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List Of Contributions To The Botanical Society

Dr. Alexander Buchan

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Mr. R. L. HARROW showed the following plants in flower from the Royal Botanic Garden:—*Anemone Regeliana*, *Asperula hirta*, *Aster himalaicus*, *Campanula Allionii*, *C. Allionii*, var. *hirsuta*, *Crepis aurea*, *Isiolorion brachyantherum*, *Myosotis alpestris*, *Primula Bulleyana*, *P. pinnatifida*, *Saxifraga Macnabiana*

PRESIDENTIAL ADDRESS, NOVEMBER 1907.

By the kindness of the Assistant Secretary, I am able to submit the following state of the Roll of the Society:—

Honorary Fellows: Royal 1, British 5, Foreign 25. Ordinary Fellows: Resident 108, Non-Resident 43. Corresponding Members 61; Associates 9; Lady Members 6. Total, 258.

During the past year the membership of the Society has been strengthened by the addition of—

Ordinary Fellows: Resident 5. Total, 5.

During the same period 2 Ordinary Fellows have resigned, and we have lost by death:—Ordinary Fellows: Resident 6, Non-Resident 1, Corresponding Members 2. Total, 11.

WILLIAM PETER DRUMMOND.

William Peter Drummond was the youngest and last surviving son of the well-known seedsman, Peter Drummond of Stirling. He was born at Stirling in 1838. He and his brother George came to Edinburgh and started the business of Drummond Brothers, nurserymen and seedsmen, with a warehouse in George Street and nurseries at Longfield, on ground which has now been feued. He became a Fellow of the Society in 1858. On retiring from business a good many years ago, he went to America, and remained there for some years. Returning to Scotland a few years ago, he resumed attendance at meetings of the Society when health permitted. He died at his residence, 8 Wardie Road, Edinburgh, on 18th December 1906, aged 68 years. He is survived by a widow and a son, Peter E. Drummond, who is a member of the engineering staff at the Gordon Memorial College, Khartoum, Egypt.

WILLIAM LOUDON.

William Loudon was born at Musselburgh in 1830, and educated at Edinburgh Academy and Edinburgh University. In 1854 he went out to India in connection with the Revenue Survey, and in 1860 he was appointed Administrator-General of Bombay, an office which he held till his retiral in 1879, when he came to reside in Edinburgh. He took a great interest in Indian plants, and his beautiful garden on Malabar Hill, Bombay, was well known and greatly admired. He possessed also a fine series of paintings of Indian plants, which he was always delighted to show to his friends. As indicating his keen interest in botany, it may be mentioned that on his return to Edinburgh he attended the lectures of the late Professor Dickson. His connection with the plants of India was curiously illustrated by a query which appeared some time ago in "Notes and Queries" as to the origin of the name "Willie Loudon," which had been applied by the natives to an Indian plant. Sir George Birdwood answered the query by suggesting that probably it had some reference to William Loudon of Bombay. He was also interested in geology. He became a Fellow of the Society in 1889. For some years he had resided at York Road, North Berwick, where he died on 27th January 1907, in his 77th year.

PERCIVAL COLIN WAITE.

Percival Colin Waite, son of Percival John Waite, a London merchant, was born in London in 1859, and was educated at Amesbury in Wilts and at Harrow. A constitutional delicacy, which became apparent while he was a schoolboy, incapacitated him for following any profession. Having attended some lectures on botany by Professor Patrick Geddes at Heriot-Watt College, Edinburgh, he became greatly interested in the study, and took the bronze medal for the year. He then undertook some work at Kew Gardens in photographing plants at the request of Professor Geddes. Thereafter he proceeded to the University of Montpellier in France, where he studied botany under Professor Flahault. After travelling some time abroad he returned to Scotland, and for a few years acted as Demon-

strator in Botany under Professor Geddes at University College, Dundee. Here he had as a colleague Dr. A. J. Herbertson of Oxford, and here also he met Dr. Bruce, the Arctic traveller. Through his intimacy with Dr. Herbertson he became greatly interested in meteorology. I am indebted to Dr. Herbertson for the following interesting particulars:—

