130. Continued

Magna Carta is a veritable King Charles' head wherever men talk in defence of liberty.

Today historians talk of the "myth of Magna Carta," stress the fact that it was a reactionary document, and ridicule the notion that it was the beginning of any democratic part of our national structure.

Interpretation of Charter

Our blunder has sprung from our putting a modern meaning into mediaeval terms. Where the Charter talked about liberty—or, rather, liberties—and about free men, it used those terms in a strictly technical contemporary sense. Liberties were special rights or privileges which the feudal barons enjoyed, but no one else did; a free man was a person in a certain legal and economic status, and probably not 10 per cent. of the population came under that heading.

The Charter was largely a feudal document, restoring feudal privileges to the nobles and freeing them from royal restraint and encroachments. The clauses often meant just the reverse of our modern interpretation, and those favoring the church and wider public were so vague as to be valueless. To quote Pollard again, "legally the villeins, who were the bulk of the nation, remained after Magna Carta as before, in the position of a man's ox or horse today, except that there was no law for the prevention of cruelty to animals."

Evidently it is very difficult to get at the truth about things past or present. One thinks of the problems over which historians of the future will wrestle—Who was responsible for the War? Who caused the shipping strike? Why has the American Fleet come? How does prohibition work in America? Is Mr. Hughes a statesman? Are crossword puzzles immoral? Is musical chairs a game of chance? Are economists Bolshevists?

Maybe the answer given a century hence will be the opposite of that we should give today. So perhaps it is best for us to mingle a tolerant charity in judgment with a healthy historical agnosticism.

Register. 28.5.25.

SCIENCE AND AGRICULTURE

Fungoid Pests in Crop.

Terrible Scourge of Phylloxera.

NO. 4.

Let us consider a few typical cases of methods of controlling certain insect and fungoid pests (continued Dr. A. C. V. Richardson in his lecture). One interesting case is the method of control adopted for that dreadful disease of the vine — phylloxera. In 1863 there were rumours of a mysterious disease on the vines in the Bordeaux district of France. It proved to be the phylloxera. The disease spread rapidly through France, and in 20 years no less than 2,500,000 acres of vines were absolutely destroyed. The total damage done by the pest amounted to £400,000,000—twice the amount of the war indemnity paid by France in the Franco-Prussian war. From France it spread through Europe, Africa, and finally to California and Australia. It broke out in Geelong in 1877, Bendigo and Rutherglen in 1898, and in all 30,000 acres of vines in Victoria were destroyed. This will give some idea of the enormous damage caused by phylloxera. The French Government sent a scientific commission to America to study the pest in its native habitat. After prolonged investigation they demonstrated —1. That while the phylloxera caused galls on the leaves of American vines, they did not in any way affect the roots of these vines. 2. The phylloxera readily attacked roots of the European vines and soon destroyed them, though the leaves of European vines were immune from attack. 3. Hence, if the European vines, the fruit of which was so valuable for table purposes, and for winemaking, were grafted on the roots of American vines, the resultant plant would be quite immune from attack. A good deal of work was still required to be done to decide which varieties of American vines would act as the best stocks in this grafting process. After many years of patient scientific experimental work, the choice Rupestris was selected as the best stock. Hybridization was also used as a method of creating new types that would be immune from attack and provide the strongest and most vigorous vines. Rigorous selection was applied to these cross-breeds, and each hybrid had to pass three tests, viz.—It had to be—1. Vigorous. 2. Completely resistant to phylloxera, and (3) it had to make a good union in grafting with the European vine. Out of thousands of Rupestris crosses, only two were selected as thoroughly reliable stocks. These are grown under the names of 3306 and 3309. These stocks are now largely used in Europe and in Australia. With the aid of these phylloxera resistant stocks, the processes of reconstituting the Victoria phylloxerated vineyards has begun. At Rutherglen alone, 10,000 acres have been planted with these hybrid grafts, and experience has shown that the grafted vines are absolutely immune from attack, and that they yield and thrive well in phylloxera infested soil. South Australia has never suffered from this disastrous disease. Let us hope she will be able, by her drastic regulations, to maintain the vineyards of the State free from this terrible scourge. But should phylloxera ever gain entrance here, the experience of Victoria will be of immense value to us, and there is some consolation in the thought that the disease may be circumvented, thanks to the fine work of the French scientists who have studied this problem.

Fungoid Pests.

The plant pathologist has rendered signal service to the farmer and orchardist. De Bary in 1833 established beyond doubt that rust and smut were caused by fungi. A scientist named Kuhn was the first pathologist to make a systematic study of the smut fungus with a view to finding a method of control. In 1858 he found that smut attacked wheat just at the seedling stage, and that it penetrated the young seedling within a few days of germination. He suggested dipping the seed in a dilute solution of bluestone or copper sulphate of a strength sufficient to kill the spores of the fungus without causing injury to the tissues of the wheat seed. By this simple process a serious fungus disease which has ravaged wheat crops throughout recorded history was brought under control. In 1895, a scientist named Genther found that a dilute solution of formalin (1 part of formalin in 300 parts of water) would kill the spores of the fungus without affecting the wheat. Wheatgrowers in Australia have used both these fungicides extensively for controlling smut in wheat. Within the last few years, Dr. Darnell-Smith, of New South Wales, suggested the use of dry powdered copper carbonate dusted over the seed as a means of controlling this disease. The great advantage of this method, which promises to displace all others within a few years—is that the farmer may pickle his seed months before sowing without any damage to his seed. On the other hand, with both formalin and bluestone treated seed, a considerable proportion of the seeds fails to germinate unless the seed is sown immediately. For the expenditure of less than 2d. per acre on antiseptics, the farmer may now absolutely control this fungoid disease in wheat which has levied a heavy toll since the days when wheat was first cultivated.

With regard to rust, this disease is more difficult to control, because it is an air-borne disease, and infection is caused in spring time by myriads of spores floating through the wheat fields. Dr. Strakman, of Minnesota, has found out that there are no less than 38 distinct biologic forms of rust in United States—each form being distinguished by the reaction of certain host plants. The most promising method of controlling rust is the production of immune varieties of wheat—Biffen and others have shown that immunity and susceptibility to rust behave as a pair of Mendelian factors, hence immune varieties of wheat may now be bred with practical certainty. The discovery of the fungicide—Bordeaux—mixture by Millardet gave the plant pathologist a means of control of wide application, and of remarkable efficiency. The active principle of this mixture is copper. It introduction has saved vineyards from downy mildew (Plasmopara viticola), potatoes from late blight Phytophora infestans), and apples from scab. A most important discovery was made in 1884 by Burril, of Illinois—that the firelight of apples and pears were caused by bacteria. This was the beginning of a series of remarkable discoveries of bacterial diseases in plants. Among the many diseases in plants now known to be caused by bacteria may be mentioned the following—The black rot in cabbage and cauliflowers, the brown rot of potatoes, the angular leaf disease in cotton, the fireblight of apples, pears, and quinces. The discovery and establishment of the casual relation of fungi and bacteria to plant diseases is one of the most interesting and valuable applications of science to agriculture.

It is difficult to estimate the total losses of crop to plant disease in Australia. On a conservative basis the damage done by insect, fungoid, and bacterial diseases to our staple crops, fruit, and vegetables, is certainly not less than 10 per cent. of the entire crop. The final elimination or the perfect control of these diseases, therefore, would mean a gain to Australia of something like 10 million pounds per annum.

Continued

Agricultural Machinery.

Dr. Richardson next referred to the valuable services rendered to agriculture by the implement makers, and in particular to those who have been associated with the development of machinery for harvesting wheat. It was left to Ridley, of South Australia, to produce in 1843 the first successful stripper. The modern harvester is the most efficient, economical, and labour-saving machine, and its introduction has greatly reduced the cost of labour in the harvest field, and has greatly increased the acreage of wheat that can be handled by one man. Australia is one of the few countries of the world where this machine can be used to advantage, and it is largely owing to this that our wheatgrowers, although 11,000 miles from their market, can compete with the world in economic wheat production.

The application of the principle of refrigeration to the carriage of perishable products overseas opened up a new era of progress for Australia. In February, 1880, the first shipment from Australia, consisting of 34 tons of beef and mutton, was delivered in London by the Strathleven and in July, 1882 the sailing vessel Dunedin brought from New Zealand to London, after a passage of 98 days, 4,000 carcases of sheep and 22 pigs, all in perfect condition. Since then the development of refrigerated shipping has gone ahead by leaps and bounds, and now butter, poultry, and fruit are regularly exported to London from Australia. The value of exports from Australia of frozen meat—beef, mutton, and lamb—now averages about 7 million pounds sterling per annum; the value of butter exported 6½ million pounds, and fresh fruit—mainly apples, citrus, and grapes—1 million pounds; a total of nearly 15 million pounds per annum from these three lines of production.

Recently much scientific effort has been devoted to determine the conditions under which arise in the carriage of fresh fruits citrus, peaches, and grapes may be conveyed to London, and how certain defects which arise in the carriage of frest fruits under cool storage conditions may be obviated. There is much work to be done in determining the best period of maturity to harvest the fruit, and the most favourable conditions of temperature humidity and methods of ventilation of the fruit in the hold of the ship. It is not too much to hope that eventually most of the difficulties attendant on the transportation of these fruits overseas will be removed, in which case a new era of prosperity will be ushered in for our fruit industries.

Adv., 28.7.25.

ELDER CONSERVATORIUM STRING QUARTET.

The final recital of the season by the Elder Conservatorium String Quartet, will be given in the Liberal Union Hall on Tuesday next. These concerts given under such ideal conditions, have proved immensely popular, and are a real boon to music-lovers. On the programme to be presented next Tuesday is the favorite quartet in F Major (Haydn), which will be given in its entirety. A pleasing item will also be introduced from the modern school in the Frank Bridge "Novelette." Miss Maud Puddy will assist on this occasion, when the Brahms' piano quartet in G minor will be given. This beautiful work will specially appeal to all string players, while the technical difficulties of the piano portion will prove an added attraction to all pianists. Plan now open at Correll's Music Store.

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Adv., 28.7.25.

SYDNEY UNIVERSITY.

A CARILLON OF BELLS.

Sydney, July 27.

The Vice-Chancellor of the Sydney University has received a cable message from Messrs. John Taylor & Co., of England, that the firm had signed an agreement to supply a carillon of 3 bells on a steel framework as a war memorial to the University. The completed work will cost £17,780.

Adv., 28.7.25.

Dr. H. Heaton (lecturer in economics at the University and director of tutorial classes of the W.E.A.) expects to leave Adelaide for Canada on August 15. On August 8 he will be tendered a farewell by members of the W.E.A. at Stow Lecture Hall, when the Minister of Education (Hon. L. L. Hill) is expected to be ...

News 28.7.25.

Conservatorium Recital

A recital was given in the Elder Hall last night by students of the Conservatorium. An excellent opening was made by Mr. Alex Barnard with Chopin's Scherzo in B minor. Good memory and technique were displayed, and the contrasting sections of the number were effectively brought out.

The vocal work was well within the capabilities of the singers and was therefore heard with pleasure. Miss Grace Cussion gave Micaela's song from Bizet's "Carmen." Miss Jessie Anderson gave a bracket of Parry's English lyrics, "Whether I Live" and Maud Valerie White's "Robin's Song" in a pleasing light soprano voice. Miss Dorothy Mansom contributed Stanford's "Requiescat," displaying some good mezzo voce notes. Miss Elsie Cook was responsible for Thomas Brown's "Shepherd, Thy Demeanor Vary," which she sang with good enunciation and the pastoral simplicity which the song demanded.

In the instrumental section much more advanced work was attempted with fine results. Misses Alice Meegan, A.M.U.A., and Eileen Cashman played the first movement of Greig's Sonata in F for Violin and Piano. Miss Meegan's strong and refined work on the piano lent fine support to the less experienced violinist, who drew a fine full tone from her instrument with excellent intonation. Two contrasting numbers for the piano, "Sea Pieces" No. 1 by Macdowall, and Mendelssohn's Scherzo in E. minor were given effectively by Miss Jean Baldwin, and Miss Helen Magarey played the slow movement of Saint-Saens' Violin Concerto in B minor with correctness and a clear singing tone. Tenaglia's Aria for 'Cello was presented by Miss Helena Harris, and made a welcome variety on the programme, while Miss Bessie Francis essayed the heavy task of Cyril Scott's Handelian Rhapsody for the piano.

Miss Edith Lucas demonstrated the modern French school in a Prelude in A minor by Debussy, and played with apparent understanding of its tonal difficulties, and Mr. Lindsay Colquhoun gave a satisfactory rendering of two movements of a Rode Violin Concerto in A minor, in which he displayed much warmth and variety of tone, as well as intelligence in interpretation.

The concert was brought to a conclusion by Mendelssohn's "Capriccio Brillant, Op 22." Miss Constance McGrath was the soloist. The orchestral part was played on a second piano by Mr. I. G. Reimann. The soloist proved herself a graceful player, and the piquant melodies of the composition were brought out in happy style and with considerable finish.

Misses Alice Meegan, A.M.U.A., and Muriel Prince, A.M.U.A., were accompanists.

News. 28.7.25.

REPERTORY CLUB

Lecture and Plays

In the Lady Colton Hall last night members of the Adelaide Repertory Club attended to hear a lecture by Mr. Alex Melrose on "The Cinderella of the Drama," to say farewell to Dr. H. Heaton, and to witness the production of two short plays by Mr. Melrose.

Mr. Melrose sketched the development and career of the short play, pointing out how it had been neglected by dramatists both ancient and modern.

The two plays staged were "A Matter of Education," in which the cast comprised Misses Muriel Marks, Winifred Rankin, and Blanche Schneider, and "Triumphant Art," in which the parts were taken by Messrs. John Mullins, Adrian Korff, Paul McGuire, Jack Ham, and Miss Patti Connolly.

Songs were given by Miss Joy Watson, with Miss Bertha Frinsdorf as accompanist.

Mr. Beasley Kearney thanked Mr. Melrose for his services, and paid a tribute to Dr. Heaton, wishing him success in his future.

Among those present were Commissioner and Mrs. S. J. Mitchell, Dr. and Mrs. H. Heaton, Mr. and Mrs. Robert Homburg, Mrs. Herbert Mayo, Mr. and Mrs. T. A. Brock, Mrs. P. Marks, Mrs. John Crampton, Miss Hope Crampton, Mr. and Mrs. Wilfrid Neill, Miss Muriel Craigie, Miss Joan Hancock, Miss Margaret Cheadle, Miss Jean Mitchell, Miss K. Vasey, Miss Phyllis Everett, Messrs. Charles Langley, George McLeay, Basil Harford, Thomas Nave, and Frank Burlen.