Ramsay was only rendered possible by an achievement in the southern hemisphere which well illustrates the gain of power to science through the world-wide co-operation of disinterested investigators. Dr. Steele and Mr. Grant, of the University of Melbourne, have constructed a balance with a girder beam made of fine silica rods, and devised a method of weighing by displacement with it, which allows the estimation of one-quarter of a millionth of a milligramme. The limit of sensibility of the finest assay balance has hitherto been one-two-hundredth of a milligramme. The credit of a wonderful feat of manipulation is thus shared between two hemispheres."

"The German authorities," continued the professor, "have long paid much attention to science, and have realised that it could render them tremendous assistance in a campaign. An enormous development in scientific knowledge has taken place since the Prussians conducted the war against the French in 1871. For example, I believe that the maximum effective range of a gun then was not much more than two or three miles, whereas to-day it is 15. In the construction of cannons and the manufacture of ammunition there have been enormous advances. The most remarkable has been in the introduction of powerful explosives in various forms of nitro-glycerine and its allied compounds, tri-nitro-toluene. They supply an interesting contrast with the old-fashioned black gunpowder, and show the most wonderful progress."

Science and the Gunner.

"But the man behind the gun still counts?"

"Of course, to some extent. In the olden times it really was a question of the man who had to fire the cannon. His success depended on his ability to point his gun straight. He could see his object. To-day that is all changed. The target can be 15 miles away, and the accuracy of fire is almost entirely a scientific problem. It depends on mathematical calculations based on observations made with range finders. The resistance of the air, the deviation of the shot, and other things have to be taken into consideration. Sir George Greenhill, an eminent lecturer at the Greenwich Arsenal, pointed out that in the early stages of the war the British artillerymen were handicapped by their ignorance of ballistics. It is only fair to point out that the same authority states that a tremendous improvement has been effected since then, and the men are more conversant with certain necessary scientific knowledge, and are little, if anything, inferior in this respect to their German antagonists.

In Ancient Days.

"What part did science play in the ancient days?"

"The early Romans had a highly developed scientific system of earthworks and fortifications. It is interesting to note that in the present European conflict the former method of defence appears to be playing a very much more important part than even the masonry fortifications. The earlier nations had nothing in the nature of explosives, but they used artificial means for projecting missiles in order to batter down walls of forts."

Great German Names.

"In what other ways have the Germans vailed themselves of science?"

"They have paid considerable attention to motor traction—a good example of ap-

Poisonous Gases and Convention.

"Is there justification for using poisonous gases and other inventions, as the Germans have done?"

"Whether poison should be used is not a question for science. Opinions on this matter are no doubt largely conventional. To me, it is no less horrifying to read of hundreds of men being blown to pieces by dynamite than it is to hear that they were choked by chlorine. The conventions which now exist have largely been framed by the more powerful nations to their own advantage. Just as a horseman armed with a sword would probably object to a footman using a pistol, so the nations might find fault with the introduction of these extraordinary weapons. Had Belgium fortified her frontier with chlorine pipes, she might possibly have been able to prevent the Germans from obtaining access to her territory."

Able British Scientists.

"Can British scientists retaliate?"

"On that point there is no room at all for doubt. They can retaliate, and they must if the Germans continue in their present course. Sir William Ramsay, late professor of chemistry in London, Professor John Perry, Professor Travers, and Sir Ronald Ross, the discoverer of malarial fever germs, are instances of the many who could almost immediately introduce a great counterblast to the German methods."

Imperial Government's Neglect.

"Has the Imperial Government recognised the value of science?"

"It is, I believe, the unanimous opinion of English men of science that the nation has suffered loss in many ways, and is continuing to fight at a heavy disadvantage by reason of the attitude of the Imperial Government towards science and scientific men. Whereas the German War Office has drawn very freely upon the services of its learned men, both in the universities and in technical establishments, the English War Office has made practically no use of the knowledge of its scientific men. Some of the most eminent of these wrote at the outset of the war and voluntarily offered their services in the capacity of scientific advisers to the Army and Navy. They received merely a brief reply to the effect that their services were not required."