“In late years Mr. Waite collaborated with me in studies of the rainfall of Australia and of Africa. He had completed tables, which I had begun, of the rainfall of both continents up to 1900, and in the case of Africa even later, as far as the data permitted. The map of Africa, based on this work, was shown at the British Association meeting in South Africa, but it was not published, as we could not get data for the Congo Independent State, although we repeatedly wrote for it. The Australian rainfall results have not been published, because some of the data had not come to hand at the time of his death. I hope to publish the tables, maps, and an account of them in 1909 in our joint names. Mr. Waite was particularly good at tabulating statistics and in discovering irregularities which necessitated more minute inquiry. It will be a very great loss not to have his knowledge to guide me in dealing with the tables he left. What impressed all who were fortunate enough to gain Mr. Waite's friendship was his loveliness, his consideration for others, and his wonderful pluck and patience in doing steady work in spite of his physical weakness. For months his medical adviser would not allow him to do any work at all. But as soon as he received permission to work, even if it were only for an hour a day, he turned to his task again. He was a wonderful example of what can be done by patience and perseverance under very adverse circumstances.”

To one of his most intimate friends, Mr. F. J. Wardale of Shrewton, Wilts, I am indebted for the following:—

“Mr. Waite largely assisted Dr. Herbertson in the preliminary investigations for his great work on ‘The Distribution of the Rainfall over the Land,’ as well as in his preparation of notes for his lectures on his visit to South Africa; and Dr. Buchan in much of the work for the meteorological volume of Bartholomew's ‘Physical Atlas.’ He also investigated the relations between the Sun-spot Periods and the rise and fall of the Nile, and wrote a

monograph on the subject. But perhaps his most important work in this science was done for Dr. H. R. Mill in the preparation of his Annual Rainfall Maps of the British Isles from 1893 to 1905. This work, involving the laying down on the map on a scale of 20 miles to the inch of the records for each year from between 3000 to 4000 stations, exercised to the utmost Mr. Waite's high qualities for such work, and Dr. Mill pays a warm tribute to his care and neatness in 'British Rainfall,' 1906, page 10."

Mr. Waite's intelligence and capacity for careful detail work enabled him to render valuable assistance to Dr. Bruce and Mr. Mossman in tabulating meteorological observations of the Scottish National Antarctic Expedition, and also in working out the results of physical investigations of the sea. His interest in meteorology became greater than his earlier taste for botany, but he continued an active Fellow of the Botanical Society, and was a member of the Council at the time of his death. Of a singularly modest and retiring disposition, he was greatly beloved by those who knew him because of his kindness and readiness to help in every way to the utmost of his ability. He rendered invaluable service to the Society as a member of the Publication Committee by the assiduity and care with which he supervised the printing of the "Transactions." Though physically weak he was fond of work, and was fully occupied up to the last. After an attack of influenza blood-poisoning supervened, and he died on 13th February 1907, at the early age of 48 years, to the great regret of his many friends.

SIR THOMAS HANBURY, K.C.V.O. (The Marquess Hanbury.)

Thomas Hanbury was the third son of Daniel Bell Hanbury, of the firm of Allen & Hanbury, pharmaceutical chemists, London, and was born at Clapham, London, on 21st June 1832. He was educated at the Society of Friends' School at Croydon, and at the age of seventeen entered the office of a firm of tea-brokers in Mincing Lane. At the early age of twenty-one, with three other young men, he founded the firm of Hanbury & Co., East India merchants, at Shanghai, and from 1852 to 1872 he lived the life of a merchant in China, with brief furloughs in 1858 and 1866.

