WESTERN AUSTRALIA and THE COMMONWEALTH.

The following interesting article is taken from the March issue of "The Round Table"

An arid unproductive area divides the west from the east of Australia as completly as the sea divides the latter from New Zealand. Even Kalgoorlie is over a thousand miles from Port Augusta, in South Australia. Fremantle is 1,886 miles from Melbourne by sea. Wellington in New Zealand is only 1,200 miles from Sydney Moreover there are only 370,000 Western Australians as against 5,700,00 in the eastern States. The point needing explanation is not that the west is restive, but that she ever consented to enter into so unequal a yoke. The explanation may be found in (i) the gold rush which submerged, at a critical phase of the federal movement, an old colonial community suspicious rather than united in feeling with the eastern colonists, a community moulded by nature and isolation into pastoral and agricultural forms; and (ii) the re-emergence, amongst "tothersiders" and "gropers" alike, in the reinforced western population, of the ineluctable effects of isolation.

Founders of the first free colony, the Western Australians were divided by necessity to ask in 1848 for a supply of convict labour for public works. This antagonised their eastern neighbours, just emerging from the mire of transportation. Antagonism remained even after the end, in 1868, of the convict episode. Isolated and somewhat hardbitten through poverty, the Western Australians held aloof until 1890 under Crown government. They were dubbed "sand gropers" by the wealthier East. Then responsible government and the discovery of gold wrought a dramatic change. With a rush came thousands of pushful restless "tothersiders," eager to skim the cream of the gold-fields' trade, and to use self government as a means of favouring every new development. As the population advanced from 49,782 in 1891 to 184,124 in 1901, the "tothersiders" far outnumbered the "gropers," and threatened to take charge of the colony. The gold-fields around Kalgoorlie clamoured for a railway-port at Esperance to make them less dependant on the Swan River colonists, and to lessen the distance by sea from their eastern homes. The new community seemed likely to bridge over the gap of arid, uninhabited land that had hitherto separated the two Australias, but it imported rather than diminished inter-colonial antagonism.

The "tothersiders" naturally evinced a keen interest in the movement to place the map of Australia and all that lay therein under one Government. Long talked of in the eastern colonies, to the old Western Australians this federal movement had been hitherto a matter of indifference. Their delegate to the 1881 and 1883 conferences had been instructed to refain from voting on any resolution. At the Australasion Federal Convention of 1890, Sir James Lee Steere had made it plain that Western Australia would not sacrifice her existing tariff, the new Government's main source of revenue. This reluctance to surrender the integral self-government which they had just gained continued to mark the Western Australian delegates at the federal Conventions of 1897-8, who represented not the popular choice as in the other colonies, but the Perth Parliament in which the rapidly growing gold-fields were then under represented. They soon sensed danger to their future in the plan of leaving the surplus customs revenue, after the cost of the transferred services had been met, to

WESTERN AUSTRALIA and THE COMMONWEALTH.

Continued from page 1.

the disposal of the Commonwealth Parliament. Quoting the terms of the first resolution passed at the Adelaide session, 1897—

> That the powers, privileges and territory of the several existing colonies shall remain intact, except in respect to such voluntary surrenders as may be agreed upon to secure uniformity of law and administration in matters of common concern,

they argued that the Federal union was a limited one, intended only for certain enumerated objects, such as defence and posts. There should therefore be full guarantees for the return of the surplus revenue to the individual States once these purposes had been met. Otherwise, with the Federal power of taxation unlimited, after a short transition period the Commonwealth would have the whip hand to alter at will the whole basis and distribution of powers. But it was in vain that Sir John Forrest and his associates urged consistency between the constitutional and financial provisions of the union. Kalgoorlie and Westminster conspired to betray them. The emotional zeal of the strangers within their gates for a national Government, in which their eastern kinsmen would be supreme, brooked neither delay nor argument. When the Parliament at Perth refused to submit the Federal Enabling Bill to a popular referendum, the gold-fields sent a mass petition to the Colonial Office, asking for a new colony with Kalgoorlie for capital and Esperance for port. And this "Separate to Federate" movement found favour in high places. In April, 1900, while Forrest was fighting for terms, Mr. Joseph Chamberlain pointedly drew his attention to it, in urging the colony's entry into the Commonwealth as an original State. Under such pressure the Parliament at Perth had to be content with the terms offered at the Sydney Convention, *viz.*, the retention for five years of Western Australia's inter-colonial tariff, reduced annually by a fifth. After the five years, inter-State freedom of trade would be complete. After ten years, the Braddon clause requiring the return to the States of three-fourths of the customs revenue would terminate, and the Commonwealth would be potentially supreme. By a popular majority of 44,800 votes to 19,691 the Western Australian electors declared their willingness to accept federation, with such slight allowance for the disadvantage of distance as was contained in the tempory and tapering right to tax the high consumption per head that then characterized the west.

For a decade all seemed well enough. The gold industry reached its maximum output of between eight and nine millions in 1903-4-5. Its yield was still above six millions in 1910. Such wealth carried the young State along upon a high tide of prosperity. Its public finance, it is true, did not show the favourable figures of the years of responsible government, 1890-1901, during which £2,144,100 had been spent out of surplus revenue upon public works, after full provision had been made for sinking fund payments in reduction of debt. Yet even for the decade 1901-1910 the State still showed a surplus though a diminished one. Then the tide ebbed, the gold yield petered away, and the Federal tariff, framed in the interest of Sydney and Melbourne manufacturers, put a heavy brake upon the expansion of other primary industries, on a scale adequate to the absorption of the displaced miners, and to the continued growth of the State's population.

Gold was found in Western Australia in rich patches and streaks rather than in masses of low-grade ore. It was thus inevitable that success should reduce the attractions of mining as a magnet for population. Rich alluvial and shallow finds grew fewer. The wages-man settled down where the prospector had come and gone. In company mining, moreover, Western Australian fields were doomed, by economic causes of world-wide scope, to decline more rapidly than those of Victoria and New South Wales had done. The older fields had won a bigger percentage of the world's total output during the 'seventies and 'eighties. Therefore as their production dropped and the monetary demand for gold grew, they were helped along by the scarcity value of their gold and the consequent fall in prices and costs. Each pennyweight of gold, as it grew in purchasing power, paid for more of the labour and commodities needed to win it. Companies could thus continue to show a profit on ore that gave a smaller yield to the ton. In the west, on the contrary, gold has been falling in value per unit won, during the period of diminishing returns to mining, owing to the influence of the increasing total outputs from the Transvaal and Canada. Thus yields have fallen and costs have risen simultaneously. Mine-managers have been forced to limit their treatment to richer and richer ores. With the war, too, came paper prices, and costs per ton of treatment shot up from 19s. 9d. in 1915 to 38s. 7d. in 1921. Mine after mine was squeezed out, and Kalgoorlie, once the equal of Perth in importance, has lost population only less quickly than she gained it. The goldfields are now over-represented in the State Parliament to a greater degree than formerly they were under-represented. Though still above two millions, the gold yield is falling year by year.

This accelerated decline in the mining industry placed the rulers of the State under the necessity of speeding up the usual transition from gold to perennial forms of production. For search for other occupations Western Australians had little choice. The termination of the inter-colonial tariff in 1904 made impossible for them the policy of protection by which gold, though it attracts, can nowhere hold population. In their Victoria had nursed secondary industries into existence to employ her ex-miners. "A bar," to quote David Syme, "is put upon the attempt at the very outset." Nor was it likely that manufacturers would choose the West as a base from which to supply the distant Australian market. Concentrating attention, willy nilly, on primary production, the State Government set about the rapid extension of wheat-growing, which, when the century opened, was inadequate to home consumption. Light railways were build throughout the western half of the wheat belt, that magnificent tract of patchy land but assured winter rainfall, between 20 in. and 10 in. isohyetals, which stretches from Geraldton to Esperance, in area larger than England and Wales. Through the Agricultural Bank, established by Forrest in the 'nineties and now first vigorously used, advances of loan funds were made to farmers up to the full cost of the permanent improvements needed in bring farms to the cropping stage. There followed a splendid increase in wheat production, from 2,460,000 bushels off 585,000 acres in 1908, to 13,331,000 bushels off 1,537,000 acres in 1913, and after a war-time decline a second advance from 11,220,000 bushels off 1,041,000 acres in 1919 to 30,000,000 bushels off 2,446,000 acres in 1926. Thanks largely to Sir James Mitchell and the Hon. W. C. Angwin, wheat is now the rapidly growing premier industry of the State, and moving towards the lead among the Australian exporting States. About 1911 the Scaddan Government, while pushing the wheat development with energy, sought to add a forward policy for the sparsely-peopled North-West. It established first State steamers, and then a big freezing works at Wyndham in the far north, with the two objects of aiding the cattle and pastoral industries in those parts, and keeping down the cost of living in the main centre of population, the South-Western division. This latter aim was further followed in the establishment of State brick works, State agricultural implement works, and even State butchers' shops around Perth. No avenue to the increase of the community's primary production was wittingly left unexplored.

Even before drought and war came simultaneously in August, 1914, to weed out the weaklings and to draw away the most vigorous of the State's manhood, the leaders of all parties had become aware that the working of federation was confusing and weakening the public finances, and trammelling their efforts to expand primary production.

(Continued on Page 5.)

"The Argo,"

A MONTHLY JOURNAL
DEVOTED TO SERVICE TO THE STATE.
THE OFFICIAL JOURNAL OF THE ARGONAUTS CLUB INCORPORATED

Vol. 1. PUBLISHED MONTHLY.

JUNE 28TH PERTH, WESTERN AUSTRALIA

No. 7. PRICE, SIXPENCE.

CONTENTS OF MAY NUMBER, 1927.

CONTRIBUTORS

Contributions will be received and must be addressed to The Editor of "The Argo" c/o Argonauts Club, Barrack St., Perth.

Address all communications to the Editor.

Annual subscription rates 6/- per annum. Post free within the Commonwealth.

ARTICLES.

ADVERTISERS

For all enquiries re advertising space and rates communicate with the Editor of "The Argo" c/o Argonauts Club, Barrack St., Perth.

All advertising matter should be in the hands of the Editor by the 15th. of the month.

If any change is required in advertising matter notice should be given the Editor on or before the above date.

Development in the financial relations of States and Commonwealth during 1908-1910 justified fully the contention of the Western Australian delegates, as to the need of guarantee for the refund to the States of the surplus of customs revenue. In the former year the Commonwealth Parliament hit upon a plan of preventing surplus revenue accruing, and was upheld by the Federal High Court against a challenge from the State of New South Wales regarding the legality of that plan. The scheme was to appropriate into trust funds, until actual disbursement, moneys which would otherwise, under the Braddon clause, have been surplus for distribution to the States. In any event, however, that clause, which required the return to the States of three-fourths of the customs revenue, ceased to operate in 1910, and the Federal Parliament would then obtain a free hand in finance. Every omen foretold a free use of it. A constitutional amendment which would have bound the Commonwealth indefinitely to return to the States 25s. per head of population per annum, and to make an additional tapering grant to Western Australia, beginning at £250,000 per annum, was decisively rejected early in 1910 through big adverse votes in Victoria and New South Wales. In its stead the Federal Parliament passed a measure making the proposed grants to the States for ten years, and thereafter until that Parliament otherwise provided. But this was an act of grace without the constituional sanction. It masks but it does not abolish the financial freedom of the Commonwealth Parliament. That freedom places in jeopardy the taxing powers of every State, through the entry of their powerful rival into any and every field of revenue. In the eastern community, more closely united every year by improving transport and industrialization, this is a small matter. In the West the differentiation between the two communities makes it a danger.