Even More Terrible Compounds

"Will the weapons ever become so horrible that people will no longer go to war?"

"The question is another way of asking whether defensive methods will always be capable of coping with offensive weapons. If one nation makes an instrument to which there is no reply, then it can, of course, outstrip the others. The day will probably come when it will be too dangerous for nations to engage in war. Even now, if the Allies were to put all conventions on one side, they could inflict terrible injuries on the people and the property of their enemies. Much more horrible machines and more terrible compounds can be employed."

"Are you expecting further advances with aeroplanes?"

"The development of aerial machines is another striking scientific advancement. Although they have already played a very important part it does not appear that the possibilities of this form of warfare have been adequately recognised by any of the belligerent Powers. If instead of making aeroplanes by the score they were manufactured by the thousands the difference would be incalculable. A thousand aeroplanes could be supplied for the cost of one super-dreadnought. The havoc they could inflict would be such as to make war almost intolerable to the suffering nation. It is very hard to find an effective means of defence against aeroplanes. It is very reassuring that the British have established their ascendancy over

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COMMONWEALTH CLUB.

The Commonwealth Club of Adelaide is to have an address by Professor H. Darnley Naylor on "Greater Rome and Greater Britain" at the Town Hall on Wednesday. The subject is particularly appropriate at this time. Rome herself was engaged in many world wars and the comparison between her Empire and that of Great Britain presents matter of engrossing interest. Professor Darnley Naylor was a guest of the Club on August 19, 1910, and his address on "Some Ways of Ancient Doctors" is still remembered as a brilliant effort

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SHAKESPEARE AND STRATFORD.

LECTURE BY PROFESSOR HENDERSON.

Professor G. C. Henderson, M.A., delivered the second of his Shakespeare lectures at the Prince of Wales' Theatre, Adelaide University, before a large audience on Tuesday evening. He dealt with the period of Shakespeare's history before he became famous. He said the Stratford country, in Warwickshire, was one of the most picturesque parts of England, and the references to it in Shakespeare's works showed that his intimate knowledge of Nature was first hand, and not the result of reading. Shakespeare's love of Nature was inborn. In his earliest poems and plays the scenery and sports referred to were those of Warwickshire. A visit to Shakespeare's native country was of great assistance to a study of his works. With the aid of lantern views, the lecturer described the places in the neighborhood of Stratford, which were associated with the immortal bard. Bidford, its bridge, church, and the site of the Falcon Inn, so celebrated for the drinking reputed to have gone on there, were illustrated. The crabtree legend concerning Shakespeare and the "Lofer" and "Sipper" drinking societies was narrated. In showing a view of Anne Hathaway's cottage, at Shottery, and the interior, the lecturer said the house was almost the same as in Shakespeare's time, but it was to be doubted whether the furniture and fittings were authentic. There was no known record of Shakespeare's marriage, but two or three places claimed that it was performed there. A rather important document had been discovered in the diocesan registry of Worcestershire, which purported to be the marriage license bond of Shakespeare and Anne Hathaway, dated November 28, 1582. The lecturer thought the latter name should be Anne Whateley, although there were facts about the document which supported the other statement. With regard to the story of the episode that credited Shakespeare with having stolen a deer from Charlecote, the deer park of Sir Thomas Lucy, he thought the fact of the matter was that the deer was stolen from a neighboring estate. Lucy was not the ignorant boor hinted at in Shakespeare's plays. According to history he was a man of truth and diligence, conscientious in intention, and upright in action. There might have been other reasons for the hostility between the Shakespeares and Lucy. The latter was a vigorous Puritan, and the Arden family were Roman Catholics. One of the Ardens was concerned in a conspiracy against the life of Queen Elizabeth. He was executed in 1575, and from 1577 the fortunes of John Shakespeare began to decline. Perhaps he was a recusant. There were many fine specimens of architecture in the country, of which mention was made in Shakespeare's works. Concluding, the lecturer said more decisive conclusions as to Shakespeare's life had been gained by research in London, and he would deal with them at the next lecture on June 22.