In Shanghai he did valuable work as a member of the Municipal Council, especially in supervising the laying-out and planting of the public gardens and the Bund. He also did great service during the critical period of the Taiping rebellion, and it was said of him that "more than any Englishman of his time he gained the confidence and affection of the Chinese business community." He had in every respect a most successful career, and prospered greatly in business. His residence in China enabled him to be of immense service to botany, and also to pharmacognosy. Being an enthusiastic botanist and very warmly interested in the work of his brother, Daniel Hanbury, he was able to supply him with authentic material for his researches into the botanical sources and natural history of substances used in medicine. During a holiday in Europe in 1867 he visited Mentone with his brother Daniel, and, chancing to visit the promontory of Mortola on the Italian side of the frontier, he was charmed with the horticultural possibilities and natural beauty of the Palazzo Orengo, which stood in ruins among olive groves and vine terraces. He at once purchased the house and grounds, intending, in conjunction with his brother, to lay out a botanic garden for the experimental cultivation of medicinal plants. Owing to Daniel's absorption in other work up to his early death in 1875 this original scheme was never realised, but the gardens of La Mortola, under the care of Sir Thomas Hanbury, became one of the wonders of the world.

In 1868 he married Katharine Adam Pease, daughter of Thomas Pease, of Westbury-on-Trym, Bristol. After two years in Shanghai, where their eldest son was born, they returned finally to Europe, making the Palazzo Orengo their winter home, and ultimately their usual domicile. The garden soon became famous for the luxuriance of its tropical plants and rarities. A catalogue, published in 1889, contains about 3600 species, and that number has been added to by the introduction of further species of scientific or economic value. Sir Thomas Hanbury greatly enriched the botanical collections at Kew by presenting interesting growing plants and seeds. He also sent many specimens to the Museum, and valuable gifts of books and paintings to the Library. He also presented to the Museum of the Pharmaceutical

Society, of which he was an honorary member, the unique collection of "materia medica" gathered by his brother Daniel, and to the Society's Library a valuable set of books relating to them. He was an active member of the Royal Horticultural Society of England, and in 1903 purchased the famous garden, 60 acres in extent, of Mr. G. F. Wilson, at Wisley in Surrey, and presented it to the Society. In the land of his adoption he was greatly beloved and esteemed because of his many benefactions. He founded and maintained schools for boys and girls, built a Botanical Institute and presented it to the University at Genoa, a library for the ancient Approsian Library at Ventimiglia, a hall and library for English winter visitors at Alassio, a drinking-fountain in the town of Mentone in memory of the Queen Victoria Diamond Jubilee in 1897, and provided funds to establish a public garden at Ventimiglia. In recognition of his generous services to Italian education, he was made first a Cavalier, then a Commendatore of the Order of the Crown of Italy, Commendatore of the Order of SS. Maurizio and Lazzaro, and ultimately he was awarded a gold medal as a benefactor of public instruction. In 1901 King Edward created him a Knight Commander of the Royal Victorian Order. Among the many distinguished personages who visited the Palazzo Oregio and its famous garden were Queen Victoria in 1882, the King (then Prince of Wales), along with the Grand Duke Michael of Russia, in 1898, and in the same year her Majesty the Empress Frederick. The Poet Laureate, Sir Alfred Austin, referring to a visit he paid, speaks of the helpful kindness of Sir Thomas Hanbury and the refined, unostentatious hospitality in which Lady Hanbury assisted him with such quiet and simple graciousness. This was the testimony of all the many visitors to La Mortola. The garden was thrown open two days every week, and often as many as 400 and 500 people would visit it in an afternoon. Visitors were charged an entrance fee, which went to support the hospital at Ventimiglia. Pneumonia, following an attack of influenza, cut him off on 9th March 1907, at the age of 74. He became a Corresponding Member of the Botanical Society in 1902, and was also a Fellow of the Linnean Society. He was a generous friend of the poor, and striking testimony to the general esteem in which he was

held was manifested in the concourse of about 7000 people who joined in the funeral procession.

ALEXANDER BUCHAN, LL.D., F.R.SS. L. and E.