The protectionist tariff, however, is more than the substitution of a distant for a local government. It is an all pervading cramp upon free development in the primary industries. Everywhere and on everyone in Western Australia it operates as an unmitigated cause of high prices. For it brings no compensating benefit, as in the eastern capitals, to protected industries. To farmers, pastoralists, timber companies and fruit-growers, selling their products in the open markets of the world, the tariff means increased cost which cannot be passed on. In every primary industry it limits profit and expansion. No more striking instance can be given than its incidence upon wire-netting. This is a necessity of life in the back country. The pastoralists now pushing east in the mulga and salt-bush country of the Murchison and North Kalgoorlie regions must have it to keep their flocks safe from wild dogs, bred from the native dingoes and strays from the miners' camps. With water at shallow depths and good "top-feed," the dogs are the main trouble, and wire-netting the one way to beat them. The farmers in the eastern wheat belt must have it to fence their wheat crops from the rabbits. In spite of lavish State expenditure on two rabbit-proof fences—one of which runs from the north-west coast to the Bight, 1,300 miles—the rabbit army has made the long trans-continental march, and appeared during the last decade throughout the West. Yet the Federal Parliament, in its zeal to see the tall chimneys smoke at new Australian factories, chose for several years to levy heavy duties on wire-netting and barbed wire, thereby restricting the extension of two most promising industries, for which the soil and climate of wide areas in the West are admirably suited. Latterly the Commonwealth has attempted to palliate the wrong by granting money to the State, to purchase wire-netting for re-sale on long terms to farmers and pastoralists, a typical piece of political prestidigitation seeking to bluff away economic facts.

Broadly and definitely, the tariff, to the extent of its full burden in customs collected and prices increased, has weighed against and nullified the efforts of the State to encourage and equip the primary industries. Even such stalwart protectionists as the Federal Tariff Board reported in June, 1924, on the unjust incidence of protection upon Western Australia:—

> Whatever additional cost the policy of protection may add to the price of goods and material imported by the Australian consumer, the citizens of the Eastern States gain as a compensating advantage the presence of a large production and manufacture. Such is not the case in Western Australia, which is so placed that at present it has to bear whatever burden may arise under the protectionist tariff without reaping any of the accompanying advantages.

This lop-sided effect has been appreciated by the primary producers in the West since 1912, and by the whole people since the drought of 1914-15. Its burden has been made more grievous by the stagnation in the development of the wheat industry consequent, between 1915 and 1919, upon the withdrawal to the Australian Imperial Forces of an honourably high proportion of the State's manhood. That stagnant time was the principal cause of the accumulated deficit in the State's finances. Fourteen millions had been borrowed in the seven years before the war, and spent mainly on agricultural railways or on loans to farmers for the work of clearing land. The interest bill thus incurred was to have been met from the profits of cultivation and from the railway revenue won in serving the new farming areas. War-time stagnation left the State saddled with the interest but shorn of the revenue from its new assets. The Treasurers of the day had perforce to fall back on income and other taxes, which as a result were raised to heights unusual in Australia. Even so, there emerged huge deficits which were added to the State debt. Rates of taxation markedly higher than those ruling in the other States, moreover, could not fail to cause investment outside the State by its wealthier citizens. The Deputy Federal Commissioner of Taxation submitted to the recent Commission* comparative tables showing the wide difference in the taxes on all incomes between Western Australia and Victoria, and on incomes over £5,000 between Western Australia and any other State. On an income of £6,500 from personal exertion the tax in Western Australia was in 1925 £1,141 greater than the Victorian tax, £902 greater than the South Australian. On a similar income from property, the Western Australian tax was £929 more than the Victorian, £749 more than the South Australian. "Many of the tax-payers in this State, who have to pay, say, from 2s. in the pound upwards," another important witness told the Commission, "do not re-invest their surplus moneys in Western Australia, but remit them for investment to other States, particularly Victoria, where the maximum State tax is only 6½d. in the pound."

Universal resentment against the effects on Western Australia's public finance and primary industries of the Federal taxing power, and especially of the tariff, was obvious in evidence tendered to the Commission. No such unanimity, however, was to be found in the suggestion of remedies. Many favoured secession from the Commonwealth, even though unable to say by what means this could be brought about. Mr. Entwhistle, one of the three members of the Federal Commission, reported in favour of cutting the knot by secession. "In my opinion," he wrote, "Western Australia should never have entered the Federation, but having done so, there is, I feel convinced, only one complete and satisfying remedy for her present disabilities, *viz., secession.*" Even avowed secessionists, however, contemplate a continued association with eastern Australia for purposes of defence. Their main aim, freedom from a customs tariff designed to stimulate secondary industries in which, for geographical reasons, the West cannot hope to share, seems indeed to call for little beyond the grant to the State of tariff autonomy, which a majority of the Commission recommended, for 25 years, "*and thereafter until the Parliament otherwise provides.*" Australia, the majority argued, enjoys such fiscal autonomy within the Empire. Why not Western Australia within the Commonwealth? The Acting Premier, the Hon. W. C. Angwin, setting aside the question whether tariff autonomy would solve Western Australia's problems,

Continued on page 23

WOOD CUTS.

by G. PITT MORISON.

It is only in recent years that the wood cut has become popular. The vogue has not reached the West to any great extent, but in Sydney and Melbourne the efforts of such men as Lionel Lindsay and other talented artists, also the charming little cuts by the members of the Ex Libris Society have quite hit the taste of the art lovers in these progressive capitals.

Originally the wood cut was used by artists as a means of reproduction, and we can trace back the process to the sixteenth century, when Albrecht Durer, the most talented of draughtsmen, executed some book plates for the library of a religious order. Coming down to a later date, the second half of the 18th century, Thomas Bewick added his name to the tradition. He invented or developed what is known as the "white line." To understand this phrase, Mr. J. S. McDonald, a very talented art critic, gives the following explanation: "The artist approaches the engraving of a wood block as one would approach the drawing on a blackboard with chalk, as against drawing on a white surface with black chalk. And as he realised that the part he failed to cut away would be the part that printed, it is not difficult to see his logic. If printing were done in white on black paper, the reverse would be the better plan. Not, of course, in the case of facsimiles of pen and ink drawings. There a black and white master drew on the block and a journeyman cut away what wasn't wanted."

Since Bewick's days, until about forty or fifty years ago, line wood engraving was the principal method employed for illustrative purposes. The artist drew his composition on the block, which was passed on to the line engraver for further treatment. Generally, as in the case of weekly periodicals, urgency was the moving factor, and many a good drawing was "botched." To a great extent, the artist was at the mercy of the line engraver, and naturally didn't like it. His day came, however, with the advent of process engraving, in which photographers played the most important part and the commercial line engraver passed out.

This decline in wood engravings left no regrets. In fact, it was the harbinger of better things—the artist conceived his own work, which he engraved himself.

Not only can the artist create his design with knife and gouge, the tools used for wood cuts, but he can engrave on wood the true importance of white on black, for which the grain of wood lends itself so admirably. There is a vast difference in the method employed. In England and on the Continent, pear wood is generally used and the timber is cut the plank way of the grain. This wood, however, will not serve for wood engraving, its softer texture would be torn and jagged by the graver. The artist, therefore, must use a harder wood, the box tree for choice, and cut across the grain.

Pear wood is generally used for colour prints, and charming tonal results have been achieved by several blocks, each denoting a certain colour, superimposed on the paper. The artist is not restricted to pear wood. In Australia, kauri pine wood answers the purpose equally well, and some very fine effects have been achieved with a smooth grained linoleum.

To-day many fine things are done in colour prints. Our Perth artist, A. B. Webb, ranks in equality and sincerity with any of the good British or Continental men. His work is noted for simplicity of design and rendering, and for quiet colour schemes.

In the Eastern States the vogue is the box block, cut across the grain, and the cult has many devotees. Lionel Lindsay set the ball rolling, and is generally acknowledged as the finest living wood cut artist. Not far behind him comes Napier Wallea. These men are not only masters of the craft, but they have the very much coveted quality of originality. Within recent times a society was formed in Sydney called the *Ex Libris* Society. The object of this society is to engender a love for the book plate and establish a camaraderie in which the members could interchange their book plates. There are no restrictions as far as the mediums are concerned, for from examples published in their booklet, etchings and pen and ink mix freely with the wood cut, but the wood cut predominates. The book is only a secondary consideration, a mere vehicle for carrying a delightful work of art, but the use of the book certainly gives a strong impetus to the utility of the book plate. Among the large roll of membership mention might be made of three of the wood block workers who contribute to the success of the society—Adrien Feint's work is most convincing, his work is well silhouetted against a light ground, and there are sparkling touches of light against a dark ground, which gives the effect of atmosphere—a quality generally termed "ambience." The Secretary, P. Neville Barnett, sustains the same quality, as does also Edgar Satchell. The last-named is a recent arrival in our State, and with his artistic ability should prove a great acquisition in art circles.

The charm of the wood-cut is its simplicity. Those beginning the cult must put aside all previous training in tonal values. The contrast of black upon white is the one and only essential. It is a fascinating hobby, inexpensive as far as material is concerned, and after the first initial difficulties have been overcome, and the spoiling of a few bits of wood, the beginner will have just cause to be proud of his efforts. But when this is attained, there is one quality for which he must strive—*Originality.*

GERMANY'S INTEREST IN OUR TANNIN RESOURCES.

HOW OUR FORESTS WERE DENUDED.

A Dark Page in Our Forest History.

(*By* PENFEATHER.)

The time is early in 1905; the place is a well-lighted, airy meeting-room, in the commercial area of Frankfort, Germany; and the cast is a small assemblage of commercial men—industrialists they call themselves, together with a few chemists and a financier or two. From a rostrum, a speaker intoning in gutteral Teutonic, is addressing the gathering which listens to his remarks in rapt attention. When the speaker refers to his notes and quotes chemical analyses and formulae, the professional section of the meeting applaud. When matters of commercial concern are commented upon, the industrialists sit up and evince a deeper interest in the lecture, for such it is.

The speaker on this occasion was Dr. Johannes Passler, and this gathering on April 25—a date to be remembered by many an Australian later—was composed by members of the Central Association of General Leather Industry of Germany.

That scientific lecture practically decided the sudden boom in trade of Western Australian mallet bark. Dr. Passler was a skilled leather chemist, attached to the investigations branch of the Technological Museum in Berlin, and his lecture was upon the value of the tannin to be obtained from the local mallet bark, or, as he called it, "maletto." Dr. Passler does not appear to have himself visited this State, but it is apparent that a Dr. Diels, some short time previously, spent the best part of eighteen months visiting the various States in Australia, collecting possible tannin exhibits, testing and experimenting, and it was on the report of Dr. Diels, together with his own experiments on the bark, that Dr. Passler's lecture was based. Dr. Passler told that august gathering how the suspicions of the industrial chemists had been aroused by the first samples of bark received from Western Australia. The long rail and sea journeys from the Great Southern districts of Western Australia to Frankfort, had had the effect of filling the bottoms of the bags in which the bark was packed, with a dust. To the people of this State, it is well known that mallet bark exudes under certain conditions, a gum heavily charged with tannin, and that this gum sticks to the dry surfaces of the bark and hardens, until constant abrasion causes it to be ground to a fine powder. This powder in the bottom of the bags was a matter which gave rise to suspicions in the minds of the German tanning chemists. Was this dust an entirely foreign substance introduced by the Western Australian exporter, for the sinister purpose of concealing the true nature of the bark, by mixing it with the tannin-charged kino of some other tree? It was only after exhaustive experiments that the German chemists convinced themselves that the Western Australian exporters were not throwing dust in the eyes of the German chemists, in order to conceal some secret. That incident provides the real beginning of the commercial exportation of tannin bark from Western Australia. It is not, however, the true beginning of the mallet-bark trade from the purely historical standpoint. Let us return to Dr. Passler and his party of industrialists and chemists later.

On January 26, 1833, the *Perth Gazette and W.A. Journal* made reference to the fact that "William Watts tanned some kangaroo skins and had boots made from the product." What material he used to tan the skins is not known, but the probability is that some local bark was used for the process.

