gentle undulations, thus producing a ecries of arches. The oil was distributed into minute globules with water throughout the main mass of the rocks, but after the folding of the rocks the heavier water remained in the trough, while the lighter oil gradually rose under the crest of the arches.

Bubbles of Gas.

As regarded the structure of the Kimberley oil-bearing region, Mr. B'atchford's observations and reports showed that broad, gentle arches existed over a wide area in the region. At Mount Wynne, about 100 miles west-north-west of Price's Creek, there was an aren on which was situated a hot spring with a temperature of about 110 degrees, and which yielded continuous bubbles of gas. It was not certain, however, that this gas was from oil, but it was certain that the oil-bearing strata extended through the whole of the between Price's Creek Mount Wynne. It was desirable that as soon as possible they should ascertain the geological structure of the strata at Kimberley, which was yielding oil and asphalt. Mr. Blatchford considered that they belonged to the lower carboniferous ages. That was, they were of a greater antiquity than the coalfields of Newcasle, Irwin River, and Colley. Probably they were at least six times as old as the water-bearing strata of the artesian basin of Central Australia. In the basin at Roma, in Queensland, considerable volumes of natural gas had been noted at intervals for many years. Mr. Henderson, the Government Analyst in Queensland, had stated that while the bulk of the gas was common coal gas there was also present some gas derived from petrol.

Another authority who had spent much time in investigating the question, was strongly of opinion that there was oil under Roma. The gas, however, was tapped at a depth of 3.700 feet below the surface. As the artesian water was of considerable volume it was a matter of extreme difficuty to free the gas from the water. If oil really existed it would be necessary to adopt measures to seal off the artesian water in future bores so that the natural gas would be able to rise freely without having to overcome such a great resistance. If oil and natural gas really existed in any large quantity at Roma such deposits would be far newer than at Kimberley. Expressed in terms of actual years the Roma deposit might date back to something like 50,000,000 years ago, while that at Kimberley would go back to 300,000,000 years ago. Still, the great antiquity of the area at Kimberley did not necessarily preclude the possibility of oil occurring there in payable quantities, In North America and Canada large and inportant oilfields were found in rocks even older than these. That was in the Devop.an and Cambrian.

Caution Advised.

While the indications, both as regarded mineral oil and the structure of the rocks containing it appeared quite favorable from the reports of Mr. Gibb Maitland, and his officers, it was well that the public should be cantioned against assuming that there would necessarily be a payable oilfield in the region. In many parts of the world, including New Zealand and Papua, stronger indications of oil had been known to exist for many years, and yet so far all attempts to make them successful had failed. In the case of Papua, there was no question that there existed a continuation of the great oil belt, only, perhaps, about one-tenth as old as Kimberley, and which extended from Burma, Sumatra, Borneo, to Dutch New Guinea, and Papua. There were numerous active oil springs and oil wells in Papua. The stratas had been folded into troughs, but the explorations of Dr. Wade and the geologists of the Anglo-Persian Oil Company, showed that the arches had mostly been intensely disturbed and shaftered by earthquake trucks and other geological faults. The repeated cracking of the rock hid had allowed the oil and gas to escape over large preas. Geologists were still at work, and they were hopeful that they might be able to trace the oil lids into more settled country. According to Mr. Batchford's emplorations, the Kimberley region appeared more settled than that of Papua, and in that respect should have an advantage over the fatter.

step towards the possible development of Kimberley should be the making of an immediate survey, with a view to the location of the most favorable auticlimal arches. Many ciffields had got a bad mame through too basty prospecting in wrong places. He thought that as soon as such surveys as he had indicated, had been ninde, and the most likely places for boring ascertained, a bore should be put down to a considerable depth-if necessary to some thousands of feet. The discovery at Kimberley, as far as he knew, was the first recorded account of true mineral oil in Australia. He again emphasised the

Professor David considered that the next

need for caution, but said he considered that, from the geological point of view, the prospect was distinctly encouraging. If payable oil was struck, it would probably be found to extend over a consider-Able area.