Alexander Buchan was born at Kinnesswood, Kinross-shire, in 1829. From the parish school he came to the Free Church Normal School in Edinburgh, and there and at the University he pursued his studies to qualify for the teaching profession. At the University he took a high place in his classes, and graduated M.A. In 1848 he was appointed schoolmaster at Banchory, and thereafter at Blackford, and lastly at Dunkeld. For twelve years he continued teaching and was very successful, but an affection of the throat became so embarrassing that he had reluctantly to abandon the teaching profession. He had always had a great love for botanical studies, and particularly for field botany, and these he kept up during his residence in the country. This bore fruit in the first paper he contributed to the Botanical Society of Edinburgh, which was a "List of Plants observed in the neighbourhood of Blackford, Perthshire," and is published in the "Transactions" for 1858. In that year he was one of a notable party of botanists who accompanied Professor J. H. Balfour and his students in a famous expedition to the Alps of Switzerland. His love for field botany remained to the end a source of keen enjoyment to him. He had early taken a keen interest in the science of meteorology, and his compulsory retiral from the teaching profession proved the turning-point in what became a highly distinguished career. This happened at a time of great activity and rapid advance in the evolution of the new science of meteorology. In Edinburgh, men like Thomas Stevenson, Milne Home, and Sir Arthur Mitchell had laid the foundation of the Scottish Meteorological Society, which was destined to become a focus for collecting observations from all parts of Scotland and a controlling centre for one of the most completely organised and equipped networks of volunteer meteorological stations to be found in any country. In the year 1860 he abandoned school teaching, and in the same year he was called to Edinburgh as Secretary of the Scottish Meteorological Society, with whose great work his name is so indissolubly associated

during the long period of forty-seven years. He possessed a remarkable memory, a marvellous faculty for handling great masses of figures, and a penetrating insight into the meaning and significance of statistical returns collected from widely separated stations. These qualities enabled him to be largely instrumental in securing the general acceptance of Buys Ballot's principle of the relation of wind to air pressure. Variations in atmospheric pressure at given points, and the fact that the direction of the wind was connected with the relative distribution of pressure, were well known before his time, and had been systematised to the extent of definitely marked lines of equal pressure, or "isobars," for several countries. But it required the patience, genius, and rare statistical skill of Alexander Buchan to co-ordinate the enormous masses of statistics gathered together from all parts of the world. This he did in his paper on "The Mean Pressure of the Atmosphere and the Prevailing Winds over the Globe," published in the "Transactions of the Royal Society of Edinburgh" in 1869. To us who are so familiar with the daily results of meteorological observations it is difficult to believe that Alexander Buchan was the first to trace the course of a "depression" across the Atlantic. This gigantic and epoch-making achievement embodied in the previous paper raised him at once to a position of acknowledged pre-eminence as a meteorologist in Europe and America, and he retained this high reputation to the last. It was enhanced by his "Handy Book of Meteorology," published in 1867, and his "Introductory Text-book of Metéorology," in 1871. He was fittingly chosen to examine the meteorological observations of the "Challenger" Expedition, and the results of many years' labour thereon were embodied in the two monographs, "Atmospheric Circulation," published in 1889, and "Oceanic Circulation," in 1895. He was profoundly interested in the high-level meteorological station on Ben Nevis erected by the Royal Societies of London and Edinburgh, and was keenly disappointed when it had to be closed for want of adequate financial support. The study, co-ordination, and elucidation of the accumulated observations at this station occupied most of his time in later years, and had not been completed at the time of his

death. He held strongly that these observations were not only of high scientific interest but also of considerable practical utility, and worth all the cost of being continued. The practical value of his meteorological studies was well illustrated in some striking papers on "The Relations of Weather and Health," written in conjunction with Sir Arthur Mitchell. In 1899 Bartholomew published an "Atlas of Pictorial Meteorology," compiled by Dr. Buchan with the assistance of Dr. A. J. Herbertson, and this represents very distinctively the particular form of meteorological research and the method of recording and depicting it with which his name is associated. He was an honorary LL.D. of Glasgow University, and it is not easy to understand why his own Alma Mater did not recognise his worth. He was also a Fellow of the Royal Societies of London and Edinburgh, and from 1878 to 1906 he acted as Curator of the Library of the latter. He was also an Honorary Fellow of many British and foreign learned societies. In 1876 he was awarded the Makdougall-Brisbane prize, and in 1893 the Gunning Prize, of the Royal Society of Edinburgh. And in 1902 he was the first to receive the Symons medal of the Royal Meteorological Society of London. In 1864 he became a Fellow of the Botanical Society of Edinburgh, and in 1871 he filled the office of President, giving a Presidential Address on "Climate and Weather in Relation to the Distribution of Plants." For twenty-five years he was a frequent contributor to the Society's proceedings, as will be seen by the following list:—

LIST OF CONTRIBUTIONS TO THE BOTANICAL SOCIETY
BY DR. ALEXANDER BUCHAN, 1858-1883.