During December of 1835, an American vessel, named *Tim*, called in at Fremantle, after having touched at some of the ports in the Eastern States, and no doubt was the source of inspiration for the following paragraph appeared in the issue of December 12 "The gums of the colony, which are so various and abundant, are likely to afford an article of extensive and valuable export to America. In order to obtain as varied a sample of our gums as the limited detention of the *Tim* will allow, we solicit our friends to forward to our office such samples as they may be able to collect in their neighbourhood, with any remarks that may suggest themselves, touching the probable quantity which may be procured. Captain Williams has already made a collection of gums at Sydney."

Several years passed, without there being any direct reference to tannin-charged barks. On October 20, 1838, there is reported the fact that during the preceding year the "estimated exports" from King George's Sound (latterly known as Albany) totalled £2,530. Of this total, gum is set down as providing £278, and bark £12. Unfortunately, however, for posterity, no names of exporters or other details are given. Similarly, in September, of 1845, reference was made to the export of "barks" and "gums" to London, but again no particulars are given. In 1853 an Empire-wide exhibition was held in London, known as the "Great Exhibition." It, apparently, was the olden counterpart of our recent Wembley. Western Australia sent a number of exhibits to this show and the judges' reports on the tanning material sent, were: "Barks of the various eucalyptus as tanning material received honourable mention." Six months after the publication of those comments, a tanner of Perth, by name R. R. Ranford, advertised that he wanted "a few tons of wattle bark, for which £4 a ton will be paid for bark delivered at tannery."

Then comes another hiatus, for the next record of interest in tannin material does not appear until April, 1860, when a barque called *Dolphin* took aboard at Fremantle, fifteen tons of gum for the Cape, and 1,500lb. of leather. The export trade in mallet bark really dates from 1903, in which year bark to the value of £859 was sent away, although records do not disclose the destination of the consignments. In 1904 the trade in mallet bark had jumped to the surprising total of £32,876, and in the following year—that in which Dr. Passler addressed his Frankfort meeting—bark, to the value of £154,087 was exported. 1905 stands as the "peak" year in the mallet bark industry, for although there have been spasmodic attempts to increase the exports, the general trend has been towards a gradual diminution. From 1903 to 1913, inclusive, the total value of mallet exported was £864,880. To obtain such a value meant that the area where mallet bark was growing had to be exploited to the utmost. Regulations were made, restricting the cutting of trees below a certain diameter, but by the time the regulations were passed and adequately policed, tthe damage had been done and the position was virtually irreparable. In this respect, some comments by the German chemist are prophetic. Here is what Dr. Passler said: "In some branches it (mallet bark) has already established itself for regular use, which proves that the trial stages in these branches have been passed and have produced satisfactory results. Now, the question arises whether the demand, which is bound to increase, can be met permanently and in satisfactory qualities, even if the restrictions imposed by the Western Australian Government are observed strictly, after the first reckless exploitation of this bark, and even if provision is made for afforestation of denuded districts." These remarks are equally true of wattle, perhaps the best source of tannin There is irony in the fact that, although the wattle is Australia's national emblem and is even interwoven into the design on postage stamps, there is very little to be found in the virgin bush. Because the wattle contains a high percentage of tannin, everywhere in Australia it has been ruthlessly sacrificed for the sake of its bark. Indeed, instead of exporting it, Australia

Continued on Page 20

is now importing it, and the saddest part of all is that South Africa imported wattle seed from Australia, started growing and kept on growing wattle, while Australia was destroying it. Now, Australia has practically no wattle, while South Africa's export of wattle bark and extract runs into hundreds of thousands per annum and is yearly increasing.

It may be permissible to digress from the State history of tannin barks, to have a look at the position in South Australia; perhaps the most prolific-yielding State of all, in respect of wattle bark. During 1926 wattle bark, valued at £70,953, was exported from South Australia. Most of it went to the other Australian States. Despite the fact that the South Australian export trade in wattle bark has grown from £180 in 1842, to £70,953 last year, the quantity of South Australian wattle bark used by tanners in that State, is growing steadily less. It is somewhat of an anomaly that Australia, nominally the home of the wattle, should have to import wattle bark. During the season 1924-25, no less than £84,942 worth of wattle bark came into the Commonwealth, mainly from South Africa and Argentine. Another instance of how the wattle bark industry has grown in South Africa is shown by the fact that during the five years 1921-25, South Africa's export of wattle bark to the United States of America averaged 18,000,000lb. in quantity and £54,000 in value.

Western Australia, to the end of June, 1926, has exported wattle and mallet bark to the value of £1,094,290, the value of the export last year being £15,056. Tannin of high quality is obtained from a number of varieties of trees in this State, prominent among them being marri, karri, tuart, wandoo, mallee, gimlet, red flowering gum, salmon gum, morrel and mallet. The last-named has long been favoured because of its high tannin content of bark which varies from about 49 to 57 per cent. It is interesting to note that the average price over the period 1903-1923 was less than £8 per ton, whereas £11 to £12 per ton was the average price of wattle bark on the Melbourne market. Had tannin-extract works been established in the State, possibly a greater return would have been obtained for Western Australia and the value of the commodity better appreciated. As it is, efforts are being made to induce farmers to grow wattle trees on available land, while the department itself is devoting what money it can afford, to reafforestation. Wattle trees make good shade trees, though small, and as the trees grow easily in the southern districts of the State, they should appeal to farmers, not only for their utilitarian, but also for their financial and idealistic value. During the financial year ending June 30, 1926, further sowings of mallet by the Forestry Department were carried out over 176 acres, and many patches of natural regeneration protected from fire. Experimental sowings of golden wattle were also carried out in the mallet habitat, west of Cuballing.

It is evident, therefore, that if the tannin-bark industry is to be restored to its former high position among the valuable exports of the State, much regenerative work will have to be undertaken in the district most suitable to the cultivation of these tannin-yielding trees. It is of deep interest to know that the Council of Science and Industry has the matter of investigating the tannin content of our various varieties of trees, in hand, under the able guidance of a local committee, from whom much is expected.

IMPRESSIONS.

From a Week's Visit to Eight Groups in the Group Settlement Area of Bridgetown, Hester, Greenbushes, Margaret River, and Bramley.

(By an English Visitor.)

1.—The scheme is a wonderful one with great possibilities conceived to bring out families of which the worker would probably be on the dole at home, and at the same time to give a healthy life in Western Australia where population is much needed, and the development of dairy farms is said to be very important for the State as a whole.

A great advantage from the English settlers' point of view, is that the homesteads are much nearer together than in the wheat districts, and therefore, there is not the lonely and desolate feeling that some migrants feel, especially the women and children.

2.—It seems to me, viewed as an Englishman, that, from the point of Western Australia, looked at with a long view and in the biggest sense, four great assets are obtained: (a) Healthy families are attracted to the country and will gradually lead to the expansion of the population. I have found, on the whole, rather large families. (b) Very heavy country is being cleared at a cheaper rate than would the case if ordinary contract labour were employed in order to open up country which, from its soil and rainfall, is said to be good for pasture, in order to develop a main dairy-farming industry, with its ancillary occupations of butter-making, pig-breeding, poultry-farming, etc. (c) The families, which are getting acclimatised and are sticking to their groups, are, on the whole, optimistic and happy. (d) The existence of the Groups has caused the growth of townships such as Margaret River, with stores, butchers, postal business, rail traffic, etc., which distributes the money spent in the group centres, through other inhabitants of Western Australia in the district, and, of course, makes ultimately for revenue; for instance, Margaret River maintains four stores, two butchers, a draper, a baker, two tea houses, a hostel, and a station busy enough to boast a station-master, all developments during the last five years since the groups in that district were first established.

3.—The difficulty from the settler's point of view, is the financial position of the farm when it is developed.

4.—The conditions under which the settler works, are: (a) From the time he arrives for three months he is paid subsistence allowance at £3 per week, during which time he has to work as instructed by his foreman, at clearing in gangs. (b) Piece Work—The settler is then transferred to piece work in gangs, on whatever part of the group he is ordered to go by the foreman, but after three months they are considered able to do a fair day's work and so they only earn their money provided they do their set task. (c) They are very soon after this, put on to contract work, mostly on their own blocks, and this continues until the farm is so far developed that no assistance is required, and it is considered a paying proposition. No group that I have seen has yet reached this stage. As soon as the men are on contract, every good foreman tries to give each man his contract on his own block. Where neighbours are on good terms, they very often work together on each other's contracts, as in this heavy clearing of big trees and bush, two pairs of hands will do much more work conjointly than each single pair working on its own. The Government has limited the amount that any group settler can earn in a month, to £20 10s., and the contracts are set out on the basis that each man can earn this if he does a good day's work every day during the month. This is very sound, as it helps to limit the capital outlay.

5.—Latterly, the group settlers, on ariving, find their humpy a corrugated iron shed divided into three rooms, with a cooking-stove ready erected. The blocks are balloted for at

(Continued on page 19.)

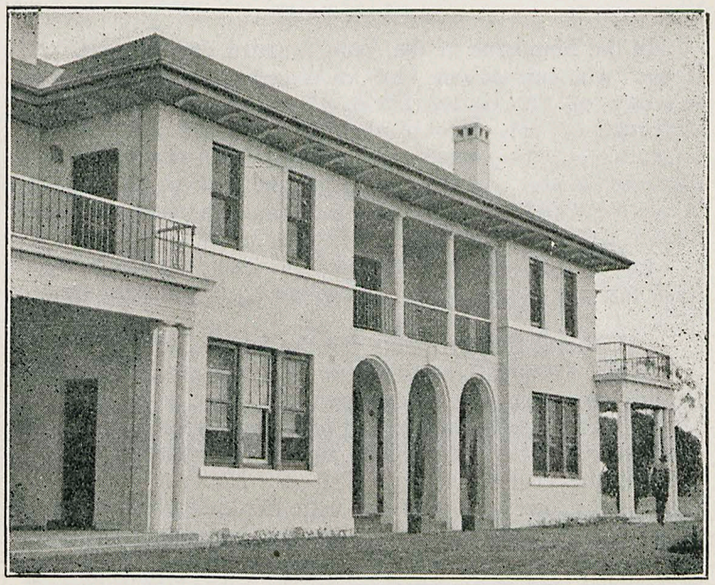
GOVERNMENT HOUSE, CANBERRA.

(*By* RUTH LANE-POOLE.)

Rome was not built in a day and, spite of all the feverish activity, Canberra will take many long years to become a city in the real sense of the word. The plan of the town, carried out by Mr. Burley Griffin, is the one thing that is of a definite and permanent character; the buildings, on the other hand, are, owing to the impossibility of forecasting the development of Canberra, of a provisional nature. So it is that the Governor-General's house has not yet been begun on that wonderful hill dominating the city, but for the time being—for some five or more years—His Excellency will occupy old Yarralumla Homestead. It is the old home of the Murray family who owned broad acres of sheep land in the territory, long before a capital of all Australia was ever thought of.

It was impossible, in the time allotted, to build, and so they purchased the old homestead, and by judicious alterations, converted it into a residence which, while not, perhaps, of the size or grandeur of the edifice one would expect the Governor-General of the second Dominion of the Empire to occupy, is, at the same time, commodious and has a charm of the old fashion which no brick or concrete palace could possibly attain. But to the decorator, however, the deight of the old rambling, renovated squateer's house was, to a great extent, sunk in the difficulties that sprang up in the actual work of furnishing and rendering the house habitable. Had it been only a matter of furnishing a house of this size for a landowner or a country gentleman, the problem would have been comparatively simple; even so, there would have been the same difficulties in regard to distance from market, but in the case of "Yarralumla," one had the additional difficulty that the house was to be the residence of the King's representative in Australia. It is a house that will be occupied by the Governor-General for some years to come. It is there that the distinguished visitors to Australia will be invited. There, will be held the levees and functions that are necessary in connection with the Governmental side of country and social Australian life.

I must confess that, at first sight, the problem appeared to me to offer more difficulties than any I had as yet undertaken. The alterations of the house, though carried out with great cleverness by the architectural department of the Canberra Commission, could not help but result in the creation of curious structural anomalies; for instance, instead of a front and back door, it was necessary to create an official entrance where the business connected with the administration of Australia could be carried out, and a private entrance through which the invited guests of the King's representative would gain access to the house. The opening of halls, the manufacture of reception rooms, the provision of communicating corridors all had to be engineered, and the result was remarkably satisfactory. But this temporary residence has a serious objection from the decorator's point of view, that the house is without definite architectural features, and its ramblings present problems in the matter of curtains, carpets and furniture which give one pause. From the very start, as one enters the house, there is a difficult passage-way, for to grace it with the name of hall would be to dignify it absurdly. I can always remember how my heart sank when I entered Yarralumla and saw this long, narrow passage illuminated from above with a skylight, from which had to be evolved an entrance which would possess the dignity necessary to the reception of ambassadors, ministers and statesmen. It must be admitted that this was the worst feature in the house; for the rest, the difficulty lay more in treating this comparatively small house in such a manner as to make it suitable for the Governor-General. In the end I decided that



Prime Minister's Residence, Canberra.

the only way was to furnish it in a manner which would be in keeping, both with the very countrified type of house, and at the same time would not be lacking in the dignity and formality of the Governor's residence; in other words, I decided to treat Yarralumla in the same way as I would have treated a large house of a country gentleman in England, adding, at the same time, the necessary touch of formality in certain rooms to bring them into keeping with the use for which they are intended.

The house is three storied, and the best bedrooms are all on the first floor. These divide themselves naturally into the two types—first the old bedrooms of the squatter's home and then the renovated, re-designed rooms added by the architect. The old rooms possess that quaint charm one associates with buildings of the period; and, in treating these, I have been careful to perpetuate this, and, if anything, to add a further touch of rusticity in the choice of my fabrics and furniture.

As to the treatment of the official entrance hall, the solution I reached was to utilise a tapestry to cover the walls. I was fortunate in finding a reproduction of a piece of the famous Bayeux tapestry. This I hung, tight-framed against the walls with a thick lining. Next, a fireplace was opened in the further corner, and a Georgian mantelpiece set above it. Thus, a dignty has been lent to the entrance and on a cold night the bright fire adds a welcome to the visitor.

Passing into the dining-room, I decided at once to panel it and I chose for the purpose, that very satisfactory timber, mountain ash, or Tasmanian oak, as it is sometimes called. This particular parcel came from Warburton in Victoria, so would be called mountain ash. Slightly tinted, it gives the same mellow, brown effect as British oak. It has a similar texture but lacks, of course, the wide, silver grain of quarter-cut real oak. This panelling was not highly polished, but was wax-finished ready for the years and years of "elbow grease," that alone will give it the real surface it needs. The panelling reaches from floor to ceiling and the panels are graduated in the approved manner, gradually diminishing in height as they go up.

(Continued on Page 24)

CIVIC DEVELOPMENT.

TOWN PLANNING.

A City Planning Primer.

(*By* W. A. SAW, *President, Town Planning Association of Western Australia.*)

In the May issue of the ARGO, I stated that Mr. Herbert Hoover who was at one time in Western Australia, is now secretary of the United States Department of Commerce, Washington. Mr. Hoover recently appointed an advisory committee on city planning and zoning, which drafted a *City Planning Primer,* which can be applied to the towns of Western Australia, equally well with those in America. The former article dealt with the subjects, *What is City Planning? Is Your City Selling its Birthright? Planning Rests on Legal Basis* and *The Street Plan.* The following is a further instalment.

General Requirements for the Street System.

Wide thoroughfares are basic to good planning. They should lead from the central part of the city to outlying territory, and there should be belt or diagonal streets affording direct travel between one section and another, without passing through the central business district. Nothing preventable should be allowed to interfere with the choice of the best routes for the main arteries of travel. Without a city plan and the machinery to enforce it, a whole section of a city may be crippled, and inconveniences may be heaped on thousands of people for years to come, by a new residential development in which the blocks run the wrong way, or the streets are too narrow, or by the arbitrary location of a factory or a cemetery.

If some cities were permitted by the Federal Government to develop their harbours on the same principles as they use in developing their land, extension of piers and other obstructions would soon make their channels impassable. An automobile map of a modern city will disclose to anyone not already convinced by disturbing experiences the expensive delays now put upon both the passer-through and the town resident himself, by a lack of city planning in the past.

The determination of principal routes for present and prospective traffic, permits a consistent scheme for city development to be laid out to accommodate industry, business, and residence. With main traffic routes designated, a network of paved streets that will meet the needs of traffic can be developed in a few years, through better application of each year's appropriations for paving. Without planning, heavy traffic is often diverted to less direct routes, because of isolated sections of good or bad pavement, and such a diversion may break down the light pavements on streets that would normally be but little used.

The Approaches to the City.

Under modern conditions, a community may be approached by highway, by railroad, by watercourse, by airway, or by a combination of these four routes. Highway approaches are of enormous importance in these days of the automobile, and thought should be given as to whether roads shall lead only through the heart of the town, or shall short-circuit congested districts by appropriate by-passes. Railroads are usually the basic means of contact between the city and the outside world. Their freight terminals, spurs and sidings should be located and arranged for economical handling and trucking of the city's outgoing products, and of incoming food, merchandise, building materials and raw products for industry. Passenger stations, or a single union station, if considered practicable, should be convenient and well served by local transit facilities. Property bordering the tracks should be well maintained and give a creditable impression of the community to passengers entering and leaving. Water approaches may be made effective in serving commerce, and where that is not practicable, may be made invaluable in serving the health and pride of the community. The air approach involves landing fields, which, if properly provided and located, may be of great advantage.

The Central Business and Shopping District.

Free movement to the central business and shopping district concerns the entire community, the housewife and the bank president alike. Certain businesses naturally seek locations in central districts, which are accessible to and commonly visited by persons from the entire city and surrounding territory. Such are central banks, large department stores, certain hotels and principal theatres, the offices of the local government, and to a lesser extent, automobile salerooms and speciality shops.

On account of the great number of people travelling to and within this area each day, its sidewalks should be broad. Retail stores want traffic movement facilitated, and traffic congestion diminished, to protect the safety and convenience of their customers and employees, and the facilitate the trucking of the goods they receive and deliver.

Conditions in the central business district cannot be improved over-night. By-passing of through traffic around the business district has proved effective for relieving traffic congestion, but it may be necessary to extend "dead end" streets, or to separate cross traffic at main intersections, by means of viaducts or subways. Grade crossings of railroad tracks may need to be elmiinated, or new crossings constructed, or new bridges may be desirable. The necessity for expensive undertakings may be avoided or diminished by a well-considered city plan. Adequate provision for rapid transit should be made in the plans of communities which are approaching or which have arrived at the conditions justifying such facilities.

With forethought, a city may save much of the cost of widening streets, by requiring that new structures be set back a given distance from the street line. By the time blocks are rebuilt, the city is able to obtain the land needed for widening, without unnecessarily paying for expensive buildings.

Some light manufacturing or other users of property may derive little or no special advantage from being in the central business district, and at the same time may make for its unprofitable congestion. They may be encouraged to move by being shown the advantages of more suitable locations elsewhere and by a proper zoning ordinance operating over a period of years. Moving of terminals or shifting of the wholesale district is sometimes a practical way to lessen traffic difficulties.

Wholesale and Warehouse Districts.

Wholesale and warehouse districts, under ideal conditions, should be located directly between the water or railroad terminals and the manufacturing or commercial area which they serve. Too frequently, however, trucking to and from the terminal may have to pass through the most congested part of the central retail business district. This is neither economy nor commonsense. A good city plan is a means of insuring against a repetition of mistakes.

Industrial Districts.

Heavy industrial plants usually require sites with railway sidings, and, perhaps, a water-front, yet convenient for employees to reach. In a well-planned city, residential development leaves such districts free and unbroken for use by industry. Light industries are more concerned with trucking facilities, and with sites accessible to a large number of workers. A city gets along much better when homes and industry are kept separate, but at the same time, accessible to each other.

AVIATION
1927.

FLYING FOR ALL.

PROGRESS OF THE LIGHT AEROPLANE CLUBS.

A few years from now, the young man who has a certain amount of leisure and a few pounds to spare and who cannot fly a light aeroplane will be regarded as a phenomenon, just as to-day he earns the same reputation if he cannot drive a light car, whether his own or someone else's.

At present, however, anyone who learns to fly for pleasure is still regarded by most people as something between a hero and a lunatic, but with a far stronger dash of the lunatic in his composition than of the hero. Most people fail to realise that although the adjective "intrepid" was frequently, and quite justifiably, applied to early pioneers of aviation and to airmen during the war, civilian flying in modern machines is quite another matter, and the rare virtue of "interpidity" is not needed.

I merely mention this because I have observed that when I have told friends cheerfully that I am learning to fly there has come into their eyes a curious look, just as if I had announced my intention of rolling over Niagara in a barrel.

Ordinary Man's View.

Anyone who learns to fly discovers this attitude, sooner or later, among friends and relations, but in a few years it will disappear, when familiarity with flying among the general public has bred contempt.

So many men of skill and experience have written on flying that some explanation is needed for anything more from an ignoramus like myself, who is still learning slowly and painstakingly. The explanation is simple. Men with skill and experience who have written on flying can be divided into two classes. The first class includes those who write of great deeds and hazardous adventure, and place the whole subject on a semi-heroic plane which frightens the Ordinary Man like myself into believing that he can never even set foot on the ladder to such unattainable heights. The second class of expert knows so much about his subject that he writes of it as if flying were as easy as falling off a log, which to him, of course, it is. But in this case the Ordinary Man is, quite rightly, incredulous. There are so many experts in every subject under the sun who are ready to tell the general public how easy it all is—when you know how to do it.

But the Ordinary Man wants the ordinary man's point of view, and wants to know just what he is "in for." That is what I, as an Ordinary Man, am trying to find out for myself, and will try and tell him.

I started with an average knowledge of the principles of the internal combustion engine and an abysmal ignorance of the first principles of flying. I had been for two or three long journeys as a passenger in giant machines. I felt no special "call of the air" or anything of that sort. I had no ambitions towards being a famous airman. I just thought that flying would be an amusing thing to learn, just as hundreds of undergraduates, young business men, lawyers, and even politicians have thought. That is all.

The first important point is: What does it cost to learn to fly? To learn through a commercial school is quick but expensive, and may cost anything between £150 and £200. The average charges are, I believe, £5 an hour dual instruction and £8 an hour for solo flying. That is out of the question for most people. But the institution of Light Aeroplane Clubs, backed by the Government, has brought flying within the reach of everyone financially. There is a subscription of £3 3s. and

Continued on page 21.

THE CRAFT AND ART OF PHOTOGRAPHY

SUITABLE DEVELOPMENT.

(CONTINUED.)

The Safe Light.

Before proceeding with the hand development of a film, or plate, it is necessary to provide ourselves with a "safe" light, that is, a light to which the film or plate is not sensitive, and here, I am afraid, we often have a source of much trouble. Many of the lamps which are sold for this purpose are not as safe as they should be, and films or plates exposed to their light become fogged during the process of development.

The Wratten & Wainwright, No. 2, Safelight is absolutely safe for all plates and films, except those known as panchromatic, and can be obtained quite cheaply. It will save its cost many times in a few months. Any amateur mechanic will find little difficulty in fitting it to a box to contain the electric or other illuminant.

All so-called "safe" lights should be tested before a film is exposed to their influence. This may be done in the following manner.

Having prepared the lamp and developer, etc., cut off the first two or three inches of film it is proposed to develop. Roll the rest of the film up again and put it away out of the light. Place the small piece of film face up on the table in about the position which the dish of developer will occupy. Place a penny or other small opaque object on the film so as to protect a portion of the film from the light of the lamp. Allow the film to remain exposed to the lamp for at least five minutes, and then develop it. If the lamp is not safe, the part protected by the penny will be seen to be much lighter in colour than the remainder. That is, the lamp will have "fogged" the film wherever the latter was exposed to the light. The remedy is to get another lamp which *is* safe.

All developers work more slowly when cold than they do when warm, and all developers give approximately the same results if used in a proper manner.

They vary principally in the speed with which they work, and in the colour of the resultant image or deposit of silver in the negative.

It really does not matter much what developer we decide to use, provided we know when to stop the process. A developer in dry (tabloid) form should keep better than one in liquid form, and a developer which works at a moderate speed is more controllable than a very rapid developer.

The process of development has been described as "something like a railway journey past roadside stations." You can stop the process at any "station," or stage, of development, but if you go far enough the result will be the same, no matter what developer you use. The end of the journey will be complete development.

Complete development of a plate or film will take place in a known period of time which depends on the kind of developer in use, and the temperature, but complete development is very seldom required. The point to be decided is, what length of time of development will produce a satisfactory negative?

An excellent developer for general use is the Metol Quinol of Burroughs and Wellcome. For hand development of films it is best used at half strength (that is, four ounces of water to a pair of the compounds), and in accordance with the time and temperature table published in the Burroughs and Wellcome "Diary."

The instructions for tank development will be found elsewhere in the same publication.

The tank method of development is less troublesome than is the hand development of a film, but the principal is precisely the same, and I shall, therefore, describe the latter process.

It must first be clearly understood that the character of the negative will vary according to the length of time in which the developer is allowed to act. Negatives which are intended for gas-light printing should be developed for a shorter time than those intended for printing on P.O.P., or fast bromide papers. Or, in other words, the character of the negative will determine what is the most suitable paper to print on.

First, ascertain the temperature of the water with which the developer is made, and, from the tables, the correct time for normal development at that temperature. Suppose we are working with Burroughs and Wellcome Metol Quinol tabloid developer of half strength, at a temperature of 60 degrees. The time recommended for the development of Kodak film will be 8½ minutes.

First, soften the film by soaking it for a few minutes in water, so as to make it more pliable, and then proceed to develop it for a suitable time. The "suitable" time is the time which will provide us with a negative of a character to suit the printing process we favour.

Try the following experiment: Place a new spool of film in the camera, select a view (any will do) find the correct exposure, and expose the whole spool on the same view in quick succession. Now develop the film after the following manner: Suppose the time recommended was as stated above, *i.e.*, 8½ minutes for normal development; develop the film in the usual way, but when four minutes have elapsed, with a pair of scissors cut off the first exposure, wash it and put it in the hypo. to fix. After each succeeding two minutes cut off another exposure and treat it in the same manner. We shall now have six negatives, each of which has had the same exposure, but one will have had four minutes' development, one six, one eight, one ten, one twelve, and one fourteen.

Upon inspection the first will appear quite "thin," or transparent all over, with but little contrast in density between the "thinnest," or most transparent parts, and the densest, or most opaque parts. The other six negatives will show increasing contrast in these parts, according to their corresponding times of development.

Contrast in a negative depends, therefore, upon the time of development.

Now make a print on any paper, or by any process which you prefer, from each of these negatives, and you will find one negative more suitable than any of the others for each particular printing process or paper.

The negative which had six minutes' development will be found to give the best gaslight print, and the "ten minutes" negative will print well on P.O.P., or bromide paper, if a contract print is desired. For enlarging on bromide paper, the "six minutes" negative would probably be chosen.

Having decided upon the correct time of development for the production of a suitable negative, make a time and temperature table based on the Burroughs-Wellcome tables, and stick to it.

Nothing is to be gained by varying the developer.

All that it is necessary to know about any developer is what time of development, at a given temperature, is necessary to produce the quality of negative required.

The following would be a useful table for Burroughs-Wellcome Metol Quinol used at half strength:—

Temperature—	45	50	55	60	65	70	75 deg.
Gaslight paper or enlarging	10	8½	7¼	6	5	4¼	3½ min.
For Negative suitable for P.O.P. or Bromide paper	17	14½	12	10	8½	7¼	6 min.

The Factorial Method of Development.

Those who use plates cannot do better than develop them by what is known as the factorial method, which is as follows:—

Select any developer your fancy may dictate, pour it on to the plate, rocking the dish all the time. Count the seconds which intervene from the time of first pouring on the developer until the first sign of the image can be seen. Multiply the number thus gained by a "factor" to be determined, and develop the negative for this period. Pour off the developer, wash and fix the plate.

The factor used will decide the total time of development and the character of the resultant negative.

Suppose we are using the same developer as suggested above, but at full strength (that is, two ounces of water for each pair of compounds) and we find the time elapsed between the first pouring on of the developer and the appearance of the image to be 18 seconds, and the factor to be used was 10: 18 multiplied by 10 is 180 seconds, or three minutes, which is the total time the plates would remain in the developer. If the resultant negative was lacking in contrast, a higher factor would have to be selected, say, 12; or, if the contrast were too great, a lower factor, such as 8, would be chosen.

To those who desire more complete information on the subject of development, I would recommend "The Watkins Manual," price 2/-, obtainable at all photographic stores.

SPORTING SECTION.

Incorporating "The Amateur Sportsman."

Official Organ of { *W.A. Lawn Tennis Association.* *W.A. Golf Association.* *W.A. Cricket Association.*

THE EDITOR'S NOTEBOOK.

"How's That, Umpire?"

Herbert Sutcliffe, England's great opening batsman, has been doing some damage this season. Not only have his scores been good, but he has been having a high time among the umpires. Parry, the well-known umpire, who lost a leg during the war, slipped while avoiding a shot from Sutcliffe and had the misfortune to break his other leg.

Longest Drive by Woman Golfer.

Claimed to be a record drive for a woman, Miss Molly Ramsden drove her ball 8,360 inches (about 232 yards) in a recent long-driving competition, held at Stokespoges. Compared with Compston's winning average of 263 yards at St. Annes, Miss Ramsden's feat was a marvellous one. Miss Ramsden is but a young player, and was recently defeated in the final of a girl's championship.

A Bankrupt Trundler.

C. F. Root, the Worcestershire player, who caused the Australians some trouble during their last tour, has been giving creditors some worry. Recently he passed through the Bankruptcy Court, and paid 1s. 10d. in the £. He stated that he made nothing on the tour of the West Indies, where a bottle of water cost 1s. His assets included a war bond, the gift of Worcestershire cricketers and a presentation gold watch.

Obit—Ned Officer.

Let us think of him as Ned Officer, one of the finest full-backs that Victorian football ever saw and a sport to the finger tips. He played football as he played every game, with plenty of ginger, boundless enthusiasm and a shrewd judgment. Not only have his sporting interests been personal, but he followed almost every branch of sport with the same interest—the bettering of the game, whatever it was. Margaret Officer is one of the State's best tennis players, and Tim is well up in the ranks. His other son is doing well at a Melbourne college. The sporting fraternity mourn the passing of a gentleman and a sport.

International Visits.

One has to hronicle the visit of three international teams since we last went to Press. First, the Czecho-Slovakians came and conquered all and sundry in the Soccer world, but our losses was not so great in face of the Czech's form in the Eastern States. The English hockey players were the next visitors, and they showed how hockey should be played. The Chinese team were not so successful, as the local players, profiting by the experience of the previous big contests, succeeded in taking the odd trick in three. Generally speaking, a very satisfactory record to local sporting enthusiasts.

Professional Advice.

Surely these are the days of the "pro" in sport. At a recent convention in London it was reported that the large emporiums were employing various successful exponents of certain games to sell their goods. At one store, the professionals included:—Cricket: Frank Woolley, Roy Kilner and Herbert Sutcliffe. Golf: H. Vardon, Ted Ray and J. H. Taylor. Tennis: Charles Lockyer, Gordon Cleather and F. E. Donisthorpe. These sporting stars demonstrated their wares on a full-size matting pitch and full-size tennis court and a putting green.

Watch Germany!

No, this is not a trade warning or a prognostication regarding the next war, but merely Tilden's warning about Germany and the Davis Cup. Interviewed during his tour of Germany, the great Bill said that Germany had at least six players of international calibre, and with the tremendous interest being taken in the game he expected the German players to bulk large in international competitive tennis. Tilden regards Jean Washer, the Belgian left-hander, as one of Europe's best players. Not knowing that Patterson would not be at Wimbledon, Tilden said that Patterson's most dangerous opponent would be Borotra.

Western Australia's Rowing Superiority.

It is with pride that the above caption is written. Last month one queried the ability of the local University eight to repeat the sterling performance of the King's Cup winners. They did it and silenced all the critics. Those waterside bargees who waited to scoff were forced to cheer when the good news came through. The fight for recognition made by the University crew has been publicly stressed and the point that one must take is the ability of Western Australian rowers to beat the pick of the Commonwealth. Without being too much puffed up with pride of State and the men of the State, it was a gallant victory, and has done more for rowing in this State than most people wot of.

Jones' and W.A.'s Misfortune.

For the first time in an epoch a West Australian, "Brusher" Jones, was invited to go abroad with an Australian swimming team. It is indeed unfortunate that Jones, because of a combination of private business and a rebellious leg, will be unable to accept the invitation. As the holder of the 440, 880 and mile championships, his performances against the Japanese cracks would have been a valuable guide for Olympic Games competitions. His companions in the trip were to have been E. Henry, R. Grier, and I. Stedman. It is understood that V. Moore, who swam second to Grier in the 220 yards championship, will be asked to fill "Brusher's" place.

Sculler for Olympic Games.

It was the duty of Mr. Cecil McVilly to use the recent sculling championship at Hobart as a guide for the selection of a sculler to be sent to the Olympic Games as the Australian representative. Mr. McVilly was appointed by the Australian Amateur Rowing Association to select a sculler following the decision of that body that the project of sending an eight-oar crew was impracticable after the last experience.

Further, to guide Mr. McVilly, a race for scullers will be held on the Yarra on October 24. The distance will be the same as the race in the classic games, and if Mr. McVilly can select an oarsman whom he thinks will do Australia justice, that fortunate individual will be sent abroad. Mr. McVilly's choice should be a popular one. He has had practical experience—he was the champion of Australia in 1910, 1911 and 1924, and in 1913 won the Diamond Sculls at Henley-on-Thames—and he has had wide experience as a coach. As such, he was successful with the Tasmanian crew that won the King's Cup in 1924 and 1926.

FOOTBALL.

TEAMS EVENLY MATCHED.

A CARNIVAL SELECTION.

Football this season is full of surprises. There was a time not far distant when, if Spearwood met Osborne Park, it was a pastoralist's property to a peanut that Spearwood would win. With the League teams as they are now constituted, it seems an open matter which of the seven competitors will make the final four.

At the present time, Claremont-Cottesloe and West Perth are the laggards, and it was a coincidence that both registered surprise wins on the same day. Subiaco, the enigmas of last season, are just as unreliable this, while Perth seem an improved combination out of luck. The issue appears to be between South and East Fremantle and East Perth, and it is a case of choose where you like.

The seasonal form of individuals is of more than usual interest because of the approaching Carnival games. One does not envy the job of the selection committee in deciding who will make the trip, but the eighteen set out herewith must be considered a good one:—

Sherlock.
Watts (capt.) Jarvis
Outridge Craig Mudie
Dobson Coffey Guhl
Campbell, J. Woods Sunderland
Sheedy Leonard
B. Campbell

First Ruck: Western, Owens and Duffy.
Second Ruck: Campbell, Sunderland and Sheedy.

The above team is selected from the players now showing form. Should Gosnell strike his best game, he must be put in and there are several other "likelies" whose names have not been included because they are not in nick.

GOLF

"PAR" STILL UNDECIDED.

The "par" question has not been settled yet. Cottesloe was the first club to fall in with the recommendations of the special committee, and since we were last before the public Fremantle has decided on making its bogey 77. Perth remain undecided and have approached the committee to have the matter recommitted, as fresh evidence can be brought on the matter. If majority rules, Perth will probably be asked to fall in with the general scheme, unless, of course, the new evidence is sufficiently weighty to change the opinions of the committee.

The "par" question has not been settled yet. Cottesloe was the first club to fall in with the recommendations of the special committee and since we were last before the public, Fremantle have decided on making their bogey 77. Perth remain undecided and have approached the committee to have the matter recommitted, as fresh evidence can be brought on the matter. If majority rules, Perth will probably be asked to fall in with the general scheme unless, of course, the new evidence is sufficiently weighty to change the opinions of the committee.

State Championships.

On July 27, 28, and 29, women's State championships will be contested on the Perth links. Entries close on July 6 and there is every reason to hope that the various events will be closely contested, especially when the improved form of players, who have been on the border line of championship class, is considered.

On July 4, a meeting of the Golf Association will decide the programme for the State championships that will be held on August 29 and following days.

SHIELD COMPETITIONS.

Cottesloe's Great Wins.

You only have to suggest shield competitions at Cottesloe to see the Stetsons fly in the air. The Cottesloe "A" team ask you to "trot out your best," and have reason to be proud of their leading position.

The competitions commenced on May 28, when the "A" and "B" teams of Cottesloe and Perth tried conclusions. Cottesloe won by 18½ aces to 13½ aces for the senior team and 32½ aces to 13½ acres for the "B" graders. he big event, as far as Cottesloe was concerned, was their win against Fremantle "A"'s. At this meeting Fremantle was borne bleeding from the field with the sum total of 1½ aces, while Cottesloe emerged with 28½ aces to add to their score. The Fremantle "B"'s took a bit of the sting out of the Cottesloe "B"'s by finishing 33½ aces to 11½ aces.

The present positions of the clubs are as follow:—

"A" Grade.

	Played.	Aces
Cottesloe	2	47
Perth	1	13½
Fremantle	1	1½

"B" Grade.

Cottesloe	2	44
Fremantle	1	33½
Perth	1	13½

Perth Club.

A four-ball sweepstakes competition indulged in by a few of the Perth Club members resulted in E. G. Cohen, partnered by C. Clement, collecting the pile. Clement was not the least bit perturbed by atrocious conditions and did the distance in a remarkably few number of strokes. He and his partner finished up and a number of the other starters were too modest to hand in their cards. R. Saw and W. Kent were 5 up.

Thirty or so turned out for a sweepstakes the following week. With 76 off the stick, H. Reid won, coming home in 37. Ross MacDonald and D. Stewart were the next best with 2 up; Reid was 6 up.

The same day, Maunder, going around with a club member, went out in 33 and came home in 40, a net 73 which it must be admitted is not so bad.

Three more members came to light for the third sweepstakes. The rain was gently soaking, the wind was unkind, and conditions were far from perfect; but one, J. W. Durack, set his teeth and came home with his card showing 4 up. E. Smith and D. P. Rufus might have quarrelled with him if they had been better than 2 up. It is understood that Durack has decided not to remain in the background any longer. A man has to assert himself sometimes and when he has added another—a third—to his scalp he may be content to sit back and let others have a chance.

C. Clements and J. Raikes and R. C. Crowther and H. Fisher, both with 7 up, have to argue out the four-ball competition played on June 11. A number of good cards were returned.

"Cuth" beat all opposition and the frightful conditions in the stroke medal competition. He returned an 85 off the stick, and with a handicap of 10 was better than T. L. Anderson, 89, 11-78. J.W.D. finished third.

Cottesloe Club.

My, but they were cross! When the act ended there was not a single feather of a committeeman to be seen to do the honours, with the result that words flew and the chatter-chatter that was bandied about did not constitute a paen of praise of the departed heads. "Craigie," the old, poor devil who was there, collected the lot and was asked politely to hand the cold facts to his fellow-committeemen.

However, the competition referred to was a mixed foursome and Miss M. McMillan and T. D. Stevenson carried off the honours with a net 78 and an 86 off the stick. Some very good cards were returned, amongst the best being Mrs. Allnutt and P.G. Anderson, 92-13-79 and Miss Arundel and B. Meecham 94-15-79, Miss Forbes and "R D." 94-14-80 and others nearly as good. If those often accursed committeemen had not spoilt a good day—! The Old Colonel beat the lot at Cottesloe in the bogey medal. R. Summerhayes and J. G. Hill, who finished 3 down, were the only ones that troubled him. There was a little crew—K. Barker, F. C. Stevenson, R. D. Forbes and G. Hood—who were 4 down and most of the rest were too unselfish to hand in their cards.

Fremantle Club.

Ringing out May and ringing in June, the Fremantle Club held a bogey medal and was rewarded by 56 players who desired same to be hanging from their watch chain. P. G. Bennett (11) would be wearing it now if A.J.H. Wilson (7) had not put in a strong claim, resulting in both players finishing 3 up. Among those present when the cards were being handed in were E. Cassidy, the Fordham duo and Skipper Nicholas, who were hoping that 2 up would be the winning card.

A half-a-gale of wind and a deluge of rain did not matter to Leo. Smith, who collected the first stroke medal of the season. He went around in 81, giving him a 79. Perhaps a better performance was that of A.J.H. Wilson who had an 86 off the stick and finished with a net 79.

TRAVEL TALKS

(*By* E. H. Sheffield.)

THE BEST PHYSICK—

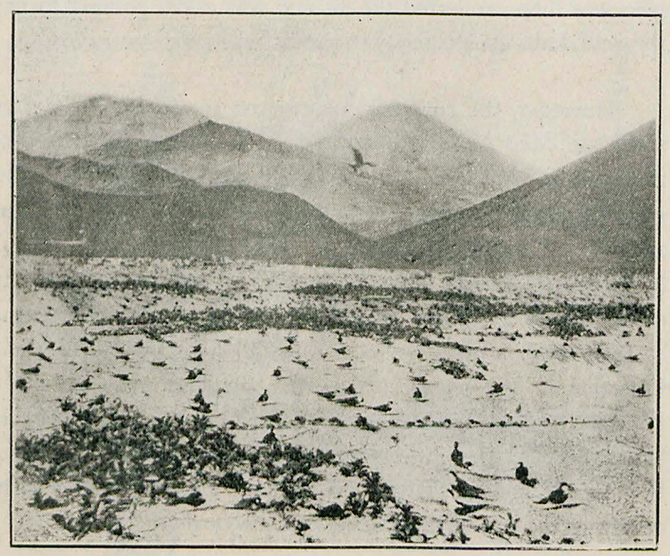
Although our ordinary air be good by nature or art, yet it is not amiss, as I have said, still to alter it; no better Physick for a melancholy man, than change of air, and variety of places, to travel abroad and see fashions. Leo Afer speaks of many of his countrymen so cured, without all other Physick. . . . For peregrination charms our senses with such unspeakable and sweet variety, that some count him unhappy that never travelled, a kind of prisoner, and pity his case, that from his cradle to his old age beholds the same still; still, still the same, the same.

—Robert Burton.

H.M.S. ASCENSION.

Tilbury Docks, on a foggy morning in November, 1918, and the s.s. Galway Castle commencing her last voyage, but one, before being sent to Davy Jones' Locker, by a Hun submarine. Steaming down the English Channel in a fog is at any time unpleasant, but with mines and submarines about, one found the experience, at least, not lacking in excitement. Wrecks were strewn along the coast from Dover to Plymouth, and it was with a feeling of relief that we joined, at the latter port, a convoy of forty vessels proceeding to America, escorted by eight destroyers, to say nothing of aeroplanes and airships.

Our satisfaction proved short-lived, for on the second day out, we left the convoy, to plough a lonely furrow to the south, and shortly after parting we were pushing our way through floating wreckage and empty boats from a vessel which had, no doubt, been sunk not long previously. No periscope appeared, however, but the firing of a practice shot by our six-inch gun caused not a few passengers who had ascaped mal-de-mer, to take on the greenish hue, usually associated with that malady.



Arrival of the "Wideawakes."

Bright sunshine and warmer climes soon restored confidence, and ten days' zig-zag coursing brought us in sight of the frowning cliffs and peaks of the little lonesome island of Ascension, swept by the surging waters of the turbulent Atlantic; from the depths of which it had been thrown up in times long past.

Ascension Island, during the war, was rated as a battleship, and known as H.M.S. Ascension. It was discovered by a Portugese navigator, Juan da Nova, on Ascension Day, 1501, and taken possession of by the British Government, after the arrival of Napoleon at St. Helena, in 1815. It is seven and a half miles long, six miles wide, and forms one of the peaks of a submarine ridge, which separates the northern and southern basins of the Atlantic. Its whole character is volcanic and its surface broken up into mountains and ravines, with plains and table-lands, varying from 1,200 to 2,000 feet above sea level. Green Mountain (2,870 feet) is the highest peak. On the south, bold and lofty precipices predominate, with small coves on shore, fenced with masses of lava. The island boasts one of the most powerful wireless stations in the world, and its two great masts can be seen for many miles on approaching the shore.

Between the months of December and May, turtles and their eggs are found in abundance, and at a certain season of the year, millions of birds called Wideawakes fly over, to lay and hatch out their eggs on a wide plain in the centre of the island. A most remarkable sight is the birds, sitting in serried ranks, all facing the same direction. It is not known from whence they come or whither they go.

Georgetown, on the Nor-West coast, is supplied with water from springs in the Green Mountain; these springs were reached by boring in 1830. In olden days, traders sailing between the coast of Africa and Brazil, used to leave letters in a crevice of a rock, for other vessels to pick up. The climate is bracing and healthy, and for one desiring to give civilisation a miss for a few months, no better spot could be found than this fascinating, but rugged and lonely, haunt, of turtles and wild birds.

MUSICAL NEWS.

LOCAL AND PERSONAL.

On Tuesday, June 14, the Repertory Club staged three one-act plays with great success and satisfaction to a large audience. The first play, "The Lost Silk Hat," by Dord Dunsaney, was produced by Mr. J. H. Ottaway and the cast consisted of Mr. L. Cleland, Mr. J. F. Ottaway, Mr. J. Bishop, Mr. H. Banger and Mr. K. Dougall.

The second piece, "No Servants," by Gertrude Jennings, was produced by Miss B. Dale-Smith, the cast consisting of Miss Cammelleri, Miss J. Compton, Miss M. Hodgson, Miss K. Heaney, Miss O. Dean and Mr. E. Browne-Cooper.

The last play of the evening was produced by Mr. A. Todd, and the piece chosen was "The Bishop's Candlesticks." The cast included Miss Nan Smith, Miss Jean Cariss, Mr. A. Todd, Mr. F. Burke, Mr. K. Dougall.

A departure from the usual orchestral selections was made and Mr. F. Ellacott played, on the Gulbransen registering piano, some acceptable classics which were heartily enjoyed and appreciated by the large audience. The piano was kindly lent by Messrs. Nicholson's Ltd.

The Repertory Club's next effort will be "The Devil's Disciple," by Bernard Shaw, to be given in the Assembly Hall, Pier Street on Friday, 24th June, Saturday, 25th, Monday, 27th, Tuesday 28th. The plan will open at Nicholson's on June 16th, and a special treat is promised to patrons. Mr. T. S. Louch is the producer.

Perth music lovers will be glad to know that the great pianist Moiseiwitsch will pay a visit to Australia in about six months' time, and that Perth will be included in his tour.

Paderewski will not visit Perth, so Mr. Claude Kingston, of the firm of J. and N. Tait, has definitely informed the writer, but has been sent to New Zealand instead.

The W.A. Society of Concert Artists are busy rehearsing for their next show, viz., "The Girl in the Taxi."

One of our members, Mr. A. M. P. Montgomery, has been conducting the church services at St. Andrew's Presbyterian Church, Pier Street, just recently. The organ is a fine instrument and is well worth hearing. There is also a good choir of 40 voices which goes a long way to making the services in this church very delightful and impressive.

Mr. David Lyle, the well-known Perth tenor, gave a very fine rendering of Mendelsohn's "If With All Your Hearts" (Elijah), in St. Andrew's, at one of the morning services. Mr. Lyle has a musical tenor voice with great power of expression. He is gathering together a large number of singing pupils who follow his excellent methods of teaching voice production.

Mr. Maurice Besly, who came over to Perth for the recent W.A. Eisteddfod, was born in Yorkshire, etc., etc. (says *The Australian Musical News*. See page 28, *Australian Musical News*.)

The Eisteddfod, held at the Town Hall recently, was an interesting and instructive function; it also brought to light much budding local talent. One feels that our city of Perth is distinctly going ahead in musical culture. Our greatest need is for a municipal stringed orchestra. No doubt the cost at present is prohibitive, but, nevertheless, what other cities have done will no doubt be done here in the not too distant future.

THE METROPOLITAN WATER SUPPLY.

(*By* SNOWEY.)

THE HILLS WATER SCHEME.

The headwaters of the Canning River have long been recognised as a valuable asset for water supply purposes, and gaugings of the stream flow were commenced in 1897. In 1903 its possibilities were considered by the then Engineer-in-Chief and by a Sydney engineer, who was asked to report on Perth's requirements. A board appointed in 1907 studied many proposals, and recommended a reservoir on the Upper Canning. The cost at that date was deemed prohibitive, and, later, during the war period, the financial position precluded any large developmental scheme.

It was not, therefore, until 1920 that the late Mr. F. W. Lawson, Engineer-in-Charge of the Metropolitan Water Supply, was able to formulate and submit to the Government a properly cor-ordinated scheme of construction on a sound financial basis to utilise these now much needed resources. His proposals were reviewed and in part amended by Mr. E. G. Ritchie, Engineer of Melbourne Water Supply.

Sir James Mitchell, in March 1923, announced the Government's decision to adopt the proposals and embark on the work.

Preliminary surveys and the necessary plans were put in hand at once, and construction work on Churchman's Brook Dam and the pipe line was started at the end of 1923.

The headworks contemplated in the Scheme will be capable of satisfying the demands of the metropolis for many years and they comprise chiefly:—

Churchman's Brook Dam—

Capacity 595,000,000 gallons; estimated cost, £477,000.

Wungong Brook Dam—

Capacity 6,800,000,000 gallons; estimated cost, £552,000.

Canning River Dam—

Capacity 16,890,000,000 gallons; estimated cost, £1,600,000.

Included in the above estimates is the cost of the necessary pipelines to Perth. The ultimate scheme will also provide for several other dams on subsidiary catchment areas extending as far south as Serpentine; areas which have already been reserved for that purpose.

It will be noticed that the first section to be undertaken —Churchman's Brook Dam—is the smallest and cheapest; when completed, it will be capable of meeting the situation whilst the larger and more expensive portions are in progress, thus increasing the capital outlay gradually with the growth of the population.

Canning and Wungong Dams will be high masonry walls of gravity section, each of which will take from five to seven years to build. Churchman's Brook Dam, however, is of the "earth" type—a straight wall across a valley; and consisting of a vertical clay pug core wall of from 5 to 20 feet thickness, supported on each side by a large bank of earth filling.

The core wall, which makes the dam watertight, has to be carried down to a rock surface—in this case to a depth of over 80 feet below the stream bed. The removal of some 22,000

Continued on page 22

IMPRESSIONS

(Continued from Page 8)

once, and each family goes straight on to its block. The Government has the houses, *i.e.*, four-roomed houses, built gradually on the blocks as soon as enough clearing on the site selected for the house has been done, and ultimately, builds also a cow-shed and a small dairy.

6.—All expenses are debited to the block; *i.e.*, labour, building, cost of school, when justified, and sometimes drainage within teh group. There are also debited as overhead charges, the salary of the foreman, the houses, and the cost of the household cows, horse, cart and implements which are required. These overhead charges are, naturally, divided among the blocks.

7.—The settlers are encouraged to do spare-time work; *i.e.*, extra clearing round their house, and to make kitchen gardens and grow small crops from which they can earn independently of their contract money. Vegetables are expensive to buy and, therefore, this is a great economy for the weekly budget. Some good settlers have quite good kitchen even managed to clear an acre or so in spare time and grow gardens and those who have been longer on settlements, have and sell a crop of potatoes.

8.—All land cleared under contract has to be sown, according to the instructions of the foreman, on lines laid down by the group office in Perth. First, 25 acres per block are sown for pasture, various grasses and subterranean clover being the essential. As soon as a little more is ready, most groups are encouraged to grow a few acres of oats and maize to form summer feed for cattle when the grass dries up. If a settler wishes to get more than two cows, which is the household allowance, provided he sticks to the breed ordered for that area, no objection is raised, but as it is intended and is very necessary to try to limit the number of cattle carried, a settler is charged £1 10s. per month for every extra cow in milk, that he grazes. This is found by the settler to be a very severe charge, and almost impossible to be earned from the milk of his cow. As far as I can follow, the £1 10s. has been fixed partly to limit the number of cows, but also to limit the earnings to £20 10s. per month, and to begin repaying capital debt on the holding; *i.e.*, reducing the settlers liability. Similarly, if a man buys an extra horse on his own or gets one allocated by the foreman, he is debited with a similar amount which is considered to represent the value of the pasture or hay (oat hay) which his horse has eaten of the Government-supplied seeds and manure, unless the horse is considered suitable and essential for working the holding.

9.—If a settler has a son over school age and keeps him to work on his block with him, and to help with contracts, he is paid by the Government—of course, to the debit of the block—a maximum of £3 per month. In view of the cost of living, this forms a basis of complaint by many of the settlers and their wives, because, though there is great scope for quicker development by spare-time work if father and son work together, the tendency is for the boys to go off, certainly, when they are sixteen and earn more on their own. I am inclined to think the limit is sound. In connection with this, I do not think that it is realised sufficiently by the settlers that everything that is paid, whether it is sustenance, contract money, payment to sons, or cost of house, cattle, wire for fencing, implements, etc., is really out of their own pockets and is being debited to them as part cost of their own block so that when the time comes that the group is considered to have enough pasture to carry some eighteen cows and all Government pay is stopped, the group being what is called "dissolved," in addition to earning a living, the settlers will have to earn enough to pay interest on the capital which has been expended, and to start repaying capital.

10.—During contract work, settlers are debited half-yearly interest and sinking fund on the cost of cattle, estimated on a ten year basis, but on nothing else.

11.—A problem which is very much vexing all the more serious-minded and sensible settlers, is what debt will be allocated to each group ultimately. From notes in the newspapers, and various things that have been told to the settlers, it is understood that a great deal of the debt will be written off. But many fear that when the blocks are individually taken over by the Agricultural Bank, at, it is rumoured, a fair valuation for the farm, taking into consideration clearing, tillage, fencing, etc., the good settler will be handicapped by his spare-time work as against the man who merely does his minimum work; for instance, say two neighbouring blocks are inspected. Block A, which has a particularly good settler, is considered worth £1,000, whereas the next block (B) is only considered worth £500, though the capital expended through the Government is the same on both, the man who has put in £500 worth of spare-time work on his own and has not earned Government money on it, will be handicapped to the extent that he will have more interest debited, and more capital to repay, than the man who has slacked. Many hope that it will be announced that the writing down will be proportionate to the capital expended, in such way that the good man will benefit as compared with the bad man, and only have the same amount of interest and capital to find, and not interest on what is practically his own capital expenditure. I think that if this were made clearer, there would be a great impetus among the best men to improve their holdings.

12.—Foremen vary a great deal. Some are very helpful and sympathetic, while others are merely the intermediary of the Government instructions, and do not lay themselves out to do more than their actual duty of setting the tasks and paying for them.

13.—A particularly good feature is the cheerfulness of the men and women who are facing and putting up with the hard struggle in the early stages.

14.—Prospects: I do not think that the group settler will have earned an equity and feel himself independent and become fairly prosperous in a measurable time, as compared with a man who has taken up a block in the wheat belt and developed it, but the group settler has had very much greater help and financial assistance in the initial stages, and, with his large family could not, probably, without such assistance, have been able to immigrate and get the opportunity in a wonderful climate to make a home and a probable position for his descendants, but would have been compelled to remain in the crowded conditions of Great Britain. Also, on a dairy farm they get paid fortnightly or monthly for their farm produce, whereas in wheat they only get their return once a year.

15.—There are many little details which worry the settler; for instance—(a) Insecurity of Tenure: As long as a family is on a group block supervised by a foremain and paid out of the Government loan, their tenure is at seven days' notice, and if a foreman takes a dislike to a settler or there is anything at all against him, he can be so harried that he will "pull out" and disappear; or, he can be given notice and turned out, but in the later case, only by the Advisory Board on reports from Foremen and Field Supervisors who make a very exhaustive personal examination before recommending such drastic action. (b) Every settler, before he reaches his block, has now to give a bill of sale over all his property so that if he either "pulls out" or is turned out, everything, whether Government-provided or purchased by himself, can be seized in part satisfaction of his capital debt. (c) A declaration of policy when it is fixed as to how the capital debt is going to be allocated and dealt with and how much of the actual money expended is going to be charged, would be a great help. (d) A more equitable charge for extra cattle, or, better still, no charge for extra cattle, but an absolute limit in the discretion of the field surveyor as to the number of cattle any settler is allowed to carry, having reference to the actual conditions of his pasture, and the efforts he has made to grow sufficient food to provide fodder during the summer to supplement the dried grass; also depending a little bit on his water supply.

It is of the greatest interest to the State and an asset in the group settlement problem, for each settler to be encouraged to earn as much as he can legitimately, apart from his contracts; and if he is able to gradually develop this, he will be able to supplement the £3 per month a son can earn, and keep him on his block so that when it is decided to make him independent, he will be a sounder asset to the Agricultural Bank.

AVIATION

Continued from page 11.

the charges are 30s. an hour for flying, whether solo or with an instructor. A minimum of eight hours "dual" is compulsory, and after that it depends on the pupil. But most people should be able to learn to fly decently for between £21 and £30, if they do it through a Light Aeroplane Club.

How long does it take? This depends on so many things that it is impossible to give a definite answer. It depends, in the first place, on the number of machines and instructors available to the members of the club and the number of members who are waiting their turn. It depends on the amount of time which the pupil has to spare and whether he can fit in his flying at hours when there is less of a rush on the machines and on the instructors. Finally, it depends entirely on the weather, a factor which alone precludes any estimate.

It took me, for example, ten days to fit in four flights of half an hour each. The first three of these lost in value, I was told, because there was a thick heat haze, which made it impossible to see the horizon. As most of the early instruction is concerned with steering by and "keeping her nose on" the horizon, the absence of one makes things more difficult. And then often the weather is too bad for days at a time to go up at all for instruction, at any rate at the time of day at which the pupil is free.

But granted plenty of spare time and enthusiasm, a man would be very unlucky if he could not learn to fly within a couple of months or ten weeks.

The Final Step.

Pilots of the old school who were taught to fly in an incredibly short space of time during the War on the "kill or cure" principle, by which, after an hour or so dual control, they were launched into space "solo" to find out all about it for themselves, look rather haughtily at these modern luxuries of telephones, and the Light Aeroplane Club minimum "dual" period of eight hours.

In spite of their belief, however, that the Spartan methods of the old days were better, there is no getting away from the fact that the new system is far more economical in machines and in lives. One of my instructors told me that even the little dual instruction that he had in the early days consisted mainly of a violent tweak on the "stick" if he was doing anything wrong, with no possibility of explaining the whys and wherefores. But with modern "telephones," which are really only speaking tubes, it is different. The instructor can keep up a running fire of chatty and perfectly audible instruction, explaining the reason for each move and each fraction of a move, and the pupil can ask questions just as easily. The plane can be put into a "spin," and the pupil shown just how to get out of it. In other words, before ever he goes "solo" he ought to know enough to reduce the risk of his smashing up himself and the machine to an almost negligible minimum. This, incidentally, materially reduces the cost of flying, as well as the risk.

Chance for Benefactors.

A few years hence, of course, things will have made some progress. Machines will have become cheaper owing to the increasing demand, and perhaps Mr. Ford's promised light aeroplane "flivver" will have materialised. But till that time arrives civilian flying in this country must remain comparatively stagnant, and a chance of keeping abreast with other nations, as a nation of airmen, will have passed.

In other words, "this flying business" must become more of an accepted part in the life of the nation—a commonplace for the many rather than something exceptional for the few.

THE METROPOLITAN WATER SUPPLY.

(Continued from page 18

cubic yards of earth from this trench has been slow and difficult work, but, to-day, the clay pug is in position up to 25 feet above the natural surface, the earth filling being deposited on either side to the same level; and the dam is now well on its way to completion.

Clay for the core wall is excavated half a mile downstream, put through a pug mill, and placed in position in layers a foot thick, being thoroughly rammed and kept wet to form a homogeneous mass.

Among the first works carried out at Churchman's Brook were the construction of a timber-dam to stop the stream-flow, and a semi-circular tunnel through the hillside in which the draw-off and scour pipes were laid. Thus, with the completion of the pipeline to Perth, water from the stream was supplied in November, 1925. To make similar use of other streams, portions of the ultimate pipelines were laid to Wungong and Canning River, where, by the erection of small concrete walls through which the open end of the main projected, the stream flow could be drawn off. Water from the Canning River was delivered in December, 1925, and from Wungong River in February, 1926. Whilst, during the hot summer the flow of these streams is small, for the rest of the year the whole requirements are met from the various hills resources, thus saving the cost of pumping bore water.

The ompleted sections of the hills main comprise:—
1¾ miles of 16in. diameter from Churchman's Brook to Canning River.

5¾ miles of 30in. diameter from Canning River to Kelmscott.
8½ miles of 30in. diameter from Wungong Brook to Kelmscott.
17 miles of 36in. diameter from Kelmscott to Mount Eliza.

The whole of the pipes used are of the locking-bar steel type, manufactured by Messrs. Mephan Ferguson; the 16in. in Adelaide, and the balance at Maylands, from steel bars and plates imported from England.

River crossings on the pipeline necessitated 13 small bridges of concrete piers or jarrah piles. A large concrete culvert carries the main under the Bunbury railway. The Swan River crossing is three-quarters of a mile long, partly earth embankment, and partly timber piles, with a steel truss over the navigation channel. At Mount Eliza the main passes through a tunnel and rises up a 110 feet vertical shaft, being set in concrete. Provision is made throughout the pipeline for a future 40in. diameter main, which will be necessary when the larger dams are in use.

The active construction policy of the Government, coupled with the increased number of service reservoirs and the large distributing mains recently built, will, for the future, guarantee the people of the metropolis a water supply, satisfactory as regards quality, quantity, and distribution.

If this Journal Interests you please pass it on to a friend. Annual Subscription 6s.

WESTERN AUSTRALIA and THE COMMONWEALTH.

Continued from page 5.

expressed on behalf of the State Government, scepticism as to its practicability. It would require not merely a favourable vote in the West—that would be a foregone conclusion—but also also a majority in at least three of the Eastern States. These States would be asked to vote for the surrender of part of their manufacturers' and other producers' sheltered markets. If a constitutional amendment proved unattainable by such means, it is hardly likely that the British Parliament would, in response to a Western Australian petition, amend the Commonwealth of Australia Constitution Act of 1901, section 51 (ii) of which permits only such taxation as does not discriminate between States or parts of States.

There remains, however, the expedient of varying the refund of Commonwealth revenue in accordance with the needs of the States. This may be done, and has been done ever since 1910 for Western Australia's benefit, consistently with the Constitution. It was the open way to a prompt relief of Western Australia's disabilities, and the majority of the Commission therefore recommended the supersession of the remnant of the tapering grant of 1910 by larger "special payment of £450,000 per annum, in addition to the 25s. *per capita* payment, until the State is given the right to impose its own customs and excise tariff." Commissioner Mills, while agreeing with the expediency of a special payment, recommended one of £300,000 per annum for ten years. Action has been taken by the Federal Government on the latter suggestion, but its continuance is promised for five years only. The amount of the grant for 1926-27 has been sufficient, in conjunction with the splendid expansion of the wheat yield, to lift the State finances for the first time since 1911 out of the rut of deficits.

*Royal Commission on the Finances of Western Australia as affected by Federation, appointed by the Commonwealth Government, November 5, 1924. Report ordered to be printed, September 23, 1925. No. 49, F. 2517.

There remain in the background, however, two problems which must give anxiety to Western Australian Treasurers, the transport service of the North-West Territory (as the part of the State north of the 26th parallel of latitude is called), and the unwieldy size of the State debt. The transfer of the North-West to the Commonwealth is the subject of negotiations still proceeding between the State and Federal Governments. If the State will agree to the transfer, the Federal Government proposes to make it a further grant of £150,000 a year. As to the State debt, which began to outrun in scale those of the other States about 1908, and is now over £150 per head, a more rapid increase of population is needed, through a closer settlement of the wheat lands, and the wet south-west. Group settlement in that area has been costly, and the earlier policy of group improvement of individual holdings was unsatisfactory, but the scheme has created as many as 2,328 new farms, with a farming population of ten thousand people. At present Western Australia has over ten miles of government railways per thousand of population as compared with 4½ miles per thousand in the Commonwealth as a whole. Her railways, even so, pay the interest on their cost of construction, showing better figures as a rule than those of any other State. Given (i) a better yield from her wheat-lands as a result of better methods all round, (ii) closer occupation of both light lands and heavy which such methods would encourage, and (iii) continued advance in dairy production, Western Australia could carry with her present equipment of transport, harbours and water works, a population to whom the present debt would no longer seem unwieldy. The recent rapid expansion of her output of wheat, dairy produce and other primary products is evident sign of the scope awaiting new settlers.

GOVERNMENT HOUSE, CANBERRA.

Continued from page 9.

This is the ideal room for oil portraits. And feeling sure of the response to the Commission's appeal to artists for a loan collection, I foresaw that this room would be of outstanding beauty.

The dining-table is a careful copy of a Georgian one and I am indebted to the celebrated architect, Mr. H. Desbrowe Annear, for the details to enable the cabinet-maker to build it. It is made in six sections, the two ends being semi-circular. When all sections are in use, it permits the seating of 22 people, yet, it may be reduced to the minimum, viz., a round table seating six. The wood of this piece is Queensland maple and the boards were 24 feet long, so that it was possible to match the sections without any break of figure. The chairs are of the same period and are covered in brown Australian hide with the crown lightly embossed on the left upper corner of the backs.

The reception or drawing-room is an L-shaped room; or, rather, two rooms thrown into one. They open on to the verandah which leads to the lawns and the rose gardens. I would have liked to have treated these rooms in an entirely informal manner, but this was not possible, for the reception room has to serve both for official functions and for the Governor-General of Australia, and also the daily intimate use of the family. I compromised. The style adopted for the easy chairs was one which, while very comfortable, gives no temptation to loll. Hepplewhite, of the period when the French influence was at its height—late 18th Century. They are down filled for comfort, but the backs are cane strung for dignity. The under rails and legs are treated with refinement. It is really the *Regency Bergere* without the gilding. Six chairs and two couches are in this genre, yet each is a little different from the next. All through the house I have avoided, wherever it was possible, the sin of matching pieces of furniture. For the formal sit-up chairs I chose the shield back type with the wheat ear carved through the delicate balusters.

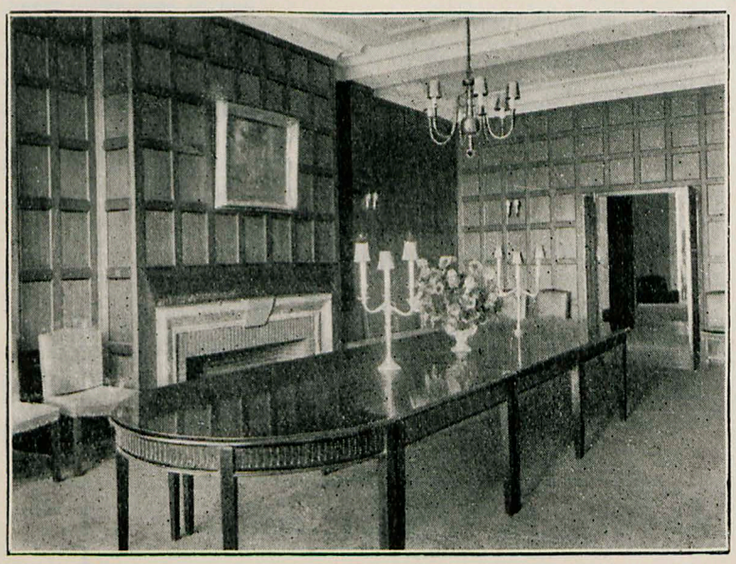
Between the dining room and the reception rooms is the private entrance hall, and this I furnished with good reproductions of old Portugese seats and settees carried out in Queensland walnut and covered in brocade with heraldic design. There is also a finely carved mountain ash rug chest of Cromwellian period, and card tables.

Beyond the reception room, and opening off it, is the morning room. This is papered in Morris paper of the willow leaf design. The furniture is in the Adams style, covered with a Gainsborough green fabric. The writing table is of particular interest, for it is made of red satinay, a Queensland wood of great merit.

Her Excellency's bedroom, the room that was used by H.R.H. the Duchess of York, is on the first floor and overlooks the rose gardens out to the pine-clad Mt. Stromlo, and far beyond, in the winter, are the snow-capped high mountains, Tidnembila and Bimberi. Primrose papered walls, curtains of jade shot with grey and lined yellow so that the colour of the walls is suggested again in the hangings. A warm grey dogs paw carpet covers the floor right up to the walls. The furniture is of Queensland maple, the large bed, with its cane ends, surmounted by a crown in heavy relief at the head. The wardrobe is simple, its sole decoration being an acanthus leaf edge. The dominating note in this room is the moonlight blue satin bed spread, which was designed by Mrs. Jack Yeats, and embroidered by Miss Lily Yeats, at the well-known Irish industry, Cuala, near Dublin. There is a big circle in spring flowers, all yellows, blues and mauves, and these pick up again the colours of the walls and the hangings.

That there are young children to provide for at Government House was a great delight to me, for it gave me the opportunity of planning a school-room for them. They gave me to understand that it must on no account be called "the Nursery." A room was chosen on the top floor, with a big bow window looking across to the blue mountains—a big, well-shaped room. Nowhere is the design on fabric so important as in a schoolroom. The choice of the pattern in the room where the little folk sit at their lessons or play their games must be very carefully made. I venture to say that there is no design so satisfying, so fine in detail, and so modern, in spite of its great age, as William Morris' "Bird and Anemone." This, with a deep blue background for the window curtains and chair covers, is most attractive. This room and the children's bed-room, are the only ones in which I have used painted furniture. The colour chosen was dark china blue. A solid dining-table with an under rail, Windsor chairs of the well-known old pattern, all blue, except for the wheel in the back, which is picked out in cream. There is a dresser, too, and on it stand the gay peasant pottery jugs, and cups, and plates, giving the sole note of brilliancy to this room.

Far away from the present Government House, across Westridge, past the Forestry School, and half-way into the city, is an eminence than which there is no finer site in all the Territory. There it is that the permanent Government House of Australia will be built. There is no doubt that the building will combine all the architectural refinements and aesthetic charm necessary to the residence of the Governor-General. At the same time, I am wondering whether, however wonderfully executed it is, it will ever exhale the homely atmosphere that the old, yet metamorphised, squatter's home—Yarralumla—possesses.



Dining Room Govt. House, Canberra.