advertiser 12/10/21

The Government of New Zealand have appointed Sir John Salmond to represent that Dominion at the Washington Conference, Sir John Salmond is a recognised puriet and one of the best anthorities on constitutional law. The of the appointment Lews be received with great pleasure in South Australia, where he has many friends. From 1897 to 1905 he was professor of law at the Adelaide University, and afterwards he filled the chair of law at Victoria College, Wellington. He was for three years counsel to the New Zenand Government Law Drafting Department, and was appointed Solicitor-General in 1910. He was elevated to the Supreme Court Bench in May last. He received his knighthood in 1918. The Prime Minister (Mr. Massey), in making Sir the announcement of John Salmond's appointment 60 the House of Representatives, stird it was impossible for him or the Attorney General (Sir Francia Bell) to go to Washington. Sir John would have powers equal to those of any other representative of a country except a Prime Minister.

adventiser 12/10/21 SYDNEY UNIVERSITY.

Sydney, October 11. Professor Frederick Augustus Todd has been appointed to the Letin chair, and Professor Burnard Muscio to that of philosophy, by the Senate of the University of Sydney.

Register 13/10/21

Mr. Walter J. Warboys, e.c., has been chosen Rhodes Scholar for Western Australia for the ensuing year. The successful candidate attended the Cottesloe and Claremont State schools from 1906 to 1913. and in the following year entered the Scotch College, where he remained until 1917. In 1918 he entered the University of Western Australia, and passed the first year examination for his B.Sc. degree, securing distinctions in chemistry, mathematics, physics, and geology. He took the second course in 1919, securing passes in chemistry and geology and distinct in biology. In 1920 he took his B.Sc. degree, securing distinction in geology and a pass in chemistry. Mr. Warboys rowed in the Scotch College eight in 1916, and stroked the champion four at the college regatta in the same year, while in the following year he represented the college in lifesaving and swimming competitions. He was captain of the University Rowing Club from 1919 to 1921. He stroked the University maiden four in 1919, and for the W.A. Rowing Club stroked the maiden eight, junior four, junior pair, and champion eight last year. He rowed in the senior eight this year. He was also a member of the University football 18. Man and to

Herald. 13/10/21

EFFICIENCY IN THE PUBLIC SERVICE.

In previous reports details have been given of the facilities offered to officers to improve their general educational qualifications or to attain proficiency in particular classes of departmental work, states the Public Service Commissioner in this

annual report. Now that conditions are reverting to normal after the serious dislocation caused by the war, the time has arrived when this question of the education and training of officers should receive more attention than was justified during the war years, when any efforts for the benefit of officers in this direction could not have borne results commensurate with expenditure, owing to absences of officers on active service and the unfavorable conditions that existed,

-Initiative.-

It is clear from the experience gained during my long connection with the bublie service that the training and education of officers, either directly by the departments concerned or with their assistance. is a sine qua non for the attainment of that standard of efficiency both in officers and work which should be the arm of every large administrative organisation, In all large bodies of officers there is a percentage which, without any special inducement, but from motives of ambition or from a praiseworthy pride in achievement, will seek on their own initiative to acquire information which may be of value to them in their career, but there is also a larger proportion which, while well endowed with the requisites for the accourement of improved knowledge and ability, require to have their courses of studies mapped out for them or to be given some incentive to apply themselves carnestly and continuously to a course of education which will be of mutual benefit to the service and to themselves.

I think this question is so important and has such a significant bearing upon the whole future of the Commonwealth service, that it should be passed under review by a committee or committees representative of the different interests involved, such as the university, technical colleges, the several dopartments of the Commonwealth, and the Public Service Commissioner or the Board of Commissioners as the case may be, which should submit their reports to the fact-named, who should suppost to the Government any stens considered necessary for the estabdispendent of assisted education that the

needs of the service demand.

-Professional or Technical-

In the past the efforts made on behalf of officers have been practically confined to the professional or technical work of the Postmaster-General's Department, but in every department the acquirement by the staff of improved general or specialised knowledge must result in more expeditious work, greater output, and a higher standard of work values. The clerk who has routine duties to perform and who left school after passing the intermediate examination, or who was admitted to the service by the ordinary entrance examination, can be better equipped for his duties and for subsequent promotion by a carefully prepared course of study in English or correspondence. His department could no doubt utilise his services as a stenographer and typist, and he should be induced to learn shorthand and typewriting. If his duties embrace minor accounts work, he should be glad to avail of incilities for the study of accountancy, either to prepare for the examinations held by the recognised Accountants' Institutes or for a special examination in Commonwealth accounts. It would be to the interests of every officer to undergo a course of study in business principles and practice and the principles and economics of commerce and industry. Similarly, in professional work, juniors falling positions such as draftsman, engineer, law clerk, analyst, should be encouraged to do something beyond their ordinary everyday duties to acquire a knowledge of higher branches of their work. Officers of the general division should be catered for by the provision of means or assistance for fitting themselves for any particular class of work in that division for which they have aptimile or for advancement in their own line of work.

-Proper Saleguards --

It is not, of course, the intention that the Government Should spend money poerally without proper enterpards

avament abuse or inside manufacture present officers of the mechanical an engineering branches of the Postmaner General's Department are amounted courses of study and training at our tain recognized institutions, such as the Technical Colleges maintained by State Governments or the Victorian Postal Instillite. The assistance takes the same of a refund of the fees charged for the courses, but the refund is only made upon production of satisfactory reports from the college or institute as to progress and attendance. A similar practics should be extended to any general system of assisted instruction which may be framed to ensure diligent and sustained effort on the part of the officer as a safeguard against the uninginable expenditure of nublic funds. In addition to this protection it will be advisable to provide that when an other is assisted in any line of study which may be useful to him in occupations outside the public service he will render some return to his department upon its completion, and will not leave the service and take a position elsewhere for which he was prepared at the Government expense.

The full details of any general scheme of this kind would require careful preparation so as to protect the Commonwealth finances, but there should be no difficulty in formulating workable suggestions which would give the best mu-

tual results.

-An Important Subject .-

Had it not been for the disrupted state of affairs caused by the war, this subject would have been at an advanced stage ere this, but its consideration had to be deferred until conditions returned to normal. It is, however, one which should be taken into early consideration, and I think provision should be made in the new Public Service Bill to cover the granting of facilities to officers to undergo courses of study to improve their efficiency as an intimation of the Views of Parliament on the question as one of pubhe policy.

For some years the approved courses in postal engineering and mechanics for othzere of the Postmaster-General's Department were confined to those conducted by the Technical College, Sydney, and the Working Men's College, Melbourne, there being no other courses elsewhere of onaracter suitable to meet the needs of the department. At the suggestion of this office, however, action has been taken by

the department with a view to inducing the local education authorities in other States to establish classes, and it is understood that at the Technical College, Brisbane, and the School of Mines and Industries, Adelaide, classes have been formed, and that it is expected that at similar institutions in Perth and Hobart classes will she provided at no district date. A committee representing the department, the colleges, and for mechanical classes, the Postal Electricians' Union, is to advise upon all details of the work of these classes and the nature of the instruction to be imparted, so that it can be expected that arrangements will be acceptable to all concerned. It may be mentioned that the Melbourne classes are now conducted at the Victorian Postal Institute, where the commendable zeal of the institute to improve the education and training of officers of the department is meeting with good results.

-Mechanical Section .-

In the mechanical section of the depart ment, there is a class of officers known as junior mechanics in training, from which the mechanics are recruited. These boys are given a three years' course of departmental training in the different ecstions of mechanical work, but it has long been recognised that, while this procedure does to a large extent equip them for the practical work of a mechanic, there a no obligation upon them to acquire a sound knowledge of the theory of their subject which is the ground work upon which their efficiency as mechanics will depend. As they entered the department without any condition requiring them to supplement their departmental training by a course of study in the science of their work, objection was offered by them to the excrifice of their private time in this direction, and it must be admitted that it is only the exceptional boy with strong ambition and desire for self-improvement that is willing to devote a portion of his leisure time to chis purpose.

The matter of the training of these lade was discussed at a conference held in Sydner of representatives of the department, the Technical College, Sydney, and the Postal Electricians' Union, and as a result it has been approved that every new appointee as junior mechanic in training must, upon appointment, give an undertaking that he will attend the course of instruction provided at the Sydney Technical College, partly in his official time and partly in his private time, and that the college fees will be paid by the department madject to the usual satisfactory report, No compulsion can be used for attendance at the clarace by officers who were rppointed prior to the adoption of this selwand, but it is confidence expected that the advantageous results of the added education to their fellow officers will to so experent that the majority of them will avail of the classes of their own se cord.