- "List of Plants observed in the neighbourhood of Blackford, Perthshire." Transactions, vol. v., 1858, p. 162.
- "Notice of a Tree found in a Peat Moss in the Island of Shapinshay, Orkney." Transactions, vol. viii., 1866, p. 399.
- Presidential Address—"Climate and Weather in Relation to the Distribution of Plants." Transactions, vol. xi., 1873, p. 261.
- "On the Practical Application of Meteorology to the Improvement of Climate." Transactions, vol. xi., 1873, p. 85.
- "On Seedling Ash Trees Destroyed by Frost." Transactions, vol. xii., 1876, p. 49.
- "The Bearing of Meteorological Records on a Supposed Change of Climate in Scotland." Transactions, vol. xii., 1876, p. 280.
- "On the Flowering of Spring Plants." Transactions, vol. xii., 1876, p. 441.

- Introductory Address as Vice-President in 1876. Transactions, vol. xiii., 1879, p. 1.
- "On the Weather of the Winter of 1878-79." Appendix cix. Transactions, vol. xiii., 1879.
- "On Low Night Temperatures in Relation to Slight Inequalities of Surface." Transactions, vol. xiii., 1879, p. 48.
- "List of Plants for Observing the Influence of the Sea on Vegetation." Transactions, vol. xiii., 1879; Appendix xii.
- "Remarks on the Recent Weather." Transactions, vol. xiv., 1883; Appendix lxiii.
- Introductory Address as Vice-President, 1881. Transactions, vol. xiv., 1883, p. 263.
- "Various Remarks." Transactions, vol. xiv., 1883; Appendix xxi., liv., cv.
- "The Climate of the Hungarian Mountains in its Relation to the Hungarian Oak." Transactions, vol. xiv., 1883; Appendix cx.
- "Obituary Notice of Sir Robert Christison, Bart." Transactions, vol. xiv., 1883.

Mostly all these communications, as will be seen, deal with the relations of his pet study, meteorology, to the science of botany. Dr. Buchan was a man of a singularly unaffected and humble disposition. He was most considerate of others, and always ready to place at their disposal his vast and varied stores of knowledge. His enthusiastic devotion to his work was unabated to the end, when he was attacked by pneumonia and died at the residence of his only son, Dr. A. Hill Buchan, after a few days' illness, on 13th May 1907, exactly seven years after his wife, Sarah, daughter of David Ritchie, Musselburgh, to whom he was married in 1864.

Sir JOSEPH FAYRER, Bart., K.C.S.I., LL.D., M.D.

Sir Joseph Fayrer, the son of a naval officer, was born at Plymouth on 6th December 1824. His first desire was to be an engineer, and then he thought of the navy, and actually went to sea for a time. Ultimately, however, he resolved to follow the profession of medicine, in which he was destined to earn so much distinction. He studied at the Charing Cross Medical School, London, and graduated M.R.C.S. in 1847. Almost immediately he received a commission in the Royal Navy. He had as a fellow-student Professor Huxley, and it was on the advice of the former that the latter accepted a commission in the Navy, and was appointed to the "Rattlesnake," which had been commissioned to go on an ex-

ploring expedition on the coast of Borneo. As is well known, Huxley's experience on this expedition led to the great life-work by which he so enriched biological science and made for himself so illustrious a name. Fayrer had a very remarkable and brilliant career, and his experiences are most interestingly told in his book, "Experiences of my Life," published in 1900. At the outset of his career in the Navy he was present and under fire at the sieges of Palermo and Rome. In 1850 he entered the Bengal Medical Service, and was in active service through the Burmese campaign of 1852. He was political assistant and residency surgeon at Lucknow during the Mutiny, and relates his thrilling experiences at that critical time in the book above mentioned. In somewhat broken health after the Mutiny he returned to England, and came to Edinburgh, where he studied at the University and graduated M.D. in 1859, in which year also he became a non-resident Fellow of the Botanical Society. In August 1858 he was a member, along with Dr. Buchan, of the distinguished company of botanists who accompanied Professor J. H. Balfour and his students to the Alps of Switzerland. Though he was interested in botany, his time was more fully occupied with medical and surgical problems and questions of health and sanitation, and on these topics he published many articles. During his journeys in India he had been deeply impressed by the enormous loss of life caused by the bites of venomous snakes, and this led him to the great work for which he is chiefly remembered in connection with the poisonous snakes of India and the physiological effects of their virus. From 1859-1874 he was Professor of Surgery at the Medical College of Bombay, and accompanied the King, then the Prince of Wales, in his tour through India. Returning to England, he acted as President of the Medical Board of the India Office from 1874-1895, and on his retiral in 1896 he was created a baronet. He was an LL.D. of Edinburgh and St. Andrews, K.C.S.I., and Fellow of many learned societies. He was Honorary Physician to the late Queen Victoria, and Physician Extraordinary to the King. Full of years and honours, which he bore with the most unassuming modesty, he died at his residence, "Belfield," Falmouth, Cornwall, on 21st May 1907, in his 83rd year.

SIR DIETRICH BRANDIS, K.C.I.E., F.R.S.

Dietrich Brandis, the son of Dr. Christian Brandis, Professor of Philosophy in Bonn University, was born at Bonn in April 1824. In his boyhood he accompanied his father to Greece, and remained there for several years. On returning to Germany he was educated at the Universities of Copenhagen, Göttingen, and Bonn, and was appointed Lecturer on Botany at Bonn in 1849. In 1859 he married a daughter of Dr. Marshman of Bengal, father-in-law of General Sir Henry Havelock, and this circumstance opened up for him a highly distinguished career. After the annexation of the province of Pegu, Lower Burma, it became evident to Lord Dalhousie that the wanton destruction of the great teak forests would speedily lead to a complete stoppage of the supply. While he was on the outlook for a suitable man to put in charge of the forests, Sir Henry Havelock suggested his brother-in-law, Dr. Brandis. The outcome was that Brandis reached Calcutta in 1856, and immediately undertook the strenuous but ultimately successfully accomplished task of placing the teak forests under systematic management. The same system was later applied to the teak forests of Upper Burma, so that now the Burmese forests are the chief source of the supply of teak timber for the world, and yield an annual revenue of £200,000. Brandis's next great undertaking was the setting up of the Indian Forest Conservancy Organisation. In early times India appears to have been covered by great forests. For centuries these had been undergoing destruction by the practice of nomadic tribes moving from place to place and firing the forests wherever they went to obtain grass and open places for cultivation. The British occupation immensely accelerated the rate of destruction, and failure to meet the requirements of public works warned administrators that the reckless destruction of trees had been a disastrous mistake. As early as 1855 conservators of forests were appointed in Bombay and Madras, as well as in Burma. In 1862, on the recommendation apparently of a Fellow of this Society and a distinguished pioneer of forest conservancy in India, Dr. Hugh Cleghorn of Stravithie, Lord Dalhousie summoned Dr. Brandis to Simla to consult as to the steps to be taken to more effectually

overtake the huge problem with which they were faced. The result was that in 1864 an organised State Department, presided over by Dr. Brandis as Inspector-General of Forests to the Government of India, was established, and a special forest law was passed. There are few things more interesting and instructive than the story of the Indian Forest Department, which has now under administration a forest area of 239,000 square miles, or twice the area of Great Britain and Ireland. The staff consists of 200 English officers and 11,000 native officials, and the revenue has risen from £40,000 in 1864 to £660,000 in 1904. Owing to the unfortunate lack of suitable facilities for practical forestry training in Great Britain, Dr. Brandis obtained permission in 1866 for the training of young British foresters at the French School of Forestry at Nancy and in Germany. In 1885 a British Forest School was instituted at the Royal Indian Engineering College at Coopers Hill, and now there is a forestry school at Oxford. In 1874 Brandis published his "Forest Flora of North-West and Central India," which received the high commendation of Sir Joseph Hooker, and led to Dr. Brandis being elected a Fellow of the Royal Society. He also compiled the first rainfall map of India.

He retired from the Indian Service in 1883, and from 1888 to 1896 superintended the practical instruction of the Coopers Hill forest students in Germany. He also supervised in the same way the forestry training of a number of Americans, who have since established the Government Forest Department which is destined to have a vast influence on forest conservancy in the United States. His services in this connection were specially acknowledged by President Roosevelt, and in a presentation of silver service by the officers of the United States Forestry Department he is spoken of as "the father of forestry in the United States." There can be no doubt it was his privilege to successfully inaugurate the first great scheme of forestry conservancy in the British Empire, and the example is one that might well be followed in all the colonies. It is alleged, for example, that the immense forest wealth of the great Dominion of Canada is in danger of irreparable damage from the reckless destruction of timber trees without any systematic scheme for replanting the depleted areas. With the rapid opening

up of the country and the influx of an enormous new population, this danger must inevitably be accentuated. Even in the homeland, experience in India has suggested the desirableness of some such State conservancy, and to-day we see some signs of a practical beginning in that direction. Sir Dietrich Brandis has been a corresponding member of the Botanical Society since 1854, a date prior to his entering on the great work which made him famous. He was made a C.I.E. in 1886, and K.C.I.E. in 1887. For eight years before he died he gave himself unremittingly to the production of an exhaustive work, published in 1906, on "The Trees of India," in which he gives detailed descriptions and information regarding the trees, shrubs, woody climbers, bamboos, and palms in the Indian Empire. It has been said that the stimulus of the effort to complete this great task kept him alive, for no sooner had he finished it than he lay down on a sick-bed from which he never rose again. He died at his native town of Bonn on 28th May 1907, at the ripe age of 83 years.

ALEXANDER SOMERVILLE, B.Sc., F.L.S.

Alexander Somerville was born at Glasgow in 1842, his father being the well-known Rev. Dr. A. N. Somerville, minister of Anderston Free Church, who became famous because of his great missionary tours to many lands. While still a boy, Alexander Somerville was much interested in entomology, and from the first he was greatly attracted to all branches of natural history. He was educated at Glasgow Academy, and after attending Glasgow University for three years, he entered business and proceeded to Calcutta, where he remained for fifteen years. During this period he seems to have had no leisure to continue the studies and pursuits of his earlier youth. Owing to a breakdown in health he returned to Scotland, and immediately resumed his old pastimes. He also returned to the University, and graduated B.Sc. In his earlier investigations his attention was devoted chiefly to a critical study of the Mollusca of the British Isles, in the course of which he made a most exhaustive examination of the seas and lochs on the West Coast of Scotland from the Clyde area to the Butt of Lewis and Loch Broom. Owing to his expert knowledge of critical

species he was appointed one of the referees of the Conchological Society of Great Britain and Ireland for Marine Mollusca. In 1886 he published a "List of British Brachiodonta and Marine Mollusca," which was recognised as the standard by all students till the publication of the Conchological Society's List in 1900.

The work he did in the critical study of the vascular plants of the British Islands, and particularly the topographical distribution of Scottish plants, is of more immediate interest to this Society. To this study he brought all the care and attention to structural detail which he devoted to the Mollusca, and he became a recognised authority in this department, and his opinion was highly valued and frequently sought by workers in the same field, to whom he was at all times most willing to give any help in his power. His topographical researches were chiefly carried on in the West of Scotland, but he visited many other districts where fuller information seemed to be desirable. He spent several weeks in Orkney investigating the flora there. He was for several years President of the Glasgow Natural History Society, three years President of the Conchological Society of Great Britain and Ireland, a strong supporter of the marine station at Millport, and keenly interested in the Scottish Antarctic Expedition. His enthusiasm was contagious; nothing delighted him more than to assist a fellow-worker, and acknowledgments of such help are frequent in scientific publications. The results of his work have been published in the "Transactions of the Glasgow Natural History Society," the "Annals of Scottish Natural History," and the "Journal of the Conchological Society." He became a Fellow of the Linnean Society in 1881, and a Fellow of the Botanical Society of Edinburgh in February 1886, and between 1896 and 1905 made some exceedingly interesting communications to our "Proceedings." These are:—

LIST OF CONTRIBUTIONS TO THE BOTANICAL SOCIETY.

Cystopteris montana in Stirlingshire. Transactions, vol. xx., 1896, p. 285.

Gnaphalium undulatum, Linn., a Cudweed, new to the London Catalogue, from Jersey. Transactions, vol. xx., 1896, p. 345.

Specimen of Goat Moth, Appendix xxxiv. *Carex limosa* and *C. magellanica*, Appendix xxxii. Presentation of Watsonian Vice-Counties, Appendix xxxii. Transactions, vol. xxi., 1900.

- Note on the British Distribution of *Glaucium flavum*, Crantz, the Horned Puppy. Transactions, vol. xxii., 1905, p. 13.
- Carex divisa*, Huds., as a Scottish plant. Transactions, vol. xxii., 1905, p. 305.
- On the genus *Polystichum*, Roth (*Aspidium*, Swartz in part), with special reference to *P. angulare*, Presl, and to its distribution in Scotland. Transactions, vol. xxii., 1905, p. 312.
- Specimen of *Scirpus triquetus*, Linn., a Bulrush new to the Irish Flora, and discovered in September 1900 by Mr. R. D. O'Brien on the banks of the Shannon, near Limerick. Transactions, vol. xxii., 1905; Appendix iv.
- Specimen of *Statice tychnidifolia*, Girard, a Sea Lavender new to the Channel Islands, and not previously recorded from within the limits of the British Flora. Discovered by Mr. C. R. P. Andrews in Alderney, August 1900. Transactions, vol. xxii., 1905; Appendix v.

We had frequent occasion to admire the extreme care with which his herbarium specimens were mounted, a fact which revealed the patient, systematic, and orderly way in which all his investigations were carried out. His kindness and courtesy endeared him to all, and he impressed us by his unselfish and whole-hearted devotion to furthering the progress of biological science. In a note from Mr. F. C. Crawford, who knew him intimately, he says: "The point that interested him most, and what I shall remember him best by, was his encouragement of young collectors of plants. If I mentioned the name of anyone he was on their track at once. He would write to the young botanists, ask to see their list, and then send them plants. He saw the young collector required encouragement, and he never passed one over. That is where he will be missed, as I know of no one to fill his place in that line. He was of a cheery disposition, and maintained an extensive correspondence with field botanists in all parts of the country."

He has left in manuscript most valuable details of his researches, which are now in possession of his nephew, Rev. G. A. Frank Knight of Perth, by whom, it is understood, they will be published so as to be available for workers in the same field. Latterly failing health prevented Mr. Somerville continuing his excursions, but he still remained keenly interested in the work of others. After some months of suffering he died in Glasgow on 5th June 1907, in his 65th year. He was twice married, and is survived by a widow, two sons, and four daughters.

GEORGE HONINGTON POTTS.

George Honington Potts was born in London in 1830. He came to Scotland in his youth, and had been in business in Edinburgh as a painter and decorator for many years. He seems to have had a natural taste for the cultivation of plants, and when he lived in Edinburgh, at the end of Potterrow, he grew grapes in his house. Nearly forty years ago he removed to Fettes Mount, Lasswade, Midlothian, where he constructed on a well-watered bank on the east side of the house a rock garden which became famous, and was visited by many botanists and horticulturists. I had the privilege of seeing it in 1872, and again, along with several Fellows and members of the Edinburgh Field Naturalists' Club in 1906, and was struck by the extent to which it had been developed as the years had passed. Mr. Potts had some business relations with Mr. George Maw of Benthall, Kenley, Surrey, the monographer of the genus *Crocus*, and a Fellow of this Society. It was his intercourse with Mr. Maw that induced him to take so much interest in the cultivation of plants. He was specially interested in Saxifrages, