to the Sounds and Port Underwood in her, and found that as a sea boat she was hard to beat. All the photographs I had of craft I owned prior to the "Mapu" have been destroyed by fire, and if this should meet the eye of anyone possession a picture of any of the boats I should esteem it a favour if he would let me have it copied.



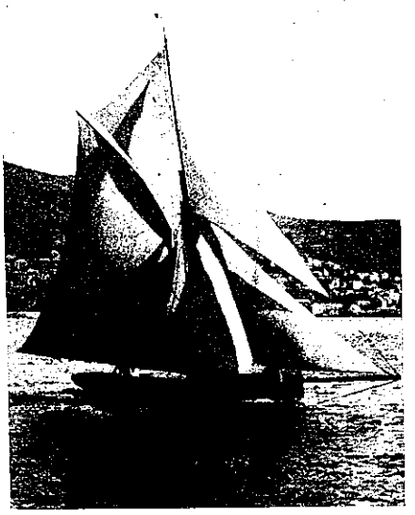
OPENING DAY, PORT NICHOLSON YACHT CLUB, NOVEMBER 11TH, 1911.

Port Nicholson Regatta.

January 22nd, 1912.

The Regatta on Anniversary Day was a great success. Indeed, how could it be otherwise with such a hardworking lot of officials as the P.N.Y.C. possesses. Probably no yachting club in the Dominion is as fortunately provided for in this respect, both as regards efficiency and enthusiasm as the P.N.Y.C. The bulk of the work on the 22nd fell on the capable shoulders of Mr. Leslie Sleightholm, the official starter, judge and timekeeper, and right nobly did he rise to the occasion. The races were all started under the Mark Foy system, by means of flags, except in the 14-foot event, which was started by means of numbers. In the afternoon the first and second class races were started off at the same time, owing to the light wind in the morning delaying matters slightly. The time for other events was also altered to suit the convenience of starters. There is no question that the special course round Point Jerningham, then round the s.s. "Takapuna," and back to starting line and round again was a great success. The public appreciate very much a course in which the whole of the contesting yachts are plainly visible from the start to the finish, and it is sincerely to be hoped that a course of a similar nature will be a permanent feature on Regatta Day, at all events with the P.N.Y.C. The 14-foot race in both morning and afternoon was annexed by a scow, the "Geisha," and the "Valeta." While this could hardly have been otherwise under the weather conditions, I was sorry to see only two competitors, the "Marguerita" and the "Runa," both Petone boats with round bilges. This class can never go ahead on scows only. A scow cannot

beat up to windward against even a moderate sea. This was proved up to the hilt when scows first came out in Wellington, long before the building of the boat harbour, when this class had a thorough try out in the old "patiki" class of the Arawa Sailing Club. The course was a very similar one to the



YACHT "ISCA"—AN OLD TIMER.

No. 2 course on Anniversary Day, and the amount of "pile driving" performed by 16, 18 and 20-foot scows in the beat from Kaiwarra to Jerningham would have built the Clyde Quay wharf easily. It is not so noticeable in a small scow, perhaps, but build a large one and you will see the difference. That is why it is so important to my mind that steps should be taken to foster in the P.N.Y.C. a round bilge glass once more to take the place of the old 14-foot class of the Arawa Sailing Club. The win of the "Waitangi" in the morning event was a popular one. It is some time since the old "Wai" appeared in the prize winners list, but that, of course, is not quite her fault. She is a good old boat, beloved of all present and old-time yachtsmen. It was a matter for comment on Monday what a number of new suits of sails were in evidence. Prety nearly every boat seemed to have a new suit of sails, and the general effect on such a fine day was one to be remembered with pleasure by the spectators. If the attendance on the Clyde Quay wharf was not large, it was very enthusiastic. The "Amokura" boys came in for a good deal of notice, both in their rowing and swimming events. They are splendid sports, and deserved all the praise they got. The motor boat race was of the hare and tortoise variety, and lent iself considerably to sporting wagers. As usual, it does not always do well to back the hare every time, and in this instance also the tortoise romped home by a hundred yards first. In conclusion, due measure of praise must not be for gotten to all competing yachtsmen, who turned out so well and raced with such enthusiasm for pennant trophies. They have proved themselves to be thorough sportsmen in every sense of the term, and shown clearly that they care for the sport of racing first and prizes second, which is as it should be.

Results were as follows:—

Second-class Yacht Race.—"Taipare" (finished 2.9 p.m.), 1; "Amai" (2.13 p.m.), 2; "Lizzie" (2.14 p.m.), 3. Also started—"Rawene" and "Ethel." The "Taipare" won with something to spare; there was a good race for second place.

First-class Yacht Handicap.—"Waitangi" (scr.), 1; "Mahina" (12min.), 2; "Muritai" (22min.), 3. Also started—"Ailsa" (9min.), "Wairere" (8min.), "Syren" (12min.), "Windward" (25 min.), "Viking" (30min.). The winner arrived home at 2.5 p.m., and the last boat at 2.26 p.m.

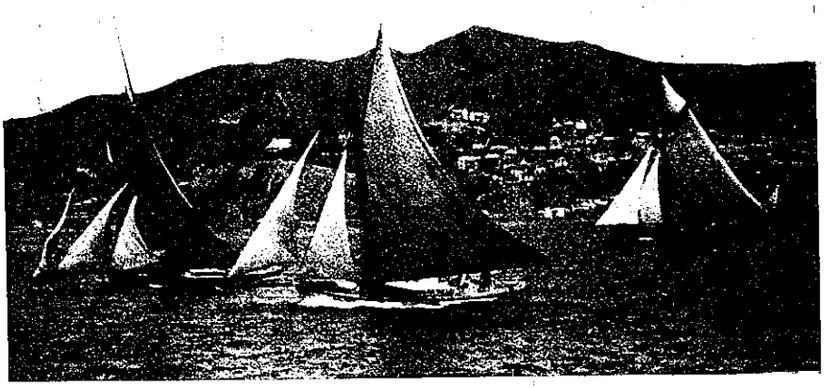
Fourteen-footer Sailing Boats Race (twice round course).—"Geisha" (finishing time 1.52 p.m.), 1; "Kaitere" (1.54 p.m.), 2; "Valeta" (1.56 p.m.), 3. Also started "Runa," "Nan," and "Marguerita."

Naval Cutters Race.—Wellington No. 2 Battalion, 1. "Amokura," 2. This was a well contested race from the start, and the winners had to row hard all the way.

Second-class Yacht Race.—"Amai" (18min.), 1; "Ethel" (18min.), 2; "Taipare" (scr.), 3. Also started—"Patronus" (28min.), "Lizzie" (scr.). The first boat finished at 4.27 p.m., and the "Lizzie" at 4.51 p.m.

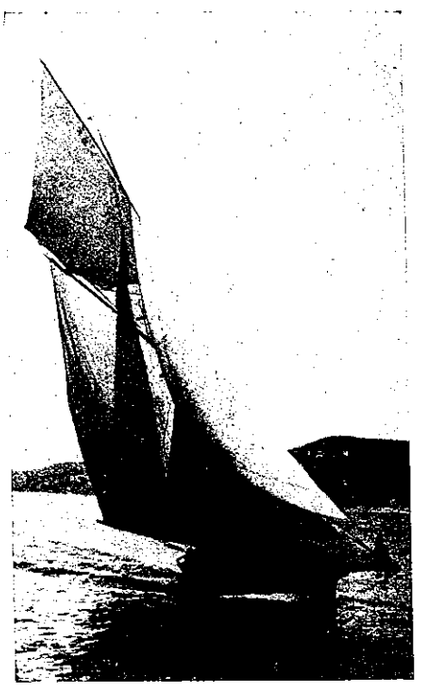
First-class Yacht Race.—"Windward" (25min.), 1; "Muritai" (22min.), 2; "Syren" (12min.), 3. Also started—"Ailsa" (9min.), "Wairere" (8min.), "Waitangi" (scr.), "Mahina" (12min.).

Fourteen-foot Sailing Boats Race.—"Valeta" (finished 4.12 p.m.), 1; "Nan" (4.15 p.m.), 2; "Kaitere" (4.16 p.m.), 3. Also started—"Geisha" (4.17 p.m.), and "Runa" (4.18 p.m.).



YACHTS "ISCA," "MAPU," AND "WAITANGI," WELLINGTON, 1895.

Motor Boat Handicap.—"Swan" (50 min.), 1; "Waione" (scr.), 2; "Tender" (50min.), 3. These were the only starters. When the scratch boat started the other two had completed one round of the course, and were well on the way on the second. "Waione" got up just in



"MARITANA"—EX-CHAMPION OF N.Z.

time to pass the "Tender" fifty yards from home. The "Swan" had about one hundred yards to spare at the finish.

"Amokura" Challenge Cup Contest.—Starboard Watch, 1. The winners accounted for both races easily, their time in each instance being 7min. The course measured about one mile.

Seventy-five Yards Swimming Race—Page, 1; Kivell, 2; Brown, 3. A large number of boys, mostly from the "Amokura," started.

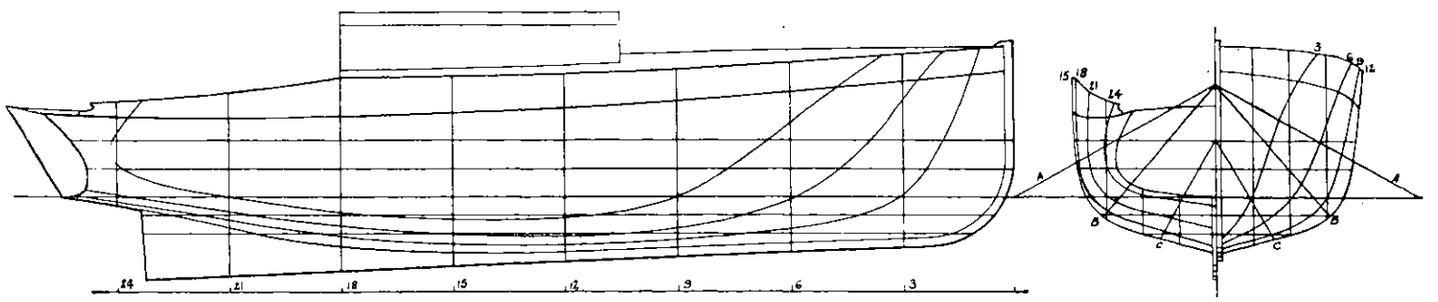
Boys' Diving Competition.—E. Eriston "Amokura," 1; Ward, 2.

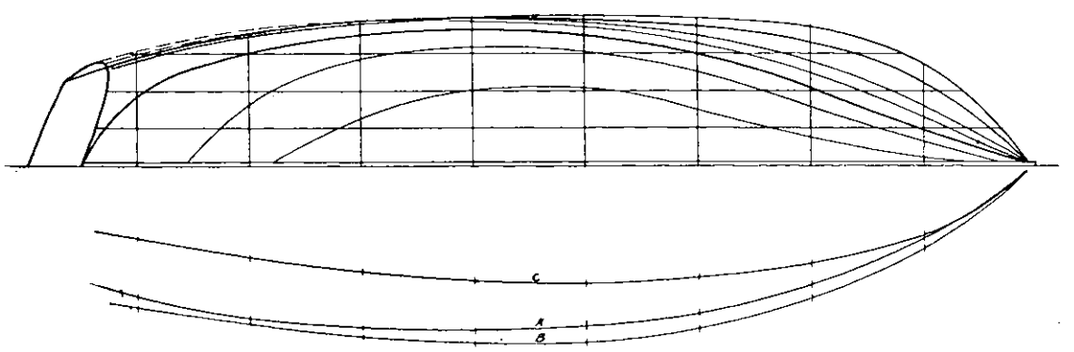
Jupp's Band contributed musical numbers throughout the afternoon; refreshments were served on the Clyde Quay.

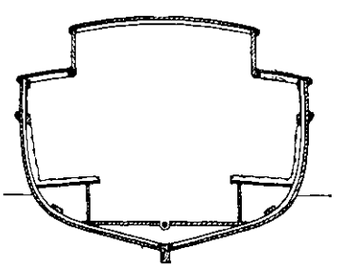
Among the craft noticeable on Opening Day in Wellington was Mr. Geo. W. Jackson's fine auxiliary cruiser "Taniwha." Her combination of full power (20 h.p. Gardner) and fair sail spread enables her to cover a great deal of ground in a little while. Her owner informs us that he has crossed the Strait no fewer than 48 times in her. This is easily a record among our seagoing owners, though taken as a whole they are much keener on cruising than ever before. This season no less than seventeen boats have made the trip to the Sounds. "BOAT 'ARBOUR BILL."

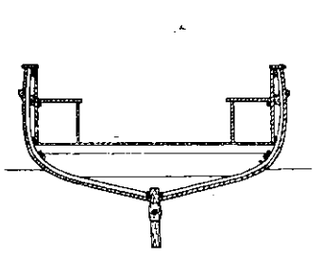
DESIGN FOR 27 FOOT CRUISING LAUNCH.

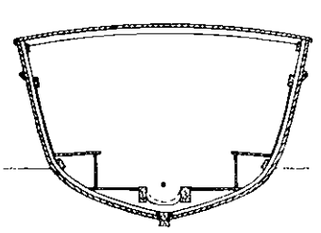
By S. T. Silver, Wellington.

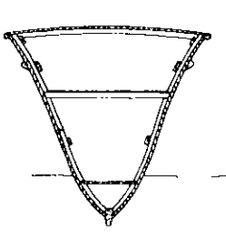


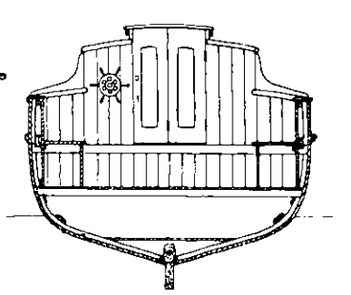


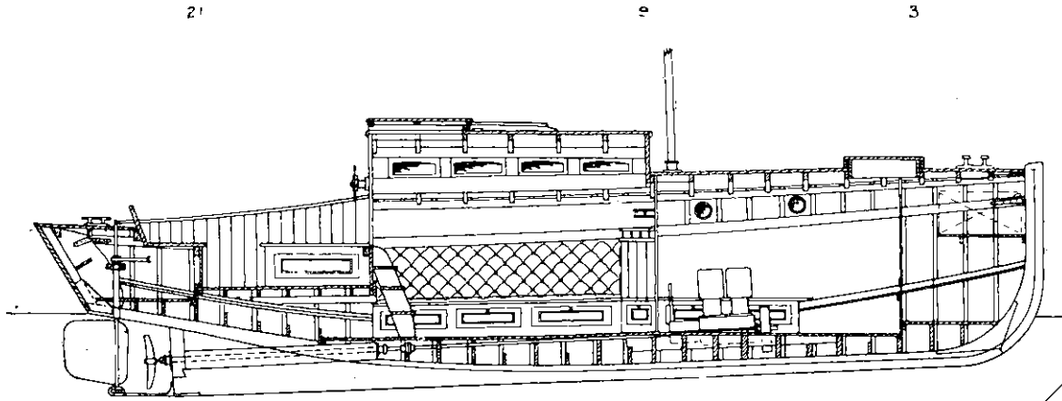


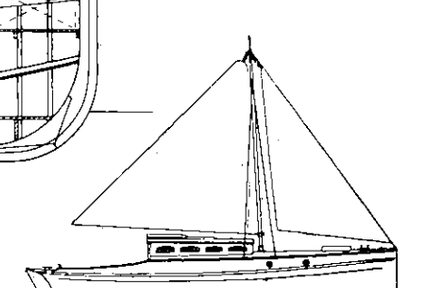


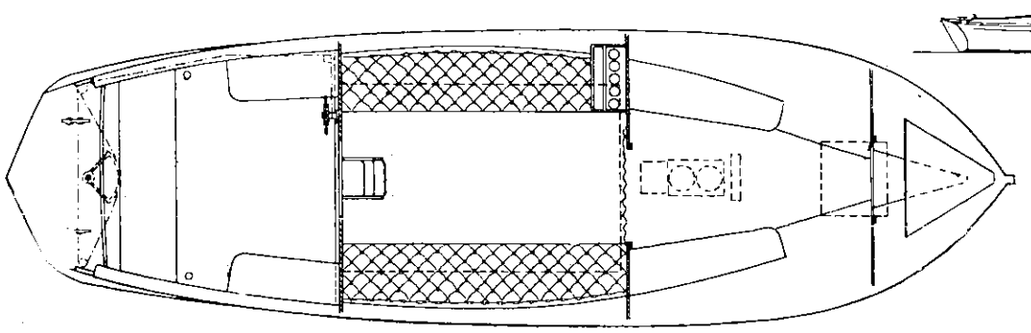












Length—Overall, 27 ft.; waterline, 25 ft. 3 in.; beam, 8 ft.; draught, 2 ft. 4 in. Keel, 3 in. sided kauri. Planking, $\frac{5}{8}$ in. kauri. Ribs, $1\frac{1}{2}$ in. x $1\frac{1}{2}$ in. spaced 10 in. centres red birch. Floors, $1\frac{1}{2}$ in., 2 in. at engine bed. Gunwale and bilge clamps, $3\frac{1}{2}$ in. x $1\frac{1}{2}$ in., tapered fore and aft. Raised deck clamps, 3 in. x 1 in. Deck beams, $2\frac{1}{2}$ in. x $1\frac{1}{2}$ in., sawed to camber 12 in. across. Decking, single skin, $\frac{3}{4}$ in., covered with canvas.

Auckland Anniversary Regatta, 1912.

BY O. FREYBERG.

The 29th of January is the greatest day of the year in the yachtsman's calendar. For 73 years, with only one exception, has Auckland's Anniversary been celebrated by the holding of a regatta, the like of which cannot be seen in the Southern Hemisphere, and which rivals the Old World ports in all save the size of the craft engaged. This year, for the 72nd time, everything was in order—Prizes provided, plentiful entries, eager crews and numerous, scarcely less eager spectators—only one thing was wanted—wind, that invisible commodity necessary for the exercise of the sailor's skill, but it was sadly lacking, so that in some cases—the first-clas yachts, 25ft. l.w.l. yachts, and 26ft. mullet boats—the races did not finish before the prescribed time, seven o'clock, and will have to be resailed. Although this is a good rule for several reasons, yet it was rather hard on the 26ft. mullet boats, which, after a great struggle, finished in a bunch shortly after 7 p.m.

The morning opened beautifully fine and soft masses of fleecy clouds at different points of the horizon seemed to promise wind, but the promise was only meagerly fulfilled. At first there was a light south-west breeze, which enabled the trading vessels and first-class yachts to cross the starting line and start down the harbour against the flood tide. This soon fell away, however, and by the time the 25ft. l.w.l. class started, there was hardly enough air for them to stem the tide. Time was going on, however, and race after race was started, so that by noon there was an indescribable jumble of craft around the flagship, all doing their level best to stem the tide and work their way down harbour.

The sight of all these craft—at one time I counted over 170 from the "Tofua's" bridge—was beautiful in the extreme. The sky above was as blue as the water, which reflected everywhere the piles of snowy canvas. Every craft was carrying its utmost amount of sail, and every conceivable speedmaker was rigged to catch the elusive whisper of breeze, which, coming first from this way and then from that, caused some rather curious sights. I saw two boats carrying their booms broad off, and with spinnakers set meeting end on, only to be becalmed before they actually touched, and boats not five yards apart, sailing the same course, close hauled on different tacks. On such a day, real racing was, of course, out of the question, and although at times there was quite a decent sailing breeze, it was always flukey in the extreme, and the vanquished comforted themselves accordingly.

The following is a summary of results:

First Class.—"Ariki," "Ilex," "Rawene," "Heartsease" and "Ida." Unfinished. "Ariki" turned back half way through second round, the rest returning to their moorings after the first round.

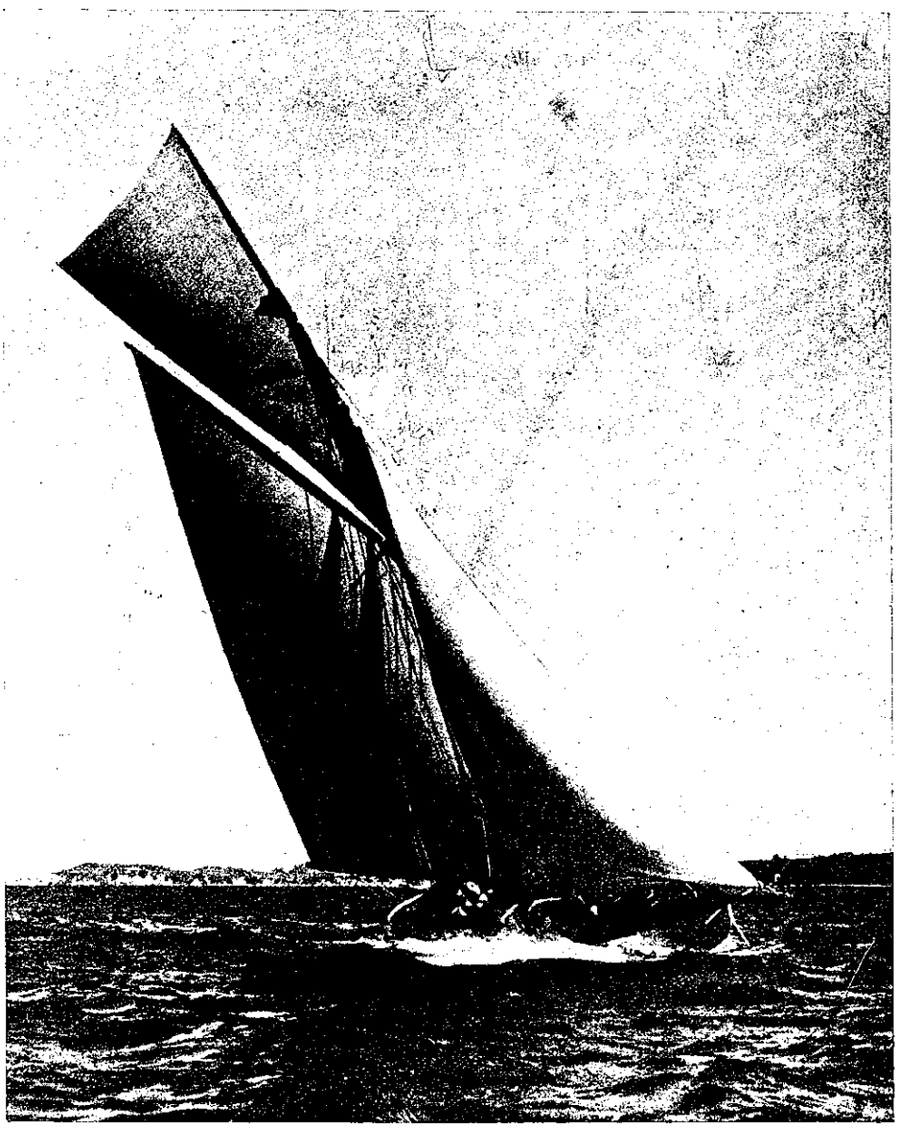
25ft. W.L. Class.—"Speedwell" got away with a good lead, "Wairiki," "Pandora" and "Scout" with others following but none finished before 7 p.m.

Trading Vessels Over 25 Tons.—"Greyhound" got away first, closely followed by "Vesper," "Alma" and "Moonah," with "Kitty Fraser" last. These boats were a grand sight as they moved off with every available stitch of canvas set, topsails, ringtails, watersails and all. They worked the northern shore, but sometimes striking calm patches, could not stem the tide, so their progress was so slow that they were visible from the flagship until long after noon. There is, for various reasons, no time limit for the traders race, so these boats fought it out to the bitter end, eventually finishing the following morning at breakfast time. "Vesper" 8hr. 24min. 14sec.; "Greyhound," 9hr. 5min. 19sec.. "May," 9hr. 5min. 53sec.; "Kitty Fraser," 9hr. 15min. 5sec.; "Alma," 10hr. 2min. 35sec.; "Monah," 10hr. 18min. 20sec. Time allowance places "Vesper" 1st, "May" 2nd., "Greyhound" 3rd. An outcome of this is a challenge race for £100 a side between the "Vesper" and "Greyhound," to be sailed in June, the only stipulation is for a 6-knot breeze at the start.

Trading Cutters.—Janet was first across the line, "Stag" second, with the rest close astern. This was the closest race of the traders, and resulted in a win for "Mana," with "Janet" second.

Traders Under 25 Tons.—Just after the start of this race the wind shifted to the east, the breeze freshened, but soon died away again and went back to its old quarter, s.w. The finishing times were: "Maggie," 9hr. 24min. 40sec.; "Dominion," 12hr. 36min. 42sec. Time allowance did not alter the placing.

Cruisers.—At the start of this race the s.w. wind was light, but steady. Additional interest was felt owing to the entry of "Colma," which had sailed from "Kawhia" over 500 miles to try her luck. "Ngatira" crossed the line first, "Marangi" second, "Thistle" third, closely followed by "Gloriana," "Aorere," "Colma" and "Kotiri" in the order named. "Kotiri" was fully a minute late with "Victory" and "Waione." In the flukey weather down the passage "Aorere" worked out a substantial lead, which she kept almost to the finish, when she was passed by "Ngatira," which led her home by 2min. 8sec., thus winning the prize and sweepstake by 8sec. "Aorere" was second and "Waione" third.



FIRST CLASS YACHT "ARIKI," CHAMPION OF NEW ZEALAND.

26ft. Mullet Boats.—Unfinished, to be resailed.

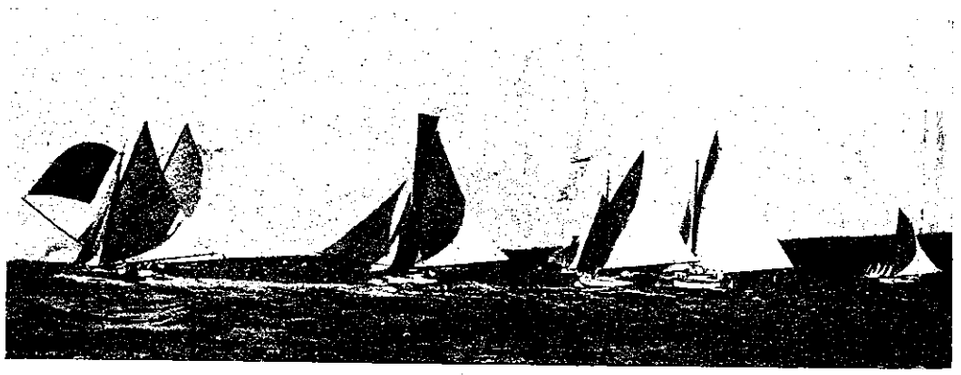
Patikis.—"Valdora" got a long lead at the start, the light wind and ebb tide preventing "Maroondah" and "Waterwitch" from crossing for nearly an hour. Only "Maroondah" finished, her time being 5hr. 19min. 25sec.

24ft. Mullet Boats.—These boats got away well together, "Waitere" and "Maru" being close together in the lead. After a flukey race three boats finished—"Waitere," 6hr. 9min. 20sec.; "Ranee," 6hr. 33min. 12sec.; and "Maru," 6hr.

41min. 20sec. Time allowance made no alteration.

Vessel's Lifeboats (sailing).—Unfinished. Two starters.

22ft. Mullet Boats.—"Venus" was first away, "Dulcie," "Hilda," "Arcadia," "Waima" and "Mowai" close together in the order named. This race, like the others, was a succession of flukes, and at times all hands were busy changing leading jibs and spinnakers. The finishing times corrected place "Arcadia" 1st, "Waima" 2nd, and "Mowai" 3rd.



START OF THE CRUISERS.

Open Boats.—The first over after the gun was "Sceptre," closely followed by "Aero," "Mascotte," "Eclipse," "Mistral," "Flattie," "Atangaiti," "Minerva" and "Lasca." Shortly after the start, and for some time, there was an absolute calm, and most of the boats anchored to prevent the tide carrying them back over the line. A fresh start was made when a s.w. breeze sprang up. The finishing times were: "Atangaiti," 4hr. 24min. 25sec.; "Sceptre," 4hr. 29min. 5sec.; "Minerva," 4hr. 31min. 10sec. Corrected times place "Minerva" 1st, "Atangaiti" 2nd, "Sceptre" 3rd.

10ft. Dingeys.—Tonui anchored at the start and held her position against the tide, "Firefly," "Spray" and "Mihaka" drifting some distance back. Eventually "Firefly" won, with "Tonui" second.

Yachts 26ft. o.a.—This race also was started in a calm, in fact, at the time there were fully twenty boats to the acre round about the flagship, either anchored, or else vainly striving to stem the tide. "Alice," the first boat home, won, with "Neola" second and "Mayo" third.

20ft. Mullet Boats.—The large field in this race crossed the line close together and looked splendid, after the breeze came up, as they struggled for supremacy. Corrected times place "Seahorse" 1st, "Decima" 2nd, "Ngaro" 3rd. ("Ngaro" is the boat whose lines, designed by Sinton and Fisher, appeared in our August number.)

14ft. Dingeys.—"Ikarere" 1st, "Moakin" 2nd.

Model Yachts.—"Ariki" 1st. "Pirate" 2nd, "Shamrock" 3rd.

MOTOR BOATS.

Under Seven Knots.—The weather conditions were absolutely ideal for the power craft; in fact, too much so, with the result that no less than eight of the contestants were disqualified for doing over seven knots instead of the speed they had declared when entering. These were: "Nukualofa," "Opal," "Automatic," "Elaine," "Waiari," "Spray," "C & B," and "Maude." The corrected times placed "Dot" 1st, "Rene" 2nd, "Billy Richardson" 3rd.

Over Seven Knots.—In this race also there were some slim gentlemen who had more than was supposed in their propellors, and some little feeling, we understand, was expressed at the handicapping. The "Madge" was scratch, and many tipped her to win, despite the fact that she was giving "Princess" thirteen minutes, so great surprise was felt when Princess came in at the finish with her thirteen minutes' handicap to spare, although "Madge" had performed consistently. "Cygnet's" handicap, however, placed her ahead of "Princess," which took second place, and "Madge" third. "Seabird" was a non-starter, owing to a mistake, and "John Kennedy" was several minutes late, thereby losing whatever chance she may have had.

The flagship "Tofua," lent for the day by the Union Steamship Co., was moored in the stream opposite Queen Street Wharf, and was the coign of vantage from which hundreds of spectators watched the racing. The "Pitoitoi" plied at intervals throughout the day between the flagship and wharf. Luncheon and afternoon tea were dispensed on the flagship, and a band was in attendance.

her lines are easy. Another launch, for which they have the keel laid, is to the order of Messrs. Sinton & Fisher, for their own use, and will be engined with a 5/7 h.p. double cylinder Niagara, for which they are sole N.Z. agents. This is a comfortable looking little craft, similar to "Niagara," the design and photo of which we show on another page. On the slip at Harvey & Lang's we noticed the little 20-foot launch "Ripple," which has just been built by Mr. Dick Lang. She is engined with a 3 h.p. Regal direct coupled. There is a small house over the engine, which is right forward, aft of which is a small raised canopy top with glass fronts to shelter the helmsman, who has also the engine in his immediate control; then follows a large and comfortable cockpit. She is nicely finished and would make a comfortable day boat.

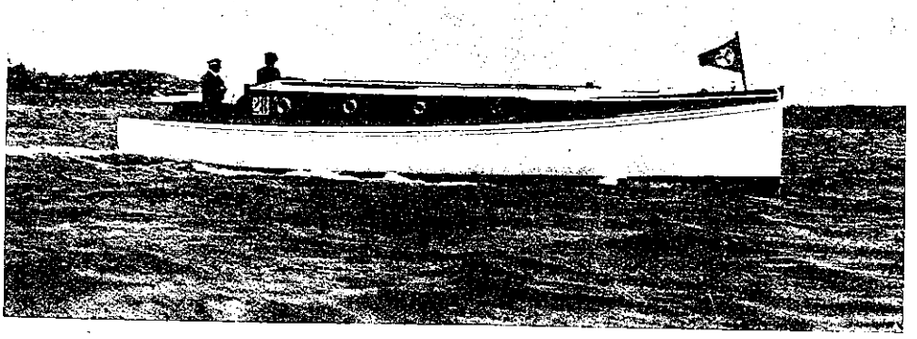
Mr. D. Spencer, of Freeman's Bay, has in hand, and nearly finished, a fine cruising launch to the order of Mr. Clayton, of Ponsonby. She is of the raised deck tuck stern type, that has become so popular lately, and presents a bold and very "fair" appearance as she lies in the shed almost planked up. She is 26ft. o.a., 7ft. beam, and about 2ft. draught. Her cockpit is 6ft. long, and will be finished in imitation teak. The cabin, which is aft, is 8ft. long, and will be finished in white enamel and gold. The engine-room extends right up forward, and is 10ft. long. It will be grained oak colour. The power plant is to be a double cylinder 9 h.p. Zealandia, which should give her a fair speed.

* * *

Mr. C. Gouk, of Freeman's Bay, has in hand a 20ft. tuck stern launch, to be equipped with a 4 h.p. Evansville motor, for which he is agent.

* * *

Mr. Ted Bailey, at the Boat Harbour, Wellington, has his men busy on the 32ft. auxiliary for the Pettley-Seager syndicate. As soon as she is launched he will get on with the deep-keeler for a local medical man, which has been ordered for some time.



MR. LEYLAND'S "JEAN." T. M. Lane & Sons, Builders, Auckland.

NOTES.

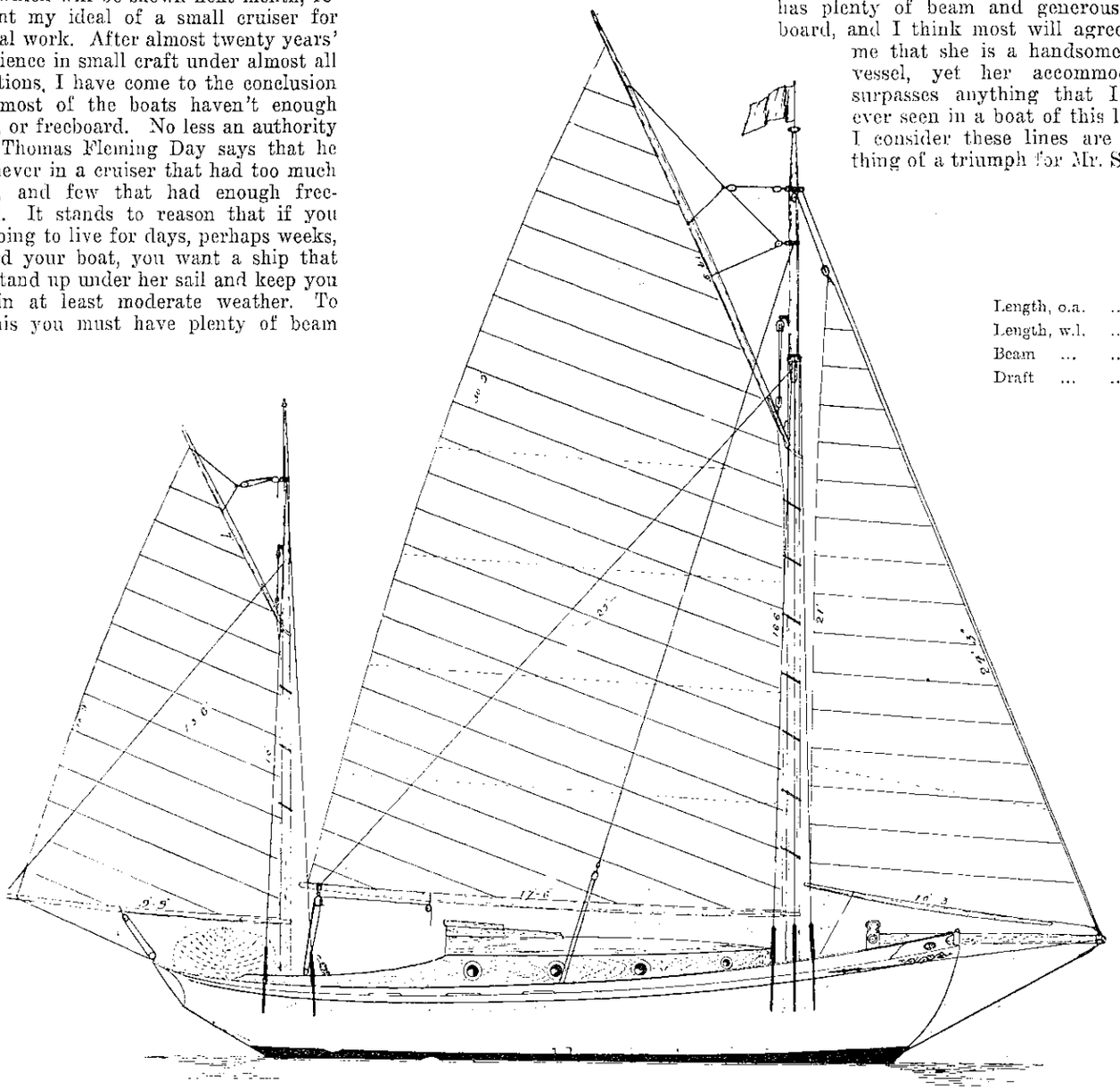
Messrs. Harvey & Lang have a lot of work in hand, including three 28ft. mullet boats, auxiliary, for a fishing concern, a 20ft. x 5ft. 6in. tuck stern raised deck launch for a gentleman at Whangarei, to be equipped with a 4 h.p. Northwest single cylinder 4-cycle engine, which should give her a fair turn of speed, as

We are indebted to the courtesy of the "New Zealand Yachtsman" for the blocks of "Ariki," start of the cruisers, and "Jean." The photos of the Wellington old timers are by Mr. Winkelmann, of Auckland, and the particularly fine group of present craft by Mr. Barton. "Lizzie" was taken by Mr. Taylor.

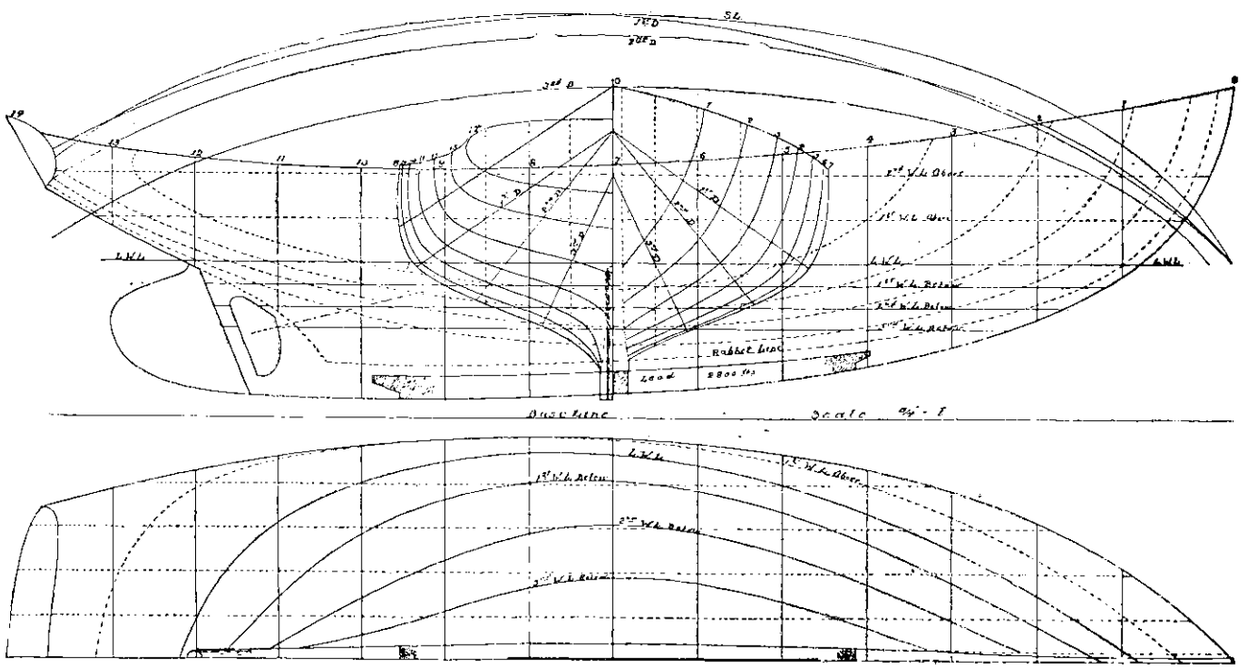
Design 29 foot Auxiliary Cruiser.

These plans, and the accommodation plan which will be shown next month, represent my ideal of a small cruiser for general work. After almost twenty years' experience in small craft under almost all conditions, I have come to the conclusion that most of the boats haven't enough beam, or freeboard. No less an authority than Thomas Fleming Day says that he was never in a cruiser that had too much beam, and few that had enough freeboard. It stands to reason that if you are going to live for days, perhaps weeks, aboard your boat, you want a ship that will stand up under her sail and keep you dry in at least moderate weather. To do this you must have plenty of beam and freeboard to your ship, and not a long, low, narrow craft that, however beautiful she may look swinging at her moorings, as soon as she gets a breeze or a little seaway heels over at a sharp angle and proceeds to slice off the wave tops all over you. Now this little ship has plenty of beam and generous freeboard, and I think most will agree with me that she is a handsome little vessel, yet her accommodation surpasses anything that I have ever seen in a boat of this length. I consider these lines are something of a triumph for Mr. Sinton

Length, o.a.	...	29ft.
Length, w.l.	...	23ft.
Beam	... ...	10ft.
Draft	... ...	3ft.



SAIL PLAN OF 29 FOOT AUXILIARY CRUISING KETCH. By Mr. W. Sinton.



DESIGN OF 29 FOOT AUXILIARY CRUISING KETCH. By Mr. W. Sinton.

who drew them; and the boat, when built, will, I am sure, greatly add to his reputation. The plans came to be drawn in this way: I supplied the dimensions and general idea of form, but Mr. Sinton moulded them into the fair lines you now see, and I think he did the best that possibly could be done with those dimensions, which were necessary to get the accommodation and sea-going ability I had in mind. If she is a success, and I am confident she will be, I shall proudly claim the credit, but if, for some to me now hidden reason, she is anything of a failure, and I can't conceive it, I shall promptly lay the blame on Mr. Sinton's broad shoulders. The lines show a graceful sweep to the sheer line, rising from a least freeboard of 2ft. 3in. to 4ft. forward and 3ft. aft. While the entrance is full and has plenty of lifting power in the flare of the bows, it is not in the least bit boxy or flat underneath, and she should not pound in the least in a seaway. The midship section shows considerable rise to the floor, which will assist in making her a better seaboat and faster than the majority of centreboard boats. In fact, she is a deep-keeler in all except the extra draught and leverage. The centreboard was planned because there are so many little rivers and harbours available to a boat drawing three feet which the average deep-keeler cannot look into.

She has considerable length of floor and from the midship section aft the lines are wonderfully easy, and resemble Capt. Slocum's wonderful "Spray" in some respects. The counter, which has been kept broad to preserve the fairness of the lines and delivery, is certainly rather decent to look at, with its eliptical tuck and slightly tumbled home sides.

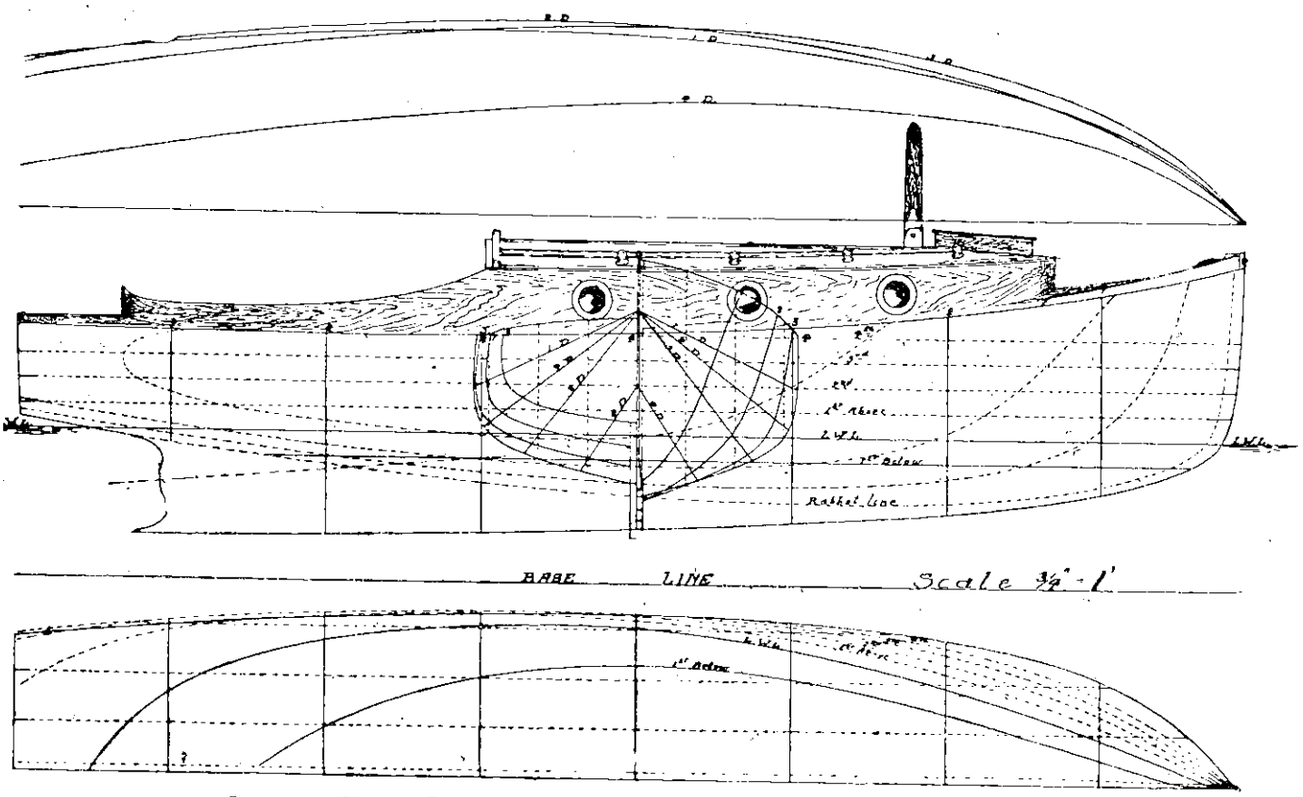
The ketch rig was adopted, as it is by far the handiest, and the sail spread, while moderate, is certainly ample for all but the lightest weather, when the small auxiliary engine would come into play.

The rig and general arrangements above deck are specially planned for comfort and handiness in a seaway, or when cruising, and are the best, according to the writer's observation and experience. All the sheets tend themselves in stays, the jib-sheet being on a traveller. The trouble of beating to windward is thus reduced to a minimum. She is so beamy that, on a wind, both backstays can remain set up, a great boon in a seaway, as it prevents weather-whipping of the mast. To go about, all that is necessary is to give her a few spokes of the wheel, she comes into the wind, the sheets tend themselves over, no letting go and making fast, pulling and hauling, cursing, etc.; she pays off and you steady her on her new course. Very different from the old way is it not? The dingey, that bane of all small cruisers, is well provided for; she stows upside down, athwartships on deck under the mizzen boom, and is secured by a triangular lashing. The cockpit is large and comfortable—7ft. 6in. between the combings, but the actual well into which one's feet go is only 4ft. by 3ft. The deck extends inside the combings and forms seats at the sides, 18in. wide and 2ft. forward. The cockpit floor is 9in. above the water-line at the lowest, and as it is well inboard, is self-bailing in all weathers. A comfortable cockpit is of great importance, as so much time is spent there. The mainsail is cut with 3ft. lift in the boom, and will comfortably clear the heads of the crew.

A small hatch in the starboard side of the bridge deck, inside the cockpit combings, gives access to the engine, which is in the run.

It is below deck that this boat excels as a cruiser. Entering by the companion, on the port side is a separate compartment containing wash bowl, piped from f.w. tank in counter, patent w.c. and space for oilskins, sea boots, etc. Ventilation is provided by two opening ports in the deck house at side and after end. On the starboard side is a galley, containing stove platform, pot, dish and plate lockers and racks, and a small sink piped from the f.w. tank. This is a similar compartment to the one opposite, except that a curtain takes the place of the door.

The main cabin extends 6ft. 6in. forward and is 10ft. wide, with 5ft. 6in. clear headroom. The side benches are 26in. wide, and the floor is about the same width on either side of the centreboard case. A folding table is hinged to the top of the centre case, and is about 4ft. by 3ft. 6in. There is a sliding door through the forward bulkhead into the forecabin which has 5ft. 6in. headroom under the deckhouse for about 3ft. fore and aft, enough for one to dress in. There are two good full-length bunks built in the forecabin with lockers under, having doors in front, and there is a large shelf for stowage right in the eyes. Ventilation is provided by a screw port in the fore end of the deck house, and a 5in. screw deck plate, into which a cowl head ventilator can be screwed. There is no forehatch, as in small craft they can so seldom be kept tight, and a leaky hatch is an abomination.



DESIGN OF 25 FOOT CRUISING LAUNCH, "NIAGARA." By Messrs. Sinton & Fisher, Auckland.

Auckland Building Notes.

Messrs. T. M. Lane & Sons, King's Drive, Auckland, have recently completed the fine launch "Jean," to the order of Mr. Leyland. She is 33 feet over all, 7ft. 9in. beam, and 2ft. 3in. draught, and is engined with a double cylinder 12 h.p. Scripps, for which the firm are agents. Of the raised deck type, she has very handsome lines, and is strongly constructed with a single skin on frames. Below decks she is very comfortable. In the fore cabin are two good

bunks, cooking arrangements and lockers for dishes and stores. The engine room is five feet long, and contains, besides the power plant and tank, tool lockers and a complete lighting outfit, which supplies light to four points in the cabin and the side lights. The main cabin is eleven feet long and spacious. There are comfortably wide side benches nicely upholstered. The finish is white enamel with mottle kauri panels. There are ten brass screw ports for light and air. The cockpit and sides of the house are finished in imitation teak. Outside, the topsides are finished with white enamel with a gold band. The raised deck is painted dark green with gold scroll and name. Her speed is nine knots.

Quite the handsomest tuck stern craft that I have seen for some time is the "Mollie," recently built by Lanes for Capt. Somerville. In addition to her looks, she has very comfortable accommodation, and the respectable speed of 9¼ knots, or over 10½ miles. She is wonderfully handy, all controls being at the wheel, so that she is practically a one-man boat. Her 4-cylinder Scripps runs as sweetly and noiselessly as the proverbial sewing machine. The fore-cabin contains two galvanised stoves permanently located forward, under the hatch, where the smell of cooking can escape. There are ample lockers and a wardrobe, besides two good bunks in this compartment. The engine room also contains a berth besides the plant and tank, lighting outfit and switchboard which supplies light to five points. The saloon is 12 feet long, and is lighted by ports and skylight. The cockpit, which is specially commodious, is seven feet long, and, like the sides of the house, is finished in imitation teak.

Another boat recently finished by Lanes for an Auckland yachtsman is engined with an eight-cylinder Antoinette engine. She is 35 x 9 x 2ft. 6in. Finished in Lane's usual style, she should be comfortable and speedy when her engine gets running well. She is something similar to the "Mollie."

* * *

Messrs. Bailey & Lowe have just launched a fine tuck stern auxiliary centre-boarder for Mr. Percy Dufaur. She is 25ft. over all by 10ft. beam by 2ft. 6in. draught, and is of single skin construction, ⅞in. planking. The engine, a 4 h.p. Kapai, is in the cockpit, which is very roomy. There is 4 feet headroom in the cabin, and sleeping accommodation for four on the side benches. A table is hinged to the centreboard case, which is lead lined. She is rigged with a mainsail, jib and staysail, and should give a good account of herself under sail, while the engine will take care of her when the wind fails.

* * *

Niagara Motors are the four-cycle type, and are made in two, four and six cylinders, five to ninety horse power.

The design is simple and symmetrical, devoid of superfluous, intricate or complicated parts, which easily get out of order and result in endless annoyance and expense.

All Niagara parts are made with the use of jigs and gauges, and are therefore uniform and of standard size.

Large handhole plates are provided in crank cases, making it a simple matter to get at crank, shaft and connecting rods. All cylinders are cast separately, they are readily removable, admitting of easy access to pistons. It is so simple and uncomplicated in its construction that a child can operate it. There being no superfluous or intricate parts, there is very little to get out of order. The bearings, cylinders and pistons are lubricated by a positive feed mechanical oiler, the flow of oil being regulated by speed of motor. All motors are fitted with this type of oiler, which is considered far more dependable than gravity oilers, and they require practically no attention after the reservoir of the oiler has been filled. In addition to this method the splash system is also used.

These motors can with truth be called noiseless motors. This is largely due to the gears being enclosed within the crank chamber, thereby deadening the noise and preventing the possibility of accident in connection with the gears.

The crank shafts are made of open hearth, thirty-five point carbon steel, and are hammer forged. They have extra long bearings of large diameter. The two cylinder crank shafts have three bearings, the four cylinder crank shafts have five bearings, and the six cylinder shafts have seven bearings. Very special attention is given to crank shafts, the bearings being finished until their surface is as smooth as glass.

The valves are made with cast iron heads welded on steel stems, which have an advantage over the all-steel valves, as they prevent the pitting of the valve seats.

The valve springs are made of special oil-hardened steel, and will not set, or lose their rigidity.

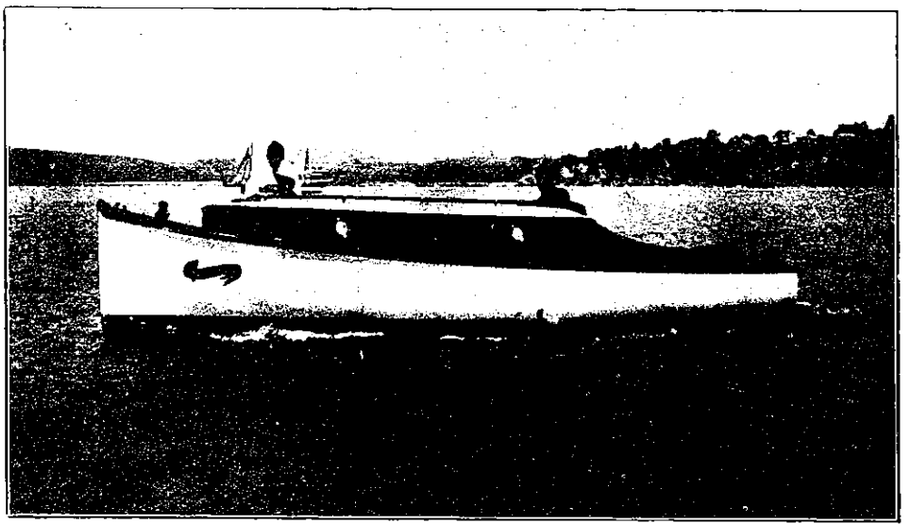
The connecting rods are made of manganese bronze and steel, they are adjustable at both ends, thereby making it easily possible to take up any lost motion due to wear, thus saving expense of new piston pins and bushings. The upper ends of the connecting rods are fitted with phosphor-bronze bushings of ample width, which are readily removable should occasion require. The bearings in lower end are die cast, made of "Superior" babbitt. These bearings are easily removable.

The cylinders are made of the best of gray iron. They are cast separately, which admits of more perfect water jacketing, and should a cylinder become damaged, it is not necessary to discard or replace more than one cylinder. Valve openings are on opposite sides, thus making it possible for the exploded gases to be entirely cleared from explosion chamber before the fresh charge is taken in.

The pistons are made of superior gray iron. They are extra long, which insures long life and prevents "slapping" in the cylinders. They are fitted with four rings, three at the upper end and one at the lower end. The pistons, as well as the rings, are ground to size on special grinder designed for this purpose.

The exhaust manifolds are completely water jacketed. The circulating water, after leaving the cylinders, passes through the water jacket of the exhaust pipe, thereby keeping the latter cool.

The reversing gear clutches are of the planetary type, and are made to meet the requirements of severe service. The gears are cut from solid, especially treated, gear steel, and are fitted with long bronze bushings. The driving gear is keyed and shrunk on to the shaft, after which it is ground to size and the teeth cut, making a perfect alignment, which result is not possible by the usual method of finishing the gear and then keying.



LAUNCH "NIAGARA," 5 h.p. Niagara, speed 7 miles. *C. Bell, photo.*

* * *

Messrs. T. H. Whitson & Co. report the following sales of marine engines:—18 h.p. double cylinder Union to Mr. T. Johnson, of Helensville, for installation in a 40ft. towing launch; 7 h.p. double cylinder Union to Messrs. Hudson & Biddock, for a 28-foot pleasure launch; 3 h.p. Union to Mr. J. Fell, of Kohukohu; 3 h.p. Ferro to H. Burgess, of Devonport, auxiliary power for a mullet boat; 10 h.p. Union to Mr. R. Saxby, of Opotiki, for a 32-foot working boat—this is the second Mr. Saxby has had within the last few months; 10 h.p. Union to Mr. J. F. Nicholls, of Wanganui, for a pleasure launch; 11 h.p. double cylinder Ferro to Mr. H. Bates, of Hamilton, for a 35-foot pleasure launch on the Waikato River; 6 h.p. Clifton to Mr. D. Abraham, of Batley, Kaipara, for a pleasure launch; 7½ h.p. Ferro to Mr. W. Arnold, of Onehunga, for a pleasure launch; and a 4½ Ferro low-tension type to Mr. Friedlander, of Onehunga, for a pleasure launch.

Collings & Bell's New Premises.

Messrs. Collings and Bell, of St. Mary's Beach, Ponsonby, Auckland, have found it necessary to erect new premises to cope with their growing business.

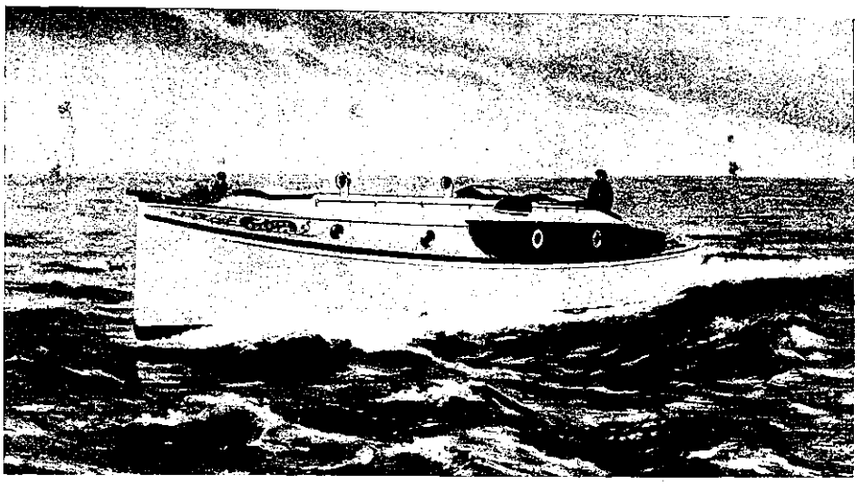
Their new workshop consists of two storys, the bottom floor being 80ft. x 30ft., used for building the heavier and larger launches. On this floor is installed the circular saws, planing machine, etc., which are driven by a gas engine. There is a boiler for steaming and bending timber, and a paint shop.

Provision is made for taking up centre of bottom floor, which enables truck for launching to be placed under vessel, which can then be run out on tram from shop to water, thus saving handling and any danger of scratching paint.

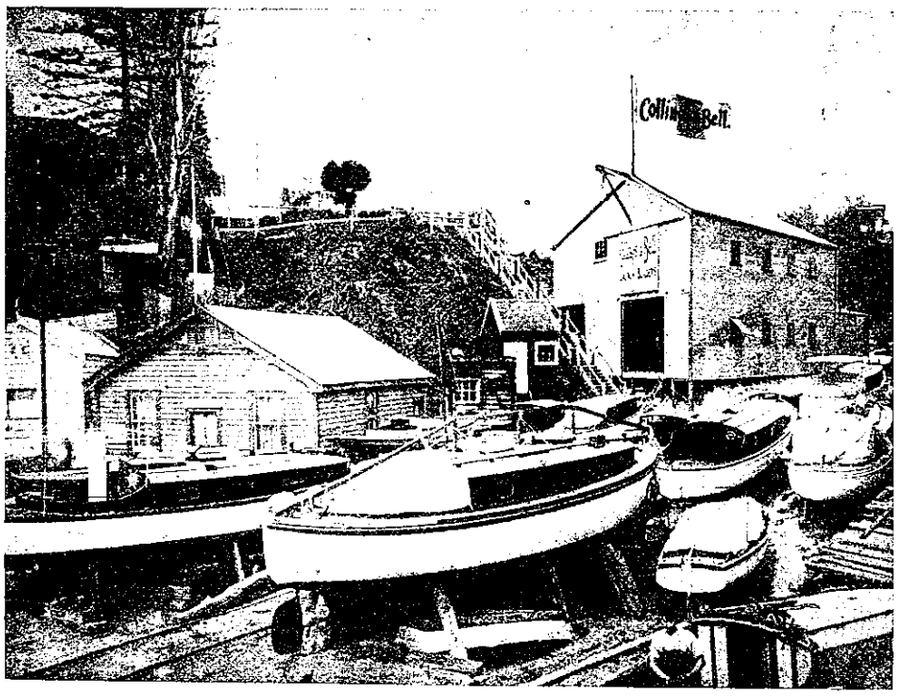
The top story, which is 64ft. x 42ft., consists of show room for Doman and Perfection marine oil engines, K.W. coils, magnetos, spark plugs, and all motor boat accessories, office, store room, large drafting floor, where designs can be drawn out full size. There is also ample room for building the smaller launches, pulling boats, dingeys, etc.

The motors for the launches are taken in on the top floor, lowered through trap doors on to the engine beds of launches building below, thereby saving labour and risk.

They have just delivered to the order of Mr. C. J. Parr, Mayor of Auckland, a 38ft. launch of handsome appearance and design, the cockpit of which is self-bailing, being lined with lead and placed above the water line. The cabin is eleven feet long, having wide berths, and will sleep four. Drawers are fitted under bunks. There is a handsome wardrobe with bevelled plate glass mirror on the port side of cabin, a combined sideboard-bookcase on the starboard side. These are in picked rimu, as is also the table. The cabin is finished in white enamel, the engine and forecabin is fitted with bunks for two, cooking stove, cupboard, lockers, and a sink which discharges below the water line. The engine is an 18 h.p. three-cylinder 6in. bore, 8in. stroke Doman (for which Collings & Bell are agents), heavy duty, having dual ignition, air pump for whistle, plunger pump runs half-speed of engine, a very sensitive governor is fitted, half time wheels are all inclosed and work in oil, lubrication is by splash and force feed to cylinder valves are easy of of access, and their push rods are adjustable. Electric light is supplied by dynamos through storage battery. This engine runs very smoothly and quietly, turning a 26 x 36 propeller, which gives the boat a speed of 10 miles per hour. This is the third launch and engine they have supplied to Mr. Parr's order.

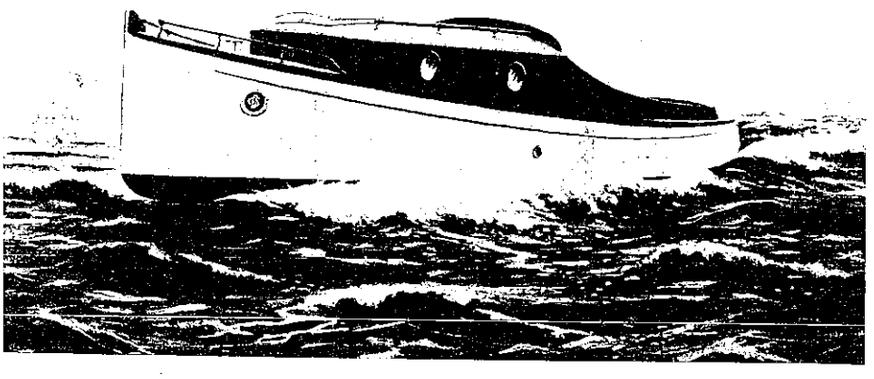


LAUNCH "DOROTHY." By Messrs. Collings & Bell.



MESSRS. COLLINGS & BELL'S NEW YARD AND BUILDINGS, AUCKLAND.

Mr. W. J. Quelch, of Newton, is very pleased with his 35ft. x 8ft. 6in. launch "Dorothy," which is fitted with a 12 h.p. Doman engine. This boat is a fine type of cruiser, having plenty of room and comfort, with a good cruising speed. The cockpit is self-bailing, and will seat 14 persons. From the cockpit, both in this boat and Mr. Parr's, the reverse lever from engine are placed so that the boats can be handled by one person, and picking up moorings, making landing, etc., can be done with far more ease and certainty. There is a very roomy cabin and wide bunks 10ft. long, and will sleep four. There are lockers, cupboards, glass rack, etc., and the cabin is neatly panelled and well ventilated. The engine-room is forward. Also two bunks, cupboards, sink discharging below the water line, fresh water tank, cooking stove, etc. This is Mr. Quelch's third launch and fourth engine supplied by the firm.



LAUNCH. By Messrs. Collings & Bell.

Engineering & Electricity

Gasoline Making Requires a Science.

High Test Fluid Comes From First Distillation. Sulphuric Acid, Alkali and Air Play an Important Part in Purification of the Product.

How many of those who, thanks to gasoline, are enabled to enjoy the pleasures of automobiling, know how that, to them, absolutely essential fluid is made? Stripped of all technical phrasecology and in plain English the ordinary method of producing gasoline is something like this:

Beneath a large cylindrical tank containing from 500 to 1000 barrels of petroleum a large fire is built. Petroleum, or crude oil while cold, retains all its gases and vapours in a liquid state. When, however, they are heated, as in the case in point, the gases rise and enter a large funnel-shaped hood at the top of the tank. From the small of this funnel runs a coil of piping which is surrounded by water. The first vapour given off by the heated oil is the highest test gasoline —the kind you always pay for, but seldom get. This vapour, when it reaches the coil kept cold by the water around it, is at once condensed, changes from a vapour to a liquid, and flows on to a second tank, technically known as a "mixer." At this stage the newly-made gasoline is full of impurities. To remove these and to particularly eliminate the carbon with which it is heavily laden, it is necessary to give the gasoline a bath. This is done in the mixer, the lower end of which is funnel-shaped.

A pipe filled with small holes is brought up through the bottom of the mixer and through the pipe cold air is forced at high pressure. A second pipe is brought into the mixer from the top; through this pipe a stream of sulphuric acid is let into the gasoline in need of a bath. The acid being very much heavier than the oil, promptly proceeds to the bottom of the tank; here it encounters the inrushing air and is forthwith sent back to the surface of the tank. This is repeated until the acid and the gasoline are thoroughly mixed. The result is that every particle of carbon and other impurities is separated from the gasoline and absorbed by the acid. When this has been accomplished the in-coming air is shut off, whereupon the dirt-laden acid at once falls to the bottom of the tank and is drawn off.

The next move is to rinse the mixture and to remove what sulphuric acid remains. An alkali mixture is now poured into the tank of gasoline and the air once more sent rushing through the mixture. The alkali is thereupon washed back and forth until every remaining portion of the sulphuric acid has been gathered up.

When this has been accomplished, the air is once more shut off and the alkali sinks to the bottom of the tank just as the acid did, and is run off, leaving only pure gasoline in the tank.

From the bottom of the tank leads another pipe equipped with a number of stopcocks. An expert opens a valve and allows the gasoline to flow through the pipe. As it passes out the gasoline is tested and the various grades of it—76 degrees, 74 degrees, 68 degrees, etc.—are all separated and conducted to the respective tanks where each is stored. Briefly this is how gasoline is made, but the bare facts as I have partly told them really convey far from an adequate idea of what an exact science the great manufacturing of petroleum products really is.

MACHINERY MADE BY STUDENTS OF WELLINGTON TECHNICAL COLLEGE.

Gas-Motor-Driven Tramway Car.

The use of the gasoline motor for the operation of street cars is no longer a novelty, but an experiment in this line that is being tried with good results in Winthrop, a town adjoining Boston, is in some particulars out of the ordinary. Winthrop is a seaside town much cut up by inlets of the ocean, and it is among the most popular of the nearby summer resorts. A part of Winthrop is known as Point Shirley, the site of the famous Point Shirley Club, and of many cottages. This part of Winthrop has had connection with other sections of the town and with the railroad by stage lines until recently, when the Point Shirley Street Railway Company was formed.

There being only a mile and a quarter to cover, with heavy traffic only in summer months, the new company did not wish to go to the expense of building and maintaining a power house. It therefore hit upon the idea of employing the automobile motor. Its first car is an ordinary short street car. Amidships, and occupying one side of the car is a four-cylinder gasoline motor driving an electric generator, the electricity supplying the motive power for the car. This idea worked out very well, but the power equipment takes up more room than the company wishes to give to it. In the second car, therefore, the power plant consists of a six-cylinder Stevens-Duryea motor and the power is applied directly without the use of an electric generating outfit. The motor is placed below the floor of the car out of sight, and the whole interior space is available for passengers. In addition to its motor cars the company has a trailer, and will put on more if business warrants the increase.—"Motor Vehicle."

Compensating Quadrant Crane.

There is a certain type of machine now in common use that has been handed down to us, with little change, from the very earliest days of history. The crane as employed by the Egyptians in building the Pyramids was not radically different from the derrick of the present day. It consisted then, as it does now, essentially of an upright mast with a boom or gaff. Practically the only advances made in this type of machinery have been in the manipulation of the crane or the motive power utilized. Recently, a patent has been granted on a crane which is a decided innovation. The crane has no mast, but consists merely of a beam mounted on a frame in such a way that it can swing forward like the boom of a derrick while the load it carries moves on a virtually horizontal line as the beam is raised to the vertical position.

The beam is built up of rolled steel and is secured to a pair of quadrants of cast steel formed with teeth, to engage racks at the foot of the frame. The frame is mounted on a swivel base. The beam is raised or lowered by means of a horizontal screw which passes through a nut journaled to the quadrants. As the screw is operated, the quadrants roll on the

toothed foot of the frame. Hence, the fulcrum, which is the point of contact of the quadrant with the frame, moves outward as the beam moves toward the horizontal and at the same time the length of the lever from load to fulcrum is reduced, owing to the bell-crank form of the beam and quadrants.

The compensating mechanism consists of a pair of arms hinged to the beam near the upper end, and secured to one end of a cable, which passes over a sheave at the top of the beam, and then runs to a point on the frame where it is permanently secured. As the beam is moved backward or forward, the arms are correspondingly swung on their hinges, so that their outer ends trace a practically horizontal line. At these outer ends the arms support the upper blocks of the hoisting tackle over which the hoisting cables run to a pair of winding drums. As a result of this "parallel motion" the load is not materially lifted as the crane is swung upward, and the bending moment on the beam is greatly reduced.

The accompanying illustrations show a model of a full-sized 4-ton crane, which has a lifting capacity of 2½ tons. In this crane the actual reduction in bending moment of the beam due to the compensating device is five-sixths; that is, a load of 120 foot-tons is reduced to 20 foot-tons, while the maximum thrust on the screw is less than 2¼ tons. The screw may thus be regarded as a simple controlling device rather than a means for shifting the load, the load being practically balanced. There is no bending moment on the screw, the thrust being exerted in line with its axis. In use the crane is provided with separate motors for actuating the screw and the winding drums, and the gear by which the crane is swivelled on its base. Thus the crane is self-contained, making it a very serviceable piece of machinery for docks, ships, wrecking cars, etc. It is the present practice in the constructions of buildings to operate the cranes from a plant on the ground floor. Greater facility of operation would be afforded by the use of self-contained cranes, particularly in tall buildings.—"Scientific American."

Notes on Electric Traction.

BY W. M. NELSON.

(*Continued from page 955, January issue.*)

Other Systems.

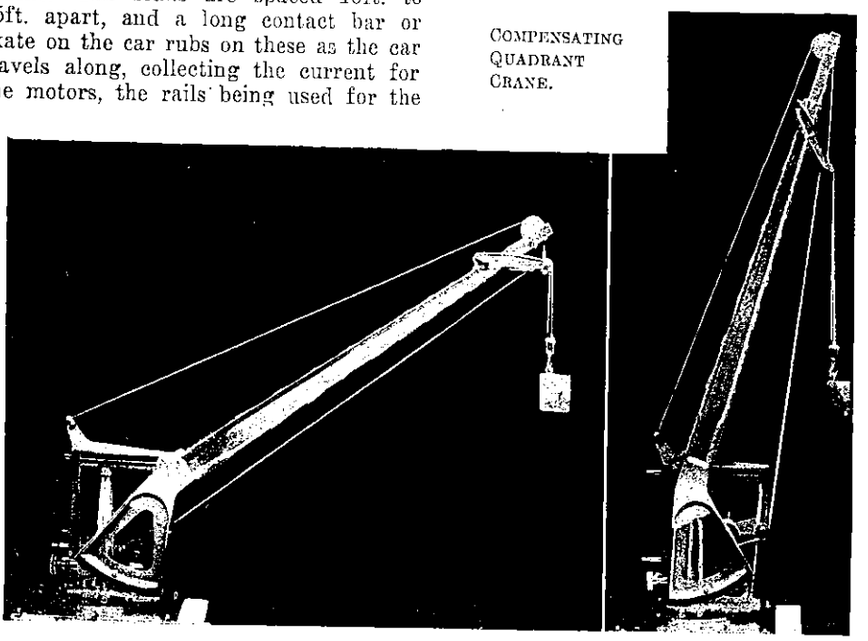
The opposition raised against the overhead trolley in Great Britain naturally directed the attention of engineers to other methods of distribution, and out of the numerous schemes proposed and tried two have survived, namely, the slot-conduit system, and the surface contact system.

The slot-conduit system, as now in use in parts of London and other large cities, though thoroughly practical and reliable, has not met with general acceptance on account of its excessive cost. It requires the construction of a tube, usually of concrete, about 24 inches deep and 16 inches wide, between the rails of each track with a slot narrow enough not to admit wheels of vehicles but wide enough to permit the free passage of the plough or current collector. A positive and negative conductor usually of T section, are carried on insulators on each side of the slot and the current is collected by rubbing contacts on the plough. On account of its great cost, this system is only justifiable in cases where the overhead trolley on surface contact systems are not permitted and where very heavy traffic is assured.

The aesthetic objections to the trolley on the one hand and the prohibitive expense of the conduit on the other, stimulated British and Continental engineers to further efforts, and great ingenuity was brought to bear on the problem. As a result there are at least two surface contact systems in actual service, the Lorain system at Wolverhampton, and the G. B. system at Lincoln. They lack, however, the beautiful simplicity of the overhead trolley and are not likely to find much patronage. All surface contact systems employ a row of iron or steel studs a few inches in diameter and projecting about half an inch above the surface of the roadway between the tracks. The studs are spaced 10ft. to 15ft. apart, and a long contact bar or skate on the car rubs on these as the car travels along, collecting the current for the motors, the rails being used for the return circuit. The studs take current from a conductor usually laid in a small conduit, and if they could be left alive all the time the system would be comparatively simple. In the interests of public safety, however, only the few studs under the car can be alive, the switching on and off being done by an automatic switch at each stud, magnetically operated from the car. To ensure each stud being dead before the car leaves it exposed to street traffic a short supplementary contact is placed at each end of the car. This connects the stud with the rail, thus throwing the power off the line and giving warning in case of failure of one of the automatic switches to open. The disadvantages of a tramway system which depends upon the perfect action of from 400 to 450 automatic switches per miles of single track each of which is required to operate at least 100 times a day will be readily appreciated by those who have had charge of the maintenance of this class of apparatus.

Storage batteries have been tried from time to time, but have never been commercially successful, owing to the inherent defects of the lead battery, the only one available until quite recently. It is not only very heavy, but is also too delicate in constitution and troublesome in management to meet the requirements of traction service. The new Edison storage battery using iron and nickel plates in a solution of caustic soda is a great advance on the lead battery and promises to bring battery traction within the field of practical engineering. Its weight is about half for the same capacity, it cannot be damaged by over discharging, gives off no objectionable gases or liquid, and altogether seems to be a very hardy and easily managed piece of apparatus. The internal losses, however, are given as about 40 per cent. as against, say, 25 per cent. for the lead battery. Cars of exceedingly light construction and free running qualities propelled by these batteries are being put into service in America, and are reported to be giving satisfaction. In these cars weight is reduced to an absolute minimum not only in the construction of the body, but the truck frame is made in one piece with welded joints. Roller bearings are used in the car wheels which run free on the axles and the motors are fitted with ball bearings throughout. If the new battery is found to be as hardy and durable as it promises to be, it is likely to supersede the overhead trolley to a large extent.

COMPENSATING QUADRANT CRANE.



Notwithstanding the high cost of the battery cars, it is claimed that about a third of the capital cost of a complete tramway system may be saved by their employment. The distributing system is of course done away with and the permanent way may be of lighter and cheaper construction. It is claimed also that the power-house machinery may be of less capacity as the charging load will be much steadier than the ordinary traction load. Against that, however, it must be remembered that the time available for charging is much shorter than the hours of running and the battery losses are very much greater than the line losses, both of which tend to increase the power-house charging load. In cases where it is possible to give the batteries a few minutes' charge at the end of every trip throughout the day the nightly charge is very much reduced and the power-house

loading improved. The general adoption of this system depends, of course, upon the durability of the battery, which has not yet been fully proved by service tests of long duration, but the fact that a number of these cars are in actual service on American tramways should be kept in mind when considering new traction schemes.

Some little time ago quite a stir was made by trials of the Brennan monorail system, and enthusiasts claimed that it would supplant the ordinary form of street traction. It is difficult, however, to find justification for this prediction as the only saving is in track construction, and this can only be trifling, because practically the same amount of material is required for the track and its support whether one or two rails are used.

Railless electric traction has recently made considerable advance. Several systems have been in regular service in Germany and Italy for a number of years, but it was not till quite recently that it obtained a footing in England, the Corporations of Bradford and Leeds having decided to adopt this method for feeder lines and pioneer lines into sparsely populated districts where the probable traffic would not warrant the cost of the ordinary construction. There are two systems in use on the Continent, one employing an over-running trolley drawn by long flexible leads, and the other an under-running trolley supported by a pole. In all cases a double trolley line is used, one wire being at 500 volts positive and the other at earth potential. Contact is made by means of a four-wheeled truck or double-grooved slide. Although the absence of permanent way effects a saving of 1/2 to 2/3 of the capital cost, the consequent saving in interest charges is to a large extent discounted by the cost of repairs and maintenance of rubber tyres. In the case of pioneer lines, however, where it is desired to test the traffic earning powers of a district, the railless system presents the advantage that in the event of abandonment very little capital is sunk in the road and the whole equipment can be removed and re-erected in another locality at comparatively small cost.

(To be continued.)

Reinforced Concrete Railroad Ties.

At a recent meeting of the Roadmasters and Maintenance of Way Association, held at St. Louis, September 12 to 15, the problem of tie material was carefully considered. A summary of the discussion was as follows:—

As has been said many times, it may be in the near future it will be impossible to procure wood for ties and something will have to be substituted in place of wood. Quite a number of roads are commencing to use, to some extent, steel or concrete ties, and a great many roads have been and are experimenting with both concrete and steel ties of every conceivable shape and make.

Owing to the fact that some of these ties now being tried are comparatively heavy and hard to handle, this necessarily makes them quite expensive not only as far as the first cost is concerned, but in regard to their maintenance cost also.

Some of the new designs of steel, as well as concrete ties, are so constructed as to make them hard to apply on tracks where automatic signals are in operation on account of the difficulty of getting proper insulation; some of them are so constructed that it is hard to apply the rail to them with anything but a bolt and nut, which by some railroads is not considered a satisfactory fastening.

Again owing to the salt brine that comes from refrigerator cars, as well as to the fact that the nuts may be hard to keep tight, and also in case of a derailment of a heavy engine or car, the fastenings might become so damaged that new ties and fastenings would have to be applied before the track could be made safe or put in usable condition, the problem is a hard one to solve.

First, we must consider how much the first cost of the new tie would be.

Second, we should consider how much more it is going to cost to handle the tie, on account of its weight, shape, kind of fastening, etc.

Third, we should consider the safety of the appliance by which the rail is fastened to the tie.

Fourth, we should consider how much labour it is going to require first to fasten the rail to the ties, and how much labour it is going to require to keep them in proper shape.

Fifth, we should consider how durable and efficient the contrivance is for proper insulation in all kinds of weather, on all kinds of roadbeds and under all kinds of traffic.

Owing to the fact that the time has come, as we have said before, when it seems as if we would have to begin to figure on something to substitute for wood ties, should we not stop and take into consideration whether or not a steel or concrete tie, made a little wider and not quite so deep would answer the purpose of a tie, if a tie made a little bit wider and not quite so deep would answer the purpose of a tie, it would not require so many ties for a mile of track and we would get the same amount of bearing on our rail and on our roadbed as we have now, and it would not take so much material to make the ties; therefore, the ties would not cost so much. And if the tie was not so deep as the tie we are using at present, it would require less labour to put the tie in, as well as less labour to tamp the tie, which would be quite a saving. This is very important, as a number of trunk lines are ballasting their roads with stone, slag, or some other hard material which is more expensive to handle in every way.

If a tie could be constructed so that we could narrow up the shoulders and still have the same amount of ballast up against the end of the tie, this would be another saving, and a tie made thinner than the ties we are now using would not require so much ballast to fill in between the ties, which would be another saving.

During the past six or eight months we have received illustrations of concrete ties, on which at present there are patents. We have become quite interested in them, and while some are not the same shape as the ties we have always been used to using, some of them look to be practical for railway use. It is a fact that the first cost of them would be considerably more than our present tie, but the amount of labour saved in handling them and putting them in the track, etc., tamping them after they are in track and the amount of ballast saved owing to their peculiar make-up would almost enable a railway company to tie up their tracks at the same expenditure it is costing us now to put in wood ties.—"Cement Age."

Add Aluminium to Babbitt.

It is stated that a small percentage of aluminium added to babbitt gives a very superior material over the ordinary babbitt metal. It seems to increase in durability and wearing properties of the metal, and under compressive strain is softer than the common babbitt.

In a certain mill a crank pin bearing of a 30 h.p. engine, with the ordinary babbitt metal required attention about every three days; and after inserting in the bearing aluminium-babbitt strips of about half an inch in width upon the face, dovetailed in alternately in the brass bearing, the same bearing ran under similar work for two months without requiring any attention; and when examined at the end of two months the crank pin was found to have become very much smoother than it was before the aluminium-babbitt had been inserted.

Dovetailing the babbitt in strips is recommended, for the reason that it gives equal bearing all over the surface. Another advantage of this babbitt is its extreme malleability. It can be hammered out to a thin edge without cracking, whereas the ordinary babbitt is not at all malleable. An advantage of this is that for bearings, with aluminium, the babbitt can be rolled into shape for inserting in the dovetailed recesses, and can be cast and drifted out at a very small expense and without waste of babbitt.

Moehau Granite.

We are always glad to report progress in any New Zealand industry, and hence we draw attention with much pleasure to a prospectus in our advertising columns of the Moehau Granite Quarries, Ltd., the documents of which have been filed by seven of the shrewdest and most successful business men in Auckland, who are offering 7 per cent. cumulative preference shares for sale to the public, and which we hope to see fully subscribed, as the Moehau stone is much wanted for our finest buildings, shop fronts, monumental purposes, etc. The property adjoins the N.Z. Granite Quarries on the Coromandel Ranges, Auckland. Three differently coloured stones can be supplied in practically inexhaustible quantities—the grey, dark, and black. The grey, of which the Seddon monument, Wellington, is built, the Post Office and other buildings at Auckland, and in the words of Mr. Jamieson, contractor for the Post Office, "its beauty and quality must make it the stone of the future in the Dominion," and Mr. Philcox, contractor, Auckland Harbour Board Building, writes that "this stone is now past the experimental stage." There is an unsatisfied demand for this stone which, according to Dr. Bell, only absorbs 0.244% of its weight in water soaking for 150 hours. Oamaru stone is said to absorb 10 to 12%, and bricks 12 to 16% of water, which demonstrates the value of Moehau granite. In writing thus we have only touched upon the demand for such a stone in the Dominion from a building point of view, but in Auckland there is a demand for a good road metal, and the City Council have ordered 2500 tons of this granite, so there will be a market for all the waste of the quarries for its superior road metal, as proved by a trial made by the City Engineer.

Motoring and Aviation

Motor Omnibuses in War.

The German military manoeuvres this year will, as usual, possess many interesting features affecting modern warfare. It is anticipated that motor omnibuses will play a very great part in the manoeuvres.

Each motor omnibus will be provided with room for fifty soldiers and possess a speed of about twenty-six kilometers an hour. This experiment was tried with a small portion of troops last year in Germany, and was found to work splendidly, the men being conveyed to the desired positions far quicker than if they had marched on foot, in addition to reaching their destination much fresher and readier for the work before them.

This year, when a long march is occurring, it is intended to use the motor omnibuses in conjunction with foot marches. The buses will convey a portion of the troops ahead, drop them at a certain point, whence they will continue their march, refreshed with the rest and the drive, and the buses will return to the main body for another load of soldiers, who will, in turn, be conveyed to the now advanced guard.

Manoeuvring.

BY OUR ENGLISH CORRESPONDENT.

Watching a motorist attempting to manoeuvre his car out of a narrow hotel yard on a recent day, I had it borne in on me how very unskilful even a good driver can show himself on such an occasion. So rarely has one to display fine judgment in backing a car that one may be a motorist of many years' standing and yet never have acquired the art.

On the occasion I refer to, the motorist finally worked his car so far into one corner that his plight was a sorry one. He could not, or at least seemed unable to, move either forward or back and gain any advantage. Ultimately a team of volunteers were requisitioned and the car lifted bodily to one side.

It would, I believe, be a good investment of time to spend a fruitful hour in studying the precise steps necessary to turn a car in a restricted place. Unless the series of evolutions are carried out in their proper sequence, negative results follow, and the last state becomes worse than the first. Every car needs special usage, and every difficulty a change of treatment. A motorist should know how much the back of his car swings inwards on a full lock of the front wheels. He should be cognisant of the correct method of working his car bodily to right or left; and be skilled in steering round obstacles with inches clearance, and no more. Manoeuvring out of a restricted space is a high art; and since, at any time it imposes special stress on tires, gears and engine the art should be learnt. I remember once, in my "salad" days, trying to turn a car on a narrow road. I "backed and filled" with more energy than skill, and finally got my car completely jammed, with the radiator against a bank, and the back wheels in a steep gutter. I, therefore, speak feelingly, and I offer no apology for venturing advice on such a seemingly unnecessary subject.

Speed Limits.

The law which provides that no motorist may drive his car above a certain speed, has proved itself to be an absolute "ass." For the past seven years the motorist has been permitted (by law) to drive as fast (*sic*) as twenty miles an hour. To exceed this he had to run the risk of heavy fines and ultimate "endorsement" of his license.

One way and another, and principally by the adventitious aid of the road scouts of the Automobile Association, the motor-car driver has managed to put up with the inconveniences of this limit. How often has he sighed, in vain, for the (almost) speed-limit freedom of his brother of the wheel in France.

Of recent years a change in the official view of the speed question has gradually been taking place. From time to time more and more public men join the motoring ranks, and at once realise the utter futility of the speed limit on the open road.

By slow but sure degrees England is becoming prosletized, and a spirit of tolerance to the motorist (not a feeling that the best must be made of a "bad job") has been growing up.

So it comes about that rumours gain currency that a twelvemonth may see Parliamentary sanction given to a Bill having for its object the cancellation of the "twenty miles an hour" embargo which is at the moment so irritating to the much harassed and heavily taxed motorist.

Vale! O Equus!

By the time these notes are published, the last horse-drawn 'bus of the London General Omnibus Company will have been withdrawn from the streets. Almost, too, has the last cab or hansom disappeared. This announcement marks an epoch in London street traffic. The horse as tractive power for metropolitan vehicles is well-nigh nothing more than a memory. The petrol motor—where are the limits of its potentialities?

A few years ago, who would have dared to prophecy that, even the future of the electric tram was threatened? Yet so it is to-day; and even more wonderful is this than the usurpation by the car of the road functions of the horse.

No one of us can feel anything but real sadness and sorrow as we hear the "honk" of the motor horn, which is the tolling of the horse's death knell. All we can do, however, is not to attempt to stay the march of progress, but to be content that the motor vehicle can never supplant the quadruped on the race-course.

A motor race is a tame affair, and, as I can vouch, is prone to make one yawn deeply. Not so a contest between horses; than which there are few finer or more interesting.

The New Commercial Traveller.

How the Motor Truck Enables the Traveller to Show and Sell his Goods.

The old type of commercial traveller was a familiar individual at provincial railway stations, where his pile of battered sample cases often earned him pity, though this did him no good if he wasted a day in the place without orders to occupy him, and without a suitable train to take him to his next calling place.

Then came the motor traveller, who bravely used a small car to get about with his samples. Very soon he was able to show increased business, due almost entirely to the saving in time effected. The cost per mile must have worked out cheaper also, though this would be governed by the type of car used, the skill of the driver, and the nature of the work. The results now obtained are far better than those possible five years ago, and from year to year we may expect a wider use of the car by commercial travellers. "All-weather" cars, detachable wheels and rims, puncture preventers, tire fillings like pneumatic, and many other aids have come to insure the traveller against breakdown and delay.

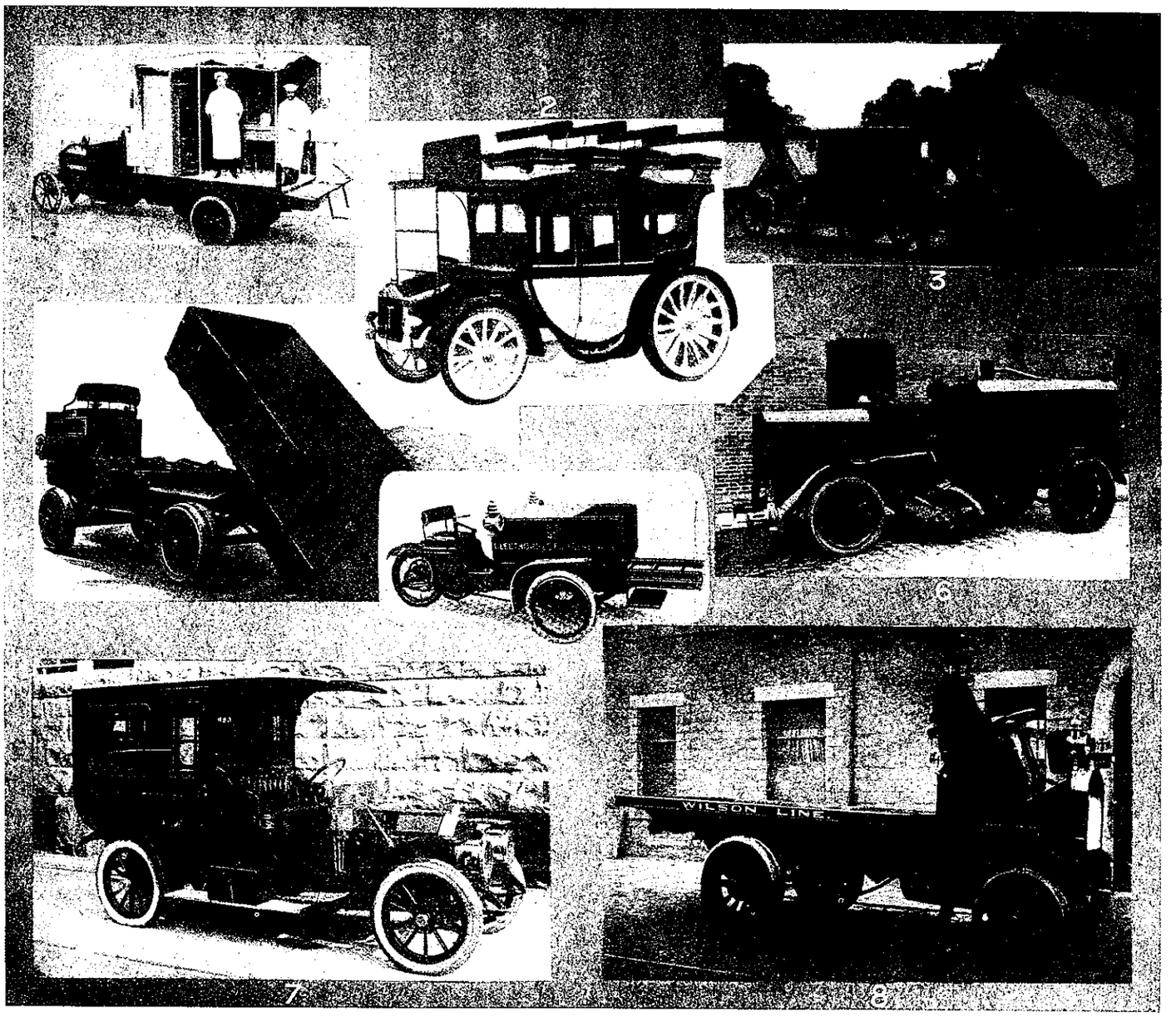
The latest development is an American project, which is detailed in a transatlantic contemporary. If the traveller represents small and light goods such as proprietary medicines, patent foods, jewellery, etc., he charters a covered truck or commercial car, and with perhaps a crew of one or two assistants he travels from place to place, actually filling the orders he books. It may be regarded as derogatory by many commercial travellers to deliver the goods they represent, but it is sound business. It saves correspondence and delay, and altogether dispenses with a lot of expense and routine work. If the traveller can close his business there and then, and gets cash down for his wares, both he and his customer should be better satisfied than if one had to wait for his goods and the other for his money.

Double railway rates are saved in this case, that is to say, the traveller's fares

and the freight of the goods which usually are sent by rail. There is a big saving in claims for wrongly-delivered or damaged goods, and the customer obtains every article immediately, and in fresh and perfect condition.

From an experimental voyage made by an American traveller who took a three months' trip on a motor truck from New York, it is shown that he travelled 3,478 miles, visited 486 towns, and saw 974 customers in that time. His average weekly mileage was 267, and in that period he visited 37 towns. His average per day was six towns, and a number of calls per day averaged 12. He carried about 1,000lb. of goods on the solid-tired truck employed.

For petrol, oil, insurance, repairs and replacements, garage, hotel bills, and incidentals his expenditure in three months was £150. If the same places had been visited by other ways, the railroad and boat fares, car hire, hotel bills, and incidentals would have amounted to £230, and it would have occupied nearly six months to accomplish. Adding the salesman's wages in each case the total cost is thus set forth:—Total cost of selling by motor truck, £240; total cost of selling by rail and other transport, £410. Thus the firm saves £170, compresses six months' work into three, and saves, in addition, the freight charges, packing, etc., of the goods which would have to be sent by rail where the traveller did not use the motor truck. In the British Isles the rival systems would not show such a disparity, but it is highly probable that an appreciable saving in time and money could be effected in the sale and delivery of many commodities all over the country.



SOME OF THE USES OF THE MOTOR TRUCK.

1. Cooking bag demonstration car. 2. Motor coach. 3. Ambulance. 4. A tilting body operated by means of hand winch. 5. Three wheeled "Auto-carrier" fire tender. 6. A Parisian combined sweeper and water cart. 7. A thief-proof pay car. 8. Delivery motor truck.

Heat and the Scuttle Dash.

One, Captain Theo. Masin, the originator of the scuttle-dash "torpedo" body, claims to have discovered how to successfully ventilate the front seats of cars fitted with bodies of this type. I do not know whether the disadvantage of the torpedo body has been commented on in New Zealand as yet; if not, I am offering a piece of news of much import. Personally I may say that in the recent hot spell we have had here, the scuttle-dashed car has become odious to me. The extreme discomfort of this "de luxe" body is indescribable. How I have stewed and roasted on some recent runs, and been sickened the while with the odour of "fried oil" from the engine.

To revert to Captain Masin; he made his discovery by chance only. He was out for a trip on a partly finished car, and found the space under the dash remained perfectly cool. An examination discovered the fact that under the front seat an interval had been left of some two or three inches in depth. On closing this he found that the space within the dash became as warm as usual. It was apparent that the "back draft" from over the screen and dash was passing forward "under" the front seat and into the foot space. Thus we have dedicated to us a valuable discovery. There should be no difficulty in altering any car that overheats under the dash in the summer months, making provision at the same time for an adjustable flap which could be closed in winter.

Astronomy & Science

Astronomical Notes for February.

BY THE HON. DIRECTOR, WANGANUI OBSERVATORY.

The Sun is in the constellation Capricornus till the 15th, when he enters Aquarius. His southern declination decreases from the 17th to the 8th degree during the month, and his altitude at apparent noon is lessened by the same amount, viz., from 67.3deg. on the 1st, to 58.2deg. on the 28th. The Sun is now practically free from spots, but rather fine faculae have been noticed at either limb.

The Moon, in her monthly circuit of the heavens, comes into the vicinity of the planets and some of the brighter stars, and serves as a convenient pointer to them. She will be near Jupiter on the morning of the 12th, Venus on the morning of the 15th, Uranus on the morning of the 16th, Mercury on the evening of the 17th, Saturn on the evening of the 24th, Mars on the evening of the 26th. Her path through the constellation visible in our evening skies, at about 8 p.m., is as follows:—In Cancer from the 1st to the 3rd; Leo on the 4th and 5th; she will appear again in Pisces on the 21st and 22nd, Aries on the 23rd and 24th, Taurus on the 25th and 26th, Gemini on the 27th, 28th and 29th, and Cancer again at the opening of March.

Phases of the Moon in New Zealand mean time:—

Full Moon ..	3 days	11 hrs.	58 min. a.m.
Last Quarter ..	10 days	12 hrs.	21 min. p.m.
New Moon ..	18 days	5hrs.	14 min. p.m.
First Quarter ..	26 days	6 hrs.	57 min. a.m.
Perigee ..	2 days	1 hr.	33 min. a.m.
Apogee ..	14 days	10 hrs.	30 min. p.m.

Mercury is a morning star during the month in Sagittarius. He will be in Aphilion on the 5th, in conjunction with the planet Uranus on the 7th, in conjunction with the Moon on the 17th, and in greatest heliocentric latitude south on the 25th.

Venus is also a morning star during February close to the Sun's place. She will be in conjunction with the Moon on the morning of the 14th, will come into the same right ascension with Uranus on the morning of the 25th, when the two planets will be separated by a little more than half a degree of arc, Venus being to the north. She will be in her descending node on the 27th, or passing south of the ecliptic on that date.

Mars is still a prominent object in our evening skies, in Taurus, and moving forward north of the Hyades, and Aldebaran, at the end of the month. His angular diameter is now shrinking rapidly and, as a telescopic object, he may be almost counted out, for this opposition, his phase is distinctly gibbous. He will be in conjunction with the Moon on the evening of the 26th.

Jupiter is a morning star in the constellation Scorpio, and to the north-east of the bright star Antares. He will be in conjunction with the Moon on the morning of the 12th. His position is a good one for the morning observer at this time, being fairly high in the heavens, and the detail of his "belts" standing out clearly on suitable occasions.

Saturn is well placed for the observer during the earlier hours of the evening. He may be seen to the west of Mars, shining with a steady yellowish light. His fine ring system is well opened now and affords a beautiful spectacle in a telescope of fair dimensions. He will be in quadrature (with the Sun) on the 4th, and in conjunction with the Moon on the evening of the 24th.

Uranus is now a morning star in Sagitarrius. He will be in conjunction with the Moon on the morning of the 16th, and with Venus on the morning of the 25th, when the planet might be easily found at about half a degree, or rather more than the Moon's diameter, to the south of the bright planet.

Neptune is in Gemini and an evening star. He will be in conjunction with the Moon on the 2nd and 29th.

The Constellations for the middle of the month, at about 8.30 p.m., are placed as follows:—In the north Taurus, with the Pleiades and Hyades, Aldebaran, the bright red eye of the Bull in the latter group, on the left side, and Gemini on the right of the meridian. Auriza, and the bright star Capella, is low down in the north, with Orion much higher and Lepus over this again, with Taurus and Gemini nearer the horizon. Canis Major and the brilliant Sirius south of and nearer the zenith. Leo may be seen just rising in the north-east, Cancer being well up at this time, and the long trailing shape of Hydra the Water-snake will be seen extended from north-east to south-east. The Centaur is now coming out from under the South Pole, preceded by the Southern Cross, Argo and the rich portion of the Milky Way is now well up in the south-eastern sky. Cetus is approaching the horizon in the west, followed by Eridamus, and Pisces will be seen near the horizon in the north-west followed by Aries.

Comets.—Brooks' and Quenisset's comets have been observed here during the past month. A fairly powerful telescope is now necessary to see them, and one mounted equatorially, enabling the observer to find it from the ephemeris. I shall be glad to send an ephemeris of either comet to anyone having a telescope and desiring that information.

January 21, 1912.

How Worlds are Formed.

It was not until Laplace formulated the details of his famous Nebular Hypothesis in 1796 that any scientific account of the way planets originated was put forward. Laplace started by assuming a huge, hot, gaseous nebula with a central and more condensed portion, or nucleus, which was to become the Sun. This vast nebula extended beyond the orbit of our farthest planet, Neptune, and was possessed of a motion of rotation about an axis through its centre. Several years after this hypothesis received a most striking confirmation from a simple experiment, devised by a blind physicist M. Plateau. He took a glass vessel, filled with a mixture of alcohol and water and a thin rod or wire which could be spun rapidly about its axis, and passed it through the liquid. Before spinning the wire, he caused a fairly large drop of oil (which will just float) to attach itself to the wire, so that the wire passes through the centre of the oil sphere and forms an axis round which the oil can rotate. It was found that on gradually spinning the wire, the drop of oil gradually flattened, becoming orange-shaped, and that when the rotation was rapid the oil threw off a complete ring from itself. This ring and the remaining nucleus of oil forming an exact picture of Saturn and his rings. Ring after ring could be thrown off by increasing the rapidity of rotation. Now, Laplace's rotating nebula would gradually cool, contract and approach a liquid form; so that it might be expected to throw off rings as M. Plateau's oil does.

In a recent work, "The Growth of a Planet," by Mr. E. S. Grew, one of the conductors of the scientific journal, "Knowledge," the life-history of this world of ours is set forth from another—and, apparently more satisfactory—point of view. Not by any means that Laplace's hypothesis is to be dismissed in its entirely, but that it is to be accepted with a notable modification. Our sun and his planets come from a nebula; but it was not Laplace's nebula: it was never a huge sphere of hot, rotating gas which gradually cooled, threw off rings which became planets, themselves very hot and surrounded by gaseous atmospheres, and in ther turn throwing off moons. According to Laplace, this earth, for example, was in its earliest stage of separate existence a molten nucleus surrounded by a vast atmosphere, which gradually cooled and formed the water of the oceans. According to the newer hypothesis, the earth started as a solid, and not excessively hot, nucleus surrounded by no atmosphere, but evolving an atmosphere out of its own interior——very much after the manner of the web-spinning spider.

The main features of Laplace's hypothesis, which has been the subject of discussion and examination for the last hundred years, are fairly well known; but its newer form, or modification, is far too recent to be well known. Laplace's nebula, in somewhat undignified language, might be called a "full tilt" nebula. Our sun is moving through space and carrying his planets with him, at a speed of about eleven miles per second—a mere snail's pace compared with that of other suns, which are known to be rushing along at the rate of about 200 miles per second. Now, if we imagine two equal suns to meet each other "full tilt" with the moderate speed of twenty miles per second each, a calculation shows that the heat generated by their collision would raise their combined mass to a temperature of something like "two million degrees centigrade," and it will be readily admitted that such a prodigious temperature would convert the combined mass into a gaseous fiery nebula, such as Laplace postulated. But astronomers, by means of photography, have established the remarkable fact that most of the nebulae are very different from Laplace's; they are not spheres but spirals, coiled like a watch spring.

A question naturally presents itself: If solid nuclei are not surrounded by atmospheres, how come planets to possess atmospheres such as we know exist? Laplace gave them atmospheres before they began to condense, but the new hypothesis of development from spiral nebulae does not do so. The theory is that volcanic outbursts of hot matter from the centre take place and the gases thus liberated form a gaseous envelope or atmosphere. In the same way the water of the planet comes from gases condensed near its cooled surface, and filling cavities; thus forming oceans.

Arts and Crafts.

Wellington Technical School.

Exhibition of Work by Junior Students.

The junior students made a great display with plant studies, animal and insect studies, designs to fill and decorate every imaginable shape and object, paintings from still life, and illustrations to nursery rhymes.

The plant, animal and insect studies were excellent, and were an eye-opener to many a visitor of what is being done. People do not yet realise what great advances have been made in elementary art training during the last few years, or what true and delicate work can be obtained from very young students, merely by encouraging them to put down their own impressions from nature instead of being content to make laborious copies of someone else's rendering.

Nor can too great a value be placed on the influence—a most needed good influence—exercised on their thinking powers of taste and judgment by the many and diverse examples of designing and decoration that the students of to-day are called upon to manage.

Many examples of stencilling were shown, as decorations to various articles for household use, and much of this work was excellent, both in colour and design, and, what is so important in a manual craft like stencilling, also in accurate workmanship.

Not so much attention seems to be given nowadays to studies from still life, and in some ways this seems a pity. So much freedom and mastery over colour can be learned in this way. There is no need for studies from inanimate to be merely laborious and stilted productions, but the ease and knowledge of ways and methods, either in oil or water-colour, thus gained can be used to advantage when painting from life, either animal, insect, or human.

There were so many examples of work in flat colouring or semi-flat, and with the exception of a few still life studies, the course seemed to pass on to paintings of the head from life, in which the painting in almost every case was hard and thin. Some middle course seemed to be needed between the minute insect studies and details of various plants, etc., all placed upon a white background, and the extremely difficult task of freely painting a human head in the round.

There were also examples of the useful art of lettering, another branch of work that should be a great help to the young designer and decorative illustrator. In this room was placed a case of jewellery designed and executed by both senior and junior students and a table of articles in hammered copper.

Foremost amongst the examples of jewellery were the well finished brooches and necklets by Nelson Isaac, and the work of Hilma Bright and Beryl Mackenzie. James Moar showed some good work in hammered copper and silver, and Nelson Isaac's copper bowl showed as finished workmanship, as did his delicate silver ornaments.

The art work by the commercial students made interesting comparison with that of the art students—that is, those who attend the art classes only and give all their attention to the one subject.

The commercial students try hard at many things, and have but about four hours a week for their art studies. Considering this, their work was wonderfully good. They had many examples of stencil work, and designs for many uses, and the girls had a show of really excellent embroideries and needlework designed and carried out by themselves.

There were a large number of plant and insect studies similar to those in the junior art rooms.

The domestic economy girls had an exhibit from their work in the dressmaking class, and the examples were of a cut and workmanship calculated to suit the most fastidious.

EXHIBITION OF CARPENTERING WORK.

In the carpentry workshops, there was a most astonishing collection of useful and well designed articles, from small hand trays to carved sideboards. Work from the hands of first year boys to labours of love by adult amateurs. Two garden chairs were particularly attractive and comfortable.

There were also about a dozen wood carvings shown, and one or two exhibits of machinery are shown in our engineering columns, page 991.

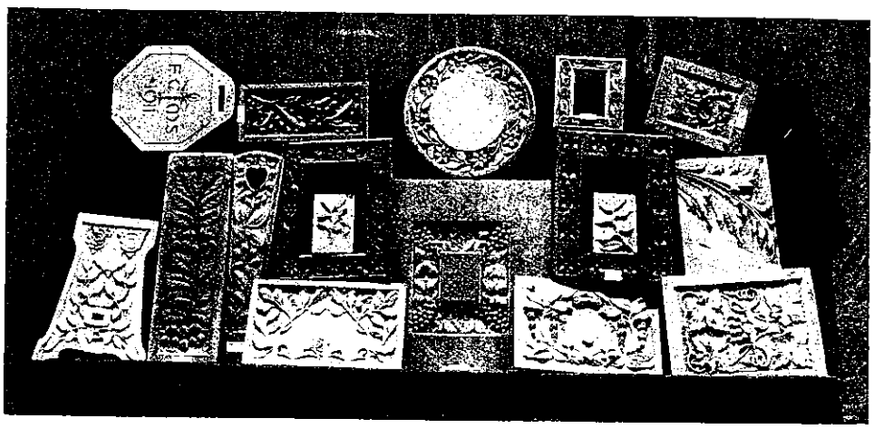
The whole exhibition was worth several visits, with plenty of time for inspection, and was a great revelation of what young Wellington is learning to understand and to do.

MISCELLANEOUS.

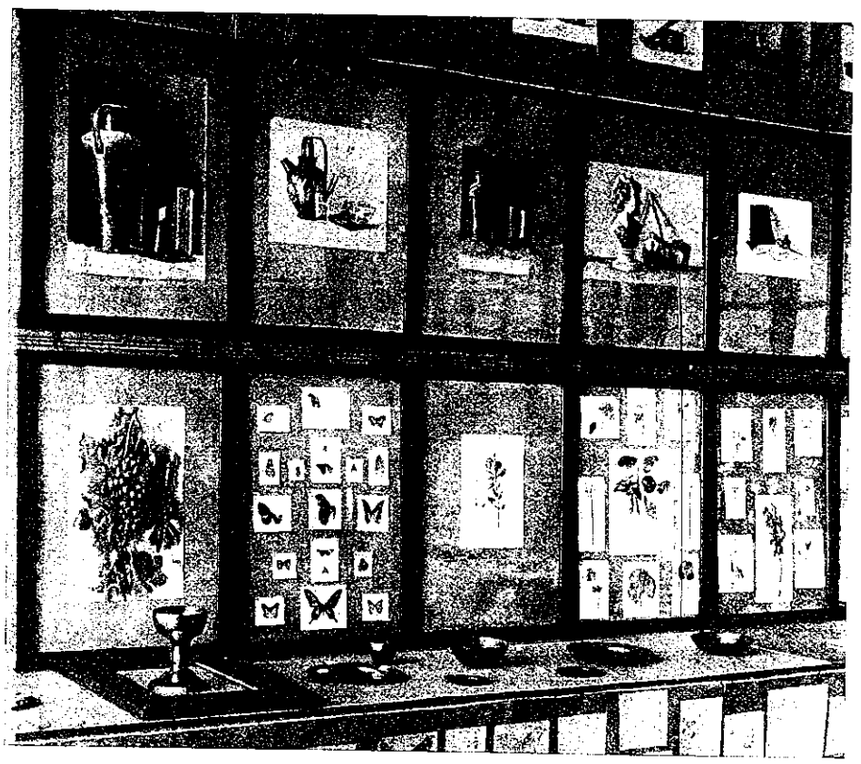
A stump puller has been patented in which a fulcrum is provided alongside a tree and the trunk of the tree is severed slightly below the fulcrum and is harnessed to the stump so that the tree in falling will tilt on the fulcrum and will operate to pull the stump from the ground.

* * *

Experiments are being made abroad with dividing forests into fireproof regions or compartments by planting thick hedges of some green and juicy incombustible plant, such as a member of the cactus family. This plan, while well adapted to cultivated forests, would be too expensive, as well as inadequate, for the wild woodlands of our own country, where cutting wide swaths at intervals is the plan now generally adopted where the timber is not simply left to burn at will. A writer in *Cosmos* (Paris) in a communication on this subject notes that weapons ordinarily employed against other fires are quite often ineffective in the struggle with forest fires. It is often necessary to be content with limiting the fire area and thus preserving the neighbouring regions. This is accomplished not only by cutting down trees, as already noted, but by digging ditches, and by setting counter-fires if the wind is favourable, so that these may sweep in the direction of the principal fire, and force it, at the moment of meeting, to go out for lack of material on which to feed.



WOOD CARVING.

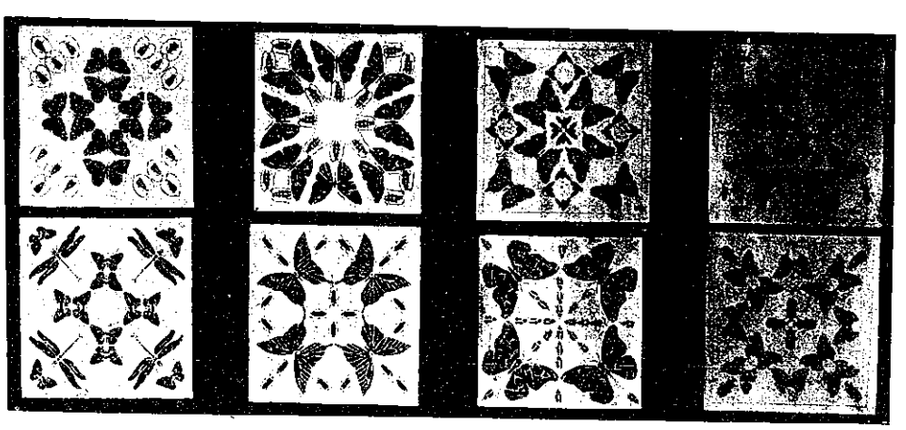


EXAMPLES OF ART WORK.

The tunnel stern boat has as the fundamental idea the attainment of extremely shallow draft. In order to carry out the idea it is necessary to use small, high-speed propellers working in the tunnels. We somewhat doubt if these propellers would be as efficient as larger, slower-turning wheels, but the very nature of the problem prohibits the fitting of large wheels. One of the English builders of shallow draft tunnel stern boats has obtained very good results using very broad-bladed, high-speed wheels of large pitch. These wheels working alone would have very high slips and would be wasteful of power because of their effect in rotating the water in the tunnels rather than driving it aft and getting full reaction from the water as force in driving the boat ahead. This loss has been minimised by fitting stationary guide blades aft of the propellers, the sections of these guide blades being so inclined that the whirling water column impinges on their after faces. In this way an additional forward thrust is obtained through the guide blades.

* * *

We have received a very interesting number of "The Railway and Travel Monthly," edited by Mr. G. A. Sekon, which would be welcome by those of our readers who are interested in railway matters in England. The subscription is only 7/6 per annum, which can be sent direct to the publisher, 9, 10 and 11 Cursitor St., London, E.C. The editor knows how to handle the subject and make it entertaining.



DESIGNS AY FIRST YEAR COMMERCIAL STUDENTS.

Architecture and Building

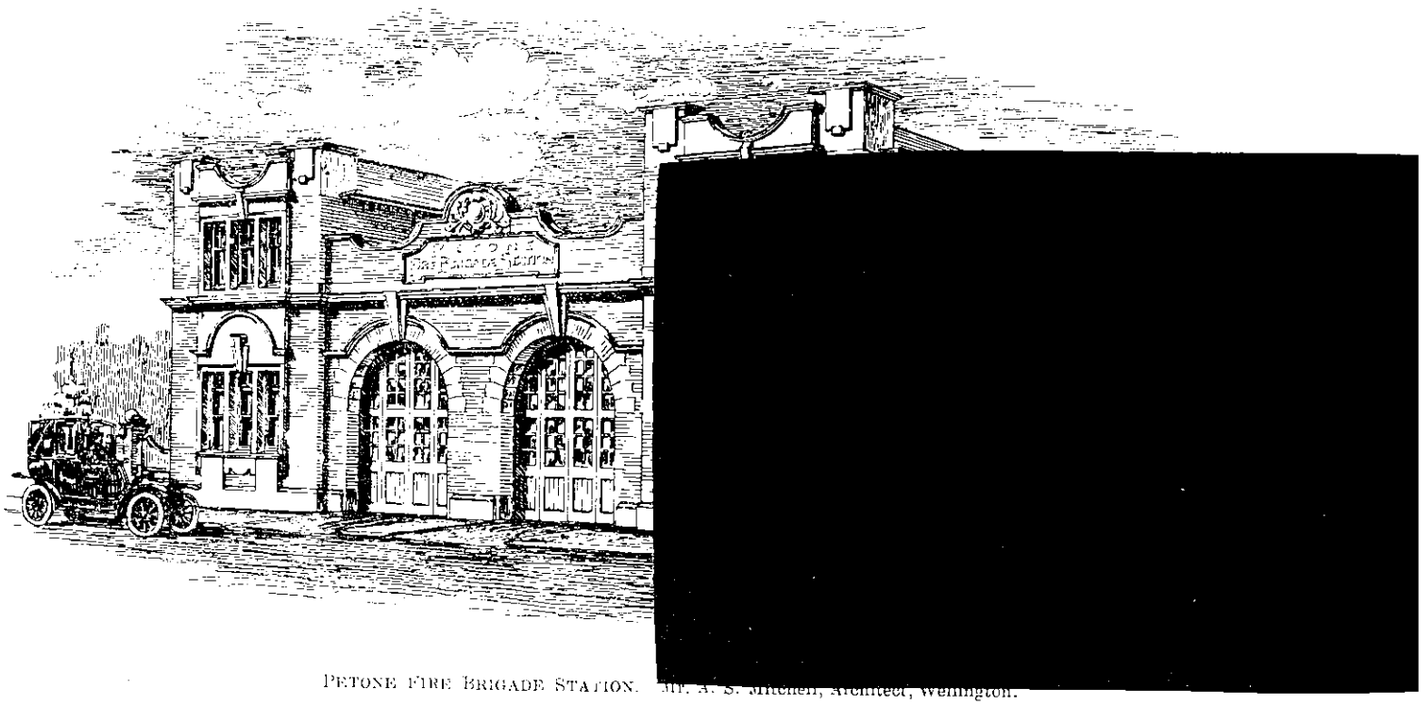
The Australian Federal Capital Competition.

We reprint the following from the "Building News" of Nov. 10th, 1911:—

"Members and Licentiates of the Royal Institute of British Architects are requested not to take part in the Australian Federal Capital Competition. We are sure this request will be loyally responded to, and we trust the architects of the civilised world will follow suit. The lamentable ignorance of the Australian Minister Home Affairs of the first guarantees for the advantage of the public in any such competition as he is mismanaging, must bear the responsibility for the balderdash we quote below. We shall be surprised if among the "hundreds of young professional men with Continental ideas" there are fools enough to waste time and labour in a contest in which every principle of fair treatment is ignored and derided by the self-elected umpire."

The following excerpt from Mr. King O'Mally's letter is responsible for the action of the R.I.B.A.:—

"Town planning comprises three professions, engineering, surveying and architecture, and we laid it down that the Australian institutes in these professions should nominate the advisory board. I deeply regret that the British Institute should take this attitude, but I cannot depart from the conditions sent out to the world, and while the aristocracy of the profession may not send designs, there are hundreds of young, progressive, and up-to-date professional men who will compete. They have reputations to make. Australia is a continent, sunny and cheerful, and its city will probably be better planned by men with continental ideas than by those reared in a circumscribed atmosphere, isolated from great continental horizons. We are a mighty growing nation, and we will get our best designs from men of continental intellectual outlook."



PETONE FIRE BRIGADE STATION. Mr. A. S. Mitchell, Architect, Wellington.

Building Methods in Egypt.

At a recent meeting of the Royal Institute of British Architects, Ernest Richmond, Licentiate R.I.B.A., read a paper describing present day building conditions along the Nile, from which the following notes are taken by the "Cement Age":—

Disorder, dilapidation, and neglect seem, at first sight, to be the prevailing and, indeed, almost the sole characteristics, at least of the lower Egyptian towns. The buildings look as if they were never repaired, and many of them as if any attempt at repair, short of complete reconstruction, would be out of the question. The dilapidated appearance of an Egyptian house is to be attributed to a large extent to the condition of the surface rendering of the walls. The surface rendering is an important feature in Egyptian building.

No particular attention has, then, in the past been paid by Egyptians to the varying levels of the subsoil water as a determining factor in the problem of choosing a foundation bed for buildings. The practice has rather been, and still is, to regard the character of the soil, rather than the level of the subsoil water, and to build, if possible, on the black alluvium, if not upon "made" earth compacted by time, or, as in ancient Egypt, probably by ramming and watering.

The original building material in Egypt was without doubt mud brick. This material is still used to a very large extent; and although for important work it has been replaced by stone and burnt brick, yet the traditional conception of walling derived from mud-brick construction has remained, throughout history, inherent in the Egyptian builder, and it is possible to detect through all Egyptian work—ancient, mediaeval, and modern—the dominating presence of those ideas which originated from mud-brick construction.

If rubble stone is used, the masons work in pairs, one man on one side of the wall and his colleague on the other. Except that each proceeds at more or less the same pace, there is little connection between their work. There is no thorough bond. Practically two thin walls are constructed independently, and the space in between is filled with smaller stones and large masses of mortar. The mortar, if it is of mud, kosremil, and fat lime, and if it keeps fairly damp, hardens rather than sets. On the hardening of the mortar, more especially on the outside of the joints, does the stability of the wall to a large extent depend; and, in order to fortify the outer joints and to render them as capable as possible of fulfilling their function of small retaining walls, to any inferior mortar which may have turned to powder instead of hardening,

it is a common custom to bed in the surface joints small pieces of stone. When fat lime and sand mortar is used the same practice is often followed, for it is recognised that this mortar sets only on the face, so that the face joint assumes a structural importance which it does not possess when a mortar capable of setting in the heart of the wall is used.

The surface of the wall is, when finished, provided with a rendering very generally composed of fat lime and sand. The object in view is not only to improve the appearance of the building, but to fulfil a structural need, that of protecting the outer joints of the masonry from the destructive influence of the sun and wind. The joints would, in the absence of the protective rendering, become cracked and gradually destroyed, or, as the native builder sometimes expresses it, the sun would "burn" the joints, and so prepare for the gradual collapse of the building owing to the escape of the dried and crumbled mortar in the interior of its walls, unless built so phenomenally thick as to be disproportioned to an ordinary building.

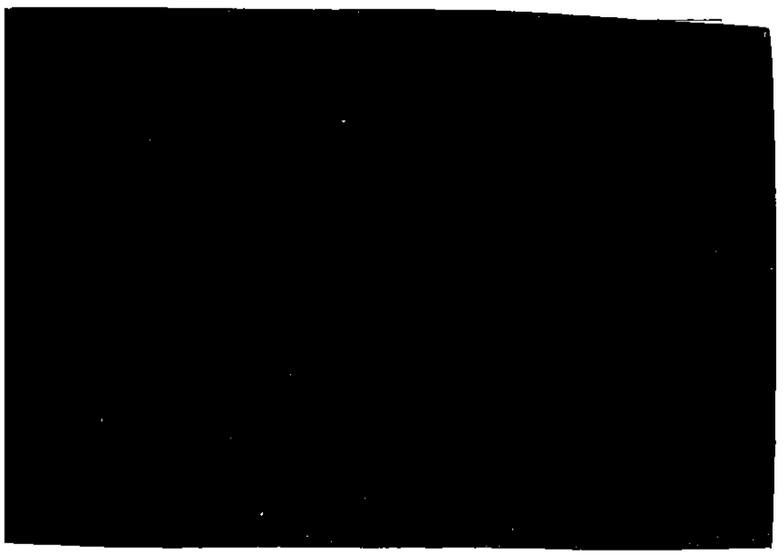
The main characteristics of a wall, such as that described, appear to be its elasticity and the capacity it possesses to adapt itself, in a certain measure, to movements, both those in the foundation bed caused by the rise and fall of the subsoil water, and those in the superstructure itself, caused by stresses set up by changes of temperature.

Up till a few years ago it was a common practice to excavate the whole of the area to be covered by a building and to lay down a thick raft of concrete. The concrete was laid in layers and well rammed and watered. The ground was flooded before the concrete was laid, in order that any weak spots might show themselves. The raft of concrete has of late years been largely replaced by concrete piles. Holes about 75 centimetres (29ins). across are punched in the ground by means of pointed weights dropped from a height. This results not only in forming a hollow shaft in the ground into which the concrete to form the pile is rammed, but also in compressing the whole of the area built over, and so in compacting the soil to a very marked extent. The ramming of the concrete into these hollow shafts causes the weight of the building to be distributed laterally as well as vertically. The tops of the concrete piles, which are spaced about 3 metres (9½ft.) apart, are connected by beams in reinforced concrete, and on these beams the walls are raised. This method has given, on the whole, satisfactory results. Broad-spreading foundations of reinforced concrete have also given good results. How far time will confirm the wisdom of choosing such methods of construction is a matter for conjecture and speculation. The desire to improve upon the loosely built and unsatisfactory native wall has brought about the use of mortars in which cements or imported hydraulic limes form the chief ingredients. Steel-frame buildings are even beginning to make their appearance in Egypt, though it is too early to say with what result. Methods such as these have produced, in Cairo and Alexandria, a large number of buildings suitable for modern requirements.

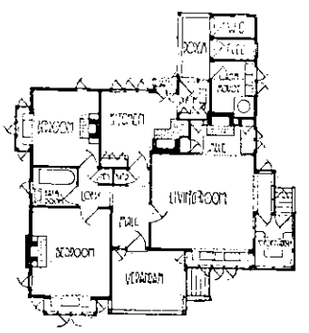
House at Mt. Roskill, Auckland.

The house illustrated on this page was designed by Henry S. Morran and erected at Stamford Park, Mt. Roskill, for J. M. Morran, Esq. Although there are only four rooms as shown in the plan, each room is fairly large and well finished, and fitted with all conveniences. The verandah is large enough for a summer room and protects the entrance door. The hall is here used as a means of communication only, yet it is sufficiently large to give a spacious appearance on entering the house. The key note to the whole house is the living room, and all comforts have been centred in this. Cosy nooks are found in the two spacious bay windows, and the ingle nook with its built-in seats forms a comfortable corner in which to spend a winter's evening. Book cupboards are found in every corner around this ingle. A quaint, old English effect has been obtained by showing the old oak (rimu in this case) beams in the ceiling, and by running a plain white frieze above a picture rail, surmounting a rough light brown wall paper. The floor is stained and polished and forms a good background for the rich Indian rugs. All the furniture, leadlights, etc., were specially designed by the architect to be in keeping with the house. The conservatory can be seen and entered from the living room. The bedrooms are treated in wall papers with a white frieze and white ornamented plaster ceilings. The back bedroom walls being panelled in silk and with a tinted frieze. The furniture and mantles in the bedrooms were also specially designed by the architect. The bath room is all white, with tiled floor, and has hot and cold water to bath, lavatory basin and shower. The kitchen and scullery have good light, the walls and ceiling are in oiled figured rimu, and the range and gas range are in white tiled recesses. Cupboards and shelves are provided in abundance, as also cloak cupboards in the hall. A back verandah forms means of dry access to the wash house, fuel house, and w.c., which are attached to the main building.

The grounds are laid out in accordance with the architect's designs, and are in keeping with the style of the house.



LIVING ROOM OF HOUSE AT MT. ROSKILL.



PLAN OF HOUSE AT MT. ROSKILL.

Height of Ceilings.

An official writing on the height of ceilings at Letchworth Garden City says: "We attach more importance to the cubical contents of the rooms and the ventilation than to a rigid height of eight feet. Our rule is that houses intended for a family must contain at least one living room having a floor area of 144 square feet; it must have one bedroom having a floor area of not less than 136 square feet, and containing not less than 1070 cubic feet, and the smallest bedroom must contain not less than 500 cubic feet. We consider that the provision of air space is better met by the stipulation as to cubic contents than by a standard height, and it is questionable whether the air over 7ft. 6in. is so rapidly changed as to be valuable to health and ventilation generally."

Mr. Ernest Betham adds: "Not only for economic reasons, but also from the standpoint of health and artistry, no ordinary ceiling need be eight feet where there is proper ventilation, but if that is lacking one seventeen feet or seventy feet high is only an air trap and dangerous to health."

House at Birkdale.

The cottage at Birkdale contains five rooms, and cost £250. It was designed for Mr. H. College, to be used as a home for his gardener. It is built in wood painted white with a red roof. The interior being papered and with deep white freize with oiled rimu dressings.

Petone Fire Brigade Station.

In this competition there were twenty-one competitors, and the assessor (Mr. G. G. Schwartz) has chosen the design of Mr. A. S. Mitchell, of Wellington (reproduced on page 999). The cost of the building is not to exceed £2000, and Mr. Schwartz, in his report, states that nearly all designs submitted exceeded this amount, and were consequently disqualified. The following are the details:—

Construction, etc.—Walls are to be of brick built in cement mortar, with concrete bands, footings, etc. Front finished with pressed brick and stucco facings, mouldings, etc. Partitions on first floor, wood with lath and plaster. All apartments, with the exception of engine-room, to be plastered. Roof to be covered with asbestos slates. Floor of engine-room concrete, with wood blocks. Floor of stable, harness room, etc., lavatory, and covered way, concrete.

Arrangement of Plan.—The engine-room occupies central position facing Buick Street, with two sets of double folding doors glazed sufficiently low to give view of interior engine-room, to avoid risk of collision. Doors to be opened by means of cords hanging down close to driver's seat, which, when pulled, raises a lever acting on the bolt and releases the doors, which are swung open by means of a spring.

Call Office.—At corner of Buick and Adelaide Streets, with provision for lounge for night duty men. Side entrance to Adelaide Street, leading to engine-room, men's quarters, recreation, etc., room and engine-room. Recreation and dining-room arranged on ground floor next entrance passage with kitchen at back. W.c's. and lavatories are completely disconnected from living-room and entered from open covered way.

Stable for one horse, harness room, etc., at back of engine-room. Doors into engine-room are to be secured with springs connected with alarm so as to open simultaneously with the ringing of the latter in the Call Office. In the stable the horses' heads face the engine-room, and thus avoid the loss of time necessarily involved in turning round.

Superintendent's Quarters.—Office at front on ground floor, having access to engine-room, and also to private quarters. Living-room, etc., for family disconnected from station. First floor devoted entirely to bedrooms and bathrooms for both men's quarters and superintendent. Men's quarters are so arranged as to have immediate access to the engine-room and not have to cross station to the Call Office. Sliding pole provided from landing in men's quarters to engine-room.

Reviews.

"Academy Architecture" for 1911.

"Academy Architecture" for 1911, just to hand, fully maintains the high standard set by its predecessors. It contains selections of the architectural designs and sculptures exhibited at the Royal Academy, London, together with illustrations of contemporary Continental and American work. A striking feature of this publication is the very clear and effective reproductions, of pencil, pen and ink, and colour work, without loss of tone or line. The book is valuable, not only for its record of the best contemporary work, but also for the indication it gives of the progress the mistress art has made in England. The designs illustrated comprise the works of many of the better known practising architects of England and a good number of other men whose work shows undoubted promise. Whilst there is nothing very outstanding in the current volume, the majority of the designs illustrated possess great architectural merit. Perhaps the most interesting are the new buildings at Kingston, Jamaica, designed by Nicholson and Corlette, and carried out in reinforced concrete. They are eminently suited for a hot climate, and demonstrate that, in the hands of capable designees, this material can be handled in an architectural manner. The flat roofs, absence of elaborate detail, and marked horizontility of treatment, are all the outcome of a close study of the requirements and material, and the result is very successful. Leonard Stokes is represented by a picturesque composition of Downside College, Bath, including a drawing of the town in the quadrangle, the design for which is a departure from traditional lines, but effective still. His design for the completion of Brompton Oratory is on safer and satisfactory lines.

Amongst the domestic work shown the best examples are by those masters of house design, Ernest Newton and E. Guy Dawber. The house at Hambledon, Surrey, by the former, and Eyford Park, Glos., by the latter, are both excellent, and exhibit the fine restraint and proportion so necessary for successful domestic buildings, and which only cultured designers can impart to their work. The perspective drawing of Eyford Park is splendidly rendered in black and white by that clever draughtsman, Robt. Atkinson. Of church work two characteristic examples by Burke Downing are shown. Designs for railway station buildings by Gerald Horsley show what might be done in New Zealand to improve the unsightly and unarchitectural railway stations. Designs by Sir Ernest George and A. B. Yeates, C. E. Mallows, R. A. Briggs, Henry White, and others give an indication of the standard of the designs published. "Academy Architecture" is always worthy of a place in the architect's library, and is of especial benefit to the student, enabling him to keep in touch with the development of modern architecture.

Open Competitions.

July 1.——Dusseldorf.—A plan for the extension of the City of Dusseldorf. Premiums of £1000 to £375. Conditions on applications to the Chief Burgomaster, Dusseldorf.

No Date.—Competitive pencil designs are to be invited by the Wellington Education Board in connection with the building of the new teachers' training school to be erected at Kelburne, and for which a site has been secured. Premiums of £70, £20, and £10 are to be awarded as prizes. Conditions will shortly be announced.

Building Notes.

WELLINGTON.

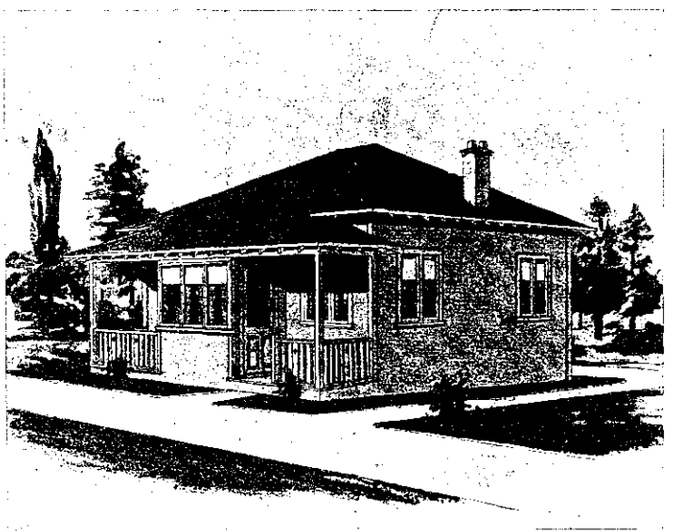
The following building permits have been received and approved by the City Engineer:—

From 12/12/11 to 23/1/12—39 applications for permission to erect; 35 plans examined and approved.

City district, £28,416; Melrose district, £4304; Wadestown district, £540; Northland district, £700.

The Tokanui mental hospital, on the Main Trunk Railway, is to be considerably enlarged in the near future, and two large building contracts have been let to accommodate 200 more patients.

At the end of last month the Miramar ratepayers voted on the question of the Borough Council spending the large sum of £18,000 on increasing the size of the power station in connection with water supply and drainage scheme.



DWELLING AT BIRKDALE, AUCKLAND. Henry S. Morran, Architect.

The water supply of Roua Bay is again to the fore, and a petition is now in course of circulation in the Borough urging the Council to take a poll of the ratepayers as to the question of a loan, to carry out the scheme which was reported on a year ago by Mr. Mestayer, C.E., and which will exactly meet the necessity.

TENDERS.

Are invited for the erection in brick of shops and offices in Willis Street, in this city. Drawings and Specifications may be seen at the offices of the undersigned. Close Feb. 15. The lowest or any tender will not necessarily be accepted.—Penty and Lawrence, Architects, Lambton Chambers, Lambton Quay.

Are invited, close February 29, for the erection of depatmental office buildings in Sydney Street, Wellington. Drawings and conditions of contract may be seen at the Public Works Offices, Welington and Christchurch.—H. J. H. Blow, Under-secretary.

Are invited for the erection of a Post Office at Opotiki (in brick). Specifications at Public Works Office, Gisborne.—C. E. Armstrong, District Engineer. Close Feb. 28.

Are invited for the erection of two-storey brick residence at St. Clair close Feb. 9.—H. Mandeno, architect, Dunedin.

Are invited for the erection of house, Rakaia. ——England Bros., architects, Christchurch. Close Feb. 9.

Are invited until February 10 for extensive additions and alterations to Implement Works in Yarrow Street for Messrs. Alex. Storrie, Ltd.

Plans and specifications may be seen and tenders lodged with the undersigned.—J. W. Rough, architect, Federal Buildings, Invercargill.

Are invited for the erection (in brick) of hotel and shops at Bluff for W. Hinchey, Esq. Plans and etc. may be seen at my office, Sepey Street, Invercargill, where tenders will be received until February 15.—F. R. Annison, architect, Invercargill.

Are invited for the erection of residence in brick at Heriot; close Feb. 9.—E. Anscombe, architect, Dunedin

HASTINGS BOROUGH COUNCIL.

ELECTRICAL ENGINEER.

APPLICATIONS are invited for the position of Electrical and Mechanical Engineer at a salary of £300 per annum.

Applications to be endorsed "Engineer" with copies of testimonials enclosed and delivered to the undersigned on or before noon on Thursday, 29th February, 1912.

Schedule of duties may be seen at the office of the Hastings Borough Council or obtained upon written application being made to

W. H. COOK, Town Clerk.
Hastings,
January 24th, 1912.

Engineering Tenders.

Are invited on 10th day of February, 1912), for the following work:—Forming and culverting 120 chains of the Tinui-Pakowai Road, commencing about 8 miles from Tinui. Plans and Specifications may be seen at the office of "The Dominion," or at the residence of the undersigned.—H. Sutton, Clerk Castlepoint County Council, Tinui.

Are invited, marked outside, "Orongorongo Road Contract," with the required deposit enclosed therewith, and in accordance with the general conditions hereinafter referred to, and will be received by the Hutt County Council on 12th February, 1912, at the County Office, 68 Lambton Quay, Wellington, for the formation, etc., of 99 chains (more or less) at per chain of the aforesaid road. Specifications, etc., and general conditions may be seen at Councillor J. Wakeham's residence, 17 Nelson Street, Petone, and at the County Office, Wellington, during office hours. The lowest or any tender not necessarily accepted.—J. W. Cudby, Inspector of Works, Wellington.

Are invited, at the office up to 14th March, 1912, for the Supply and Delivery of 175,000 Jarrah Sleepers, 7ft. x 8in. x 5in. for the New Zealand Railways. Specifications and forms of tender to be obtained at the Railway Storekeeper's Offices, Newmarket, Addington, Hillside, and Invercargill, and the Stores Manager's Office, Wellington. Tenders to be addressed to the General Manager, New Railways, Wellington, and to be marked outside, "Tender for Jarrah Sleepers." The lowest or any tender will not necessarily be accepted, and telegraphic tenders will not be entertained. By order.—T. Ronayne, General Manager N.Z. Railways.

Are invited for supply and delivery of sewage pumps and motors. Specifications at the office of or obtained from H. W. Climie, Esq., C.E., Hastings. Close Feb. 15.——W. H Cook, Town Clerk, Hastings Borough Council.

Are invited by the Dunedin City Council until the 20th March, 1912, for the purchase for removal of the temporary steam plant erected by the Corporation in Cumberland Street, Dunedin.

Are invited for supply and delivery of a cooling tower for Diesel engines for the City Council's Electric Power and Lighting Depart-

ment. Specifications at the office of the City Electrical Engineer, Dunedin. Close Feb. 21.

Are invited on February 22, 1912, for the construction of a Shelter Iron Verandah and Underground Conveniences in Dee Street, Invercargill. The lowest or any tender not necessarily accepted. A deposit of five per cent. to accompany each tender.—T. W. Walker, Town Clerk, Town Hall, Invercargill.

Are invited by the Wellington City Corporation for the supply and delivery of insulated wire for the Electric Lighting Department. Specifications at the office of the engineer, Harris Street. Close Feb. 22.—Jno. R. Palmer, Town Clerk.

Are invited for the Western Taieri Land Drainage Board for erecting five timber bridges, up to 4 p.m. on Friday, Feb. 22. Timber and cement provided by Board.

Are invited by 15th February for the construction and supply of four Iron Buoys. Specifications at the Public Works Offices.—George Allport, Secretary.

ABRIDGED PROSPECTUS OF

Moehau Granite Quarries

LIMITED.

(To be Registered under "The Companies' Act, 1908.")

For the Working of the Stone at the Moehau Granite Quarries, Coromandel Peninsula, for supply of BUILDING STONE and SUPERIOR ROAD METAL, of which Auckland stands in such need.

CAPITAL - - £25,000.

Divided into 5,333 Ordinary Shares of £1 each fully paid up, £5,833, and 19,667 7 per cent. Cumulative Preference Shares of £1 each.

Now offered to the public, the proceeds of the sale of which will be available for the purchase of the plant required for working the property, for the gradual payments to the Vendor, and the balance will be for working capital. It is probable that only 10/- per share of this will be required to thoroughly establish the business, balance being available for any extensions £19,667

£25,000

Payable, 2/6 on Application, 2/6 on Allotment, and the balance as required by 2/6 Calls, with at least a month's interval between each call.

NOW OFFERED TO THE PUBLIC—

19,667 Shares, ranking as 7 per cent. Cumulative Preference Shares until 35 per cent. has been paid in dividends thereon, when preference ceases.

The consideration for which the property will be transferred to the Company, unencumbered, by the Promoter and Vendor, Mr. R. R. Hunt, has been settled at 5,333 fully paid up Ordinary Shares of £1 each, issuable gradually in terms as set forth under "Contracts" page 4 .. .. .. £5,333

And cash £3,000, payable to him on deferred terms as set forth under "Contracts," page 4 .. .. £3,000

Total consideration £8,333

While the property has been valued by Mr. F. Rich, C.E., at £15 000.

Provisional Directors.

MR. H. E. PARTRIDGE, of Messrs. H. E. Patridge & Co., Ltd., Auckland, Merchant.
MR E. H. CHAMBERLIN, Sheep Farmer, Ponui Island.
CAPT. GEORGE McKENZIE, Shipowner, Auckland.
MR. GEORGE T. NICCOL, Shipowner, Auckland.

Brokers:

A Commission of 5 per cent. will be paid by the Company to any person selling shares of the Company.

TRUSTEE FOR THE COMPANY AND SECRETARY PRO TEM: PERCY S. BUTLER, Victoria Arcade, Auckland.

This Company is being formed to purchase from Mr. R. R. Hunt, Auckland, Quarry Owner (the Promoter of and Vendor to this Company), the stone-bearing property known as the MOEHAU GRANITE QUARRIES on the Coromandel Peninsula, for the purpose of working them to supply BUILDING STONE for New Zealand, and abroad, and especially the AUCKLAND MARKET with kerbstones, gutter pitchers, tramway cubes and ROAD METAL, of very superior quality. In effect to embark in the business of

STONE MERCHANTS.

THE PROPERTY IS SITUATED on the Moehau Range, western seashore of Coromandel Peninsula.

QUANTITY.

There are four different kinds of stone on the Moehau property: All in practically inexhaustible quantities.

QUALITY.

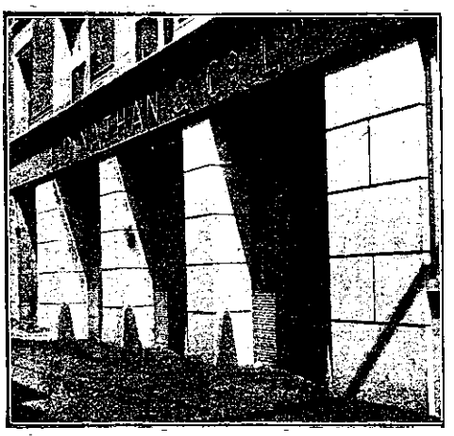
The BEST BUILDING and MONUMENTAL STONE yet produced in the Dominion. Takes a high polish. Absorption 0.244 per cent. of its weight, 150 hours soak.

THE MARKET FOR STONE IS LARGE.

BUILDING STONE at the reasonable price of 2/6 to 3/6 per cubic foot will sell readily, and there are millions of tons easy of access to dispose of. The City Engineer suggests that sawn gutter stones be supplied for Auckland requirements. Split kerbs and pitchers for all the Auckland Boroughs are wanted in large quantities. The local demand for granite has hitherto exceeded the supply. All the cities in New Zealand will want this stone for BUILDING PURPOSES. It is hoped that some of this superior building stone will be ordered for the new Town Hall at Christchurch, upon which they are about to spend £60,000, and the Parliament new building at Wellington, to cost £80,000.

A GOOD ROAD METAL.

IS THE CRYING WANT ABOUT AUCKLAND CITY AND SUBURBAN ROAD DISTRICTS, and it is required by Northcote, Birkenhead, Counties of Waitemata and Rodney, and also the Hauraki Plains, as soon as they are consolidated. The roads in and around Auckland are in a very bad state, the scoria rock now used only lasts two months, so that the roads are dust in summer and mud in winter, and if the Moehau Granite road metal only lasts twice as long as the scoria, it will pay the city to use granite, which should last several times as long as the scoria. The City of Auckland will shortly face the dust nuisance and bad roads question, when this Company, can reasonably expect a large share of the expenditure of road metal. A trial of a small lot of hand cracked granite road metal was made at Khyber Pass, opposite St. Sepulchre's Church, and the City Engineer in his report on Auckland roads, published 13th March, 1911, states: "Samples of granite, of local bluestone, and local bluestone tar macadam,



Building in Auckland showing Coromandel Granite Pillars.

all laid in Khyber Pass Road, at the point mentioned during August, 1909, have been taken up, and reveal the undoubted superiority of the granite to the local bluestone."

THE CITY OF AUCKLAND RATEPAYERS HAVING DECIDED BY POLL TO BORROW £225,000 FOR STREET IMPROVEMENTS, this Company hope to supply granite road metal, setts and kerbing, for such improvement.

PROFIT TO BE MADE.

A contract has been signed with the Auckland City Council for a sample parcel of 2,000 cubic yards of 2½in. road metal at 4/- per cubic yard, f.o.b., and offers have been made to contract to do all the labour for 2/- per cubic yard, f.o.b., which, after allowing for incidental expenses, wear and tear of machinery, and redemption of capital, will leave ample margin for profit. COROMANDEL GRANITE BUILDING STONE has been selling at 4/- to 5/- per cubic foot on Queen Street wharf. Offers have been made to find all labour to split the Moehau Granite at 2/- per cubic foot, f.o.b. quarries Moehau, and the Company will be able to sell it at 3/- per cubic foot, or with 6d. per cubic foot freight, equal to 3/6 per cubic foot on Auckland Wharf, freight paid. These prices will ensure a large output, and keep out the Melbourne bluestone, which is of a much inferior quality.

QUARRYING FACILITIES.

It will be seen from Mr. Rich's report that enormous quantities of the stone are broken out by nature ready for splitting up, and that hence, for many years the stripping of surface material will be avoided to the saving of expense in this direction.

PLANT.

Most of it has been secured at very reasonable prices, and on very easy terms, leaving little to purchase, except A TWIN SCREW STEAMER, which is essential to the profitable working of the quarries, as they are situated at an open roadstead, and steam is necessary for the quick handling of the vessel at the breakwater.

WORKING OF STONE BY MACHINERY.

An English PLANING MACHINE will do the work of 10 men in planing this granite at a cost of 3/- per day, and will save £5 a day as against cost of hand labour. The old laborious and costly method of sawing, working, and polishing stone by hand, and with sharp river sand, is entirely altered by modern methods, which have quite revolutionised the trade by an immense saving of manual labour.

THE BREAKWATER, 253 feet long, is erected to low water mark, and it has stood all the heavy gales of last winter without the slightest damage to it. £150 for labour will place some 4-ton stones needed at the end to finish it, when a crane to lift these big stones is procured. Fifty feet more added on to this breakwater will give seven to eight feet of water alongside it at low water spring tides. The TRAMWAY EARTHWORK, half a mile from wharf to quarry, is finished.

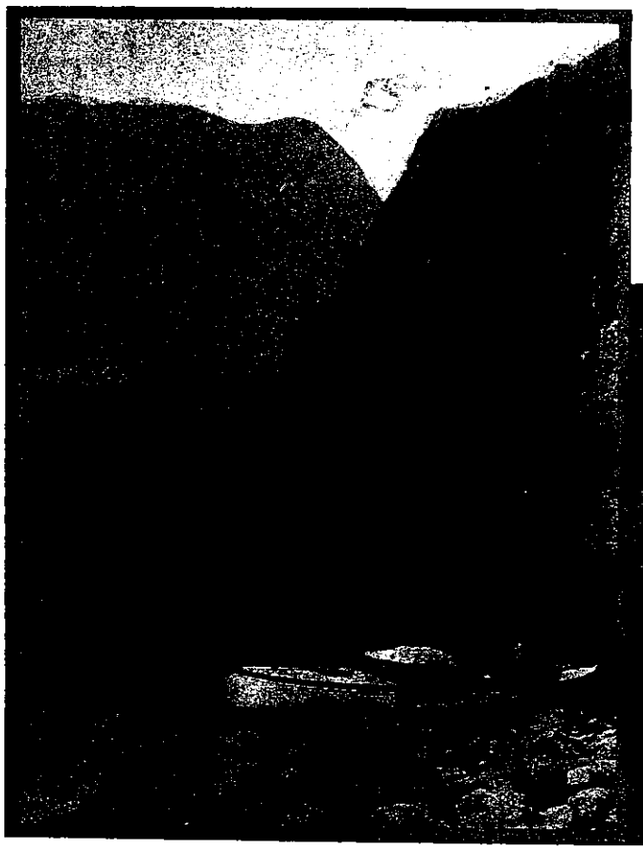
CAPITAL IS THEREFORE NOW REQUIRED to buy the necessary machinery in order to start working and placing the stone on the market. To get to work at once, the Vendor has consented to sell and convey the property to the Company at the price stated under "Contracts," and by taking ORDINARY SHARES FULLY PAID UP, and giving subscribers 7 PER CENT. CUMULATIVE PREFERENTIAL SHARES, he thus shows his confidence that the property will be able to pay dividends.

The contents of the Memorandum of Association of the Company, with the names, addresses and description of the signatories.

We the several persons whose names, addresses and descriptions are subscribed hereto are desirous of being formed into a Company in pursuance of this Memorandum of Association, and we agree to take the number of shares in the capital of the Company set opposite our respective names.

NAMES, ADDRESSES & DESCRIPTIONS OF SUBSCRIBERS.	No. of Shares taken by each Subscriber.
H. E. PARTRIDGE, Merchant, Auckland	100
ERNEST HENRY CHAMBERLIN, Farmer, Ponui, Auckland	100
GEO. MCKENZIE, Shipowner, Auckland	100
GEO. NICCOL, Shipowner, Auckland	100
STEPHEN JAMES AMBURY, Dairyman, Auckland	100
WM. ROBT. WILSON, Newspaper Proprietor, Auckland	100
J. J. O'BRIEN, Timber Merchant, Auckland	100

For Prospectus apply to any Director; R. R. HUNT, Custom Street E., or PERCY S. BUTLER, Victoria Arcade, Auckland.



ENTRANCE TO MILFORD SOUND.

THE NEW ZEALAND RAILWAYS

LAKE TE ANAU.

TOURIST EXCURSION TICKETS

(FIRST-CLASS)

Issued daily (Sundays excepted) throughout the year, as under :—

(A) **Available over lines of BOTH ISLANDS for SEVEN WEEKS from date of issue £10**

(B) **Available over NORTH ISLAND lines for FOUR WEEKS from date of issue £6**

(C) **Available over MIDDLE ISLAND lines for FOUR WEEKS from date of issue £6**

These tickets are available over Government lines only, and are obtainable as follows :—(*a*) and (*b*) at Auckland, Onehunga, Rotorua, Hamilton, Frankton Junction, Thames, Napier, Hastings, Woodville, Masterton, Palmerston North, Wanganui, Hawera, New Plymouth, Wellington and Te Aro ; (*a*) and (*c*) at Nelson, Greymouth, Lyttelton, Christchurch, Ashburton, Timaru, Oamaru, Palmerston, Port Chalmers, Dunedin, Mosgiel, Alexandra, Clyde, Milton, Lawrence, Clinton, Invercargill, and Bluff Railway Stations ; (*a*) and (*c*) series are available for travel over Lake Wakatipu.

Tourist Excursion Tickets may be extended for any period not exceeding four weeks on payment of an extension fee of £1/10/- per week, or portion of a week, on application to the Stationmaster at any of the above-mentioned stations, or the Officer in Charge, Queenstown, before the expiration of the original ticket.

OTIRA GORGE IN WINTER.

FACILE HARBOUR, DUSKY SOUND.

BUSINESS MEN - SPORTSMEN - TOURISTS - PLEASURE SEEKERS

If you desire to see the wonders and unrivalled beauties of the Lakes, Rivers and Mountains of New Zealand, or to go Fishing, Shooting, or in search of health, take—

THE VIADUCT AT BROKEN RIVER, MIDLAND RAILWAY.

TUNNELS ON THE MIDLAND RAILWAY NEAR CASS.

COLD LAKES AND GLACIAL DISTRICT OF OTAGO

Wakatipu, Wanaka, Hawea, Manapouri, Te Anau, Sutherland Falls, etc.

RETURN EXCURSION TICKETS, available for THREE MONTHS, will be issued between 1st Nov. and 31st March, as under—

TO KINGSTON, LAKE WAKATIPU (Including Saloon Steamer Passage Kingston to Queenstown and back)

FROM—	1st Class £ s. d.	2nd Class £ s. d.
CHRISTCHURCH (*via* **Waimea Line only**)	4 12 0	3 7 6
CHRISTCHURCH (**round trip** *via* **Waimea Line or Invercargill**)	5 7 6	3 15 0
DUNEDIN (*via* **Waimea Line only**)	2 5 0	1 13 6
DUNEDIN (**round trip** *via* **Waimea Line or Invercargill**)	2 12 6	2 0 0
INVERCARGILL (*via* **Kingston Line only**)	1 6 6	1 0 0
INVERCARGILL (*via* **either Kingston or Gore and Waimea Line**)	1 12 6	1 3 6

TO PEMBROKE, LAKE WANAKA

(Including Saloon Steamer Passage, Kingston to Queenstown and back, and Coach, Queenstown to Pembroke and back).

From Dunedin (*via* **Waimea Line only**).....**67/6 (First Class)**

The journey may be broken at any station at which the train is timed to stop after travelling twenty-five miles from the original starting-station, provided the specified time for which the tickets are available is not exceeded.

LAKE MANAPOURI.

QUEENSTOWN, LAKE WAKATIPU.

EIGHTH PRIZE COMPETITION FOR STUDENTS.

With the object of encouraging the students of the Dominion, we offer a prize of ONE GUINEA for a design for ENTRANCE GATEWAYS to a large house, say, for example, a house of the size and importance of Government House, Wellington. The carriage drive is supposed to meet the main road at right angles, and provision is to be made for carriage gates, and a small gate at each side.

The materials for gate piers, and any walling or other building work, to be brick or stone, or the same in combination.

Competitors are left free to adopt what they may consider to be a suitable treatment.

The lodge and the iron gates are not included in the present competition.

Drawings required:—

⅛in. scale plan of general lay-out of scheme, showing position of lodge.
⅛in. scale elevation.
½in. scale details and quarter full size profile of mouldings.

Competitors are to assume that they are designing these gateways for a client with some knowledge of design and architecture. Students are recommended, therefore, to study illustrations of good examples of such entrances.

Designs must be sent in, finished in ink, under a *nom de plume*, addressed to PROGRESS, 10 Willis Street, Wellington, and marked clearly, "Eighth Prize Competition" on outside, with a covering letter giving competitor's name and address. Designs to be in by April 3rd. Winning designs will be published in May issue.

Messrs. W. M. Page and G. Robb, of Wellington, have kindly consented to act as judges for this competition.

SEVENTH PRIZE COMPETITION
STUDENTS' COMPETITION!

WITH the object of encouraging Domestic Architecture, we offer a prize of **Two Guineas** for the best design for a 6-roomed Bungalow House. The site will be a level corner section facing East and South, and it is assumed that plenty of space will be available. The following indicate the requirements:

Drawing-Room with an area of about 240 square feet.
Dining-Room with an area of about 210 square feet.
Two Bedrooms with an area of about 169 square feet.
One Bedroom (smaller) with an area of about 150 square feet.
Kitchen (to be used as Dining-Room) 110 square feet.
A fairly large loggia facing East and North must be provided for.
Water laid on and drainage provided for.

MATERIALS.

Wood framing covered with rough cast or weather boarding. Roof optional.

DRAWINGS.

Ground floor plan, 4 elevations, 2 sections finished in ink to ⅛in. scale (no colouring allowed). A portion of the building to be drawn to ¼in. scale. Perspective view optional.

A short description of the construction proposed and the materials to be used, together with the cubic contents, to accompany the drawings.

An estimate of cost must accompany all designs.

Designs to be sent by March 5th addressed "Students' Competition," "Progress," 10 Willis Street, Wellington.

Competitors names must be enclosed in separate envelope and not marked on plans.

The judging of the designs will be made by Messrs. W. M. Page and G. Robb of Wellington who have kindly consented to adjudicate.

Winning design will be published.

Architects' and Surveyors' Professional Cards

B. C. Chilwell, A.R.I.B.A.,
Architect

Phœnix Chambers
Queen St., Auckland

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England Bros.,
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A. Wells Newton,
Licensed Surveyor and Civil Engineer

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Wellington *'Phone 2965*

'Phone 2909

J. S. Guthrie, A.N.Z.I.A.
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Edric C. Creagh,
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Architects are invited to send the Editor Illustrations and Articles of Interest to our Readers - - - -

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Wellington. **And Structural Engineer.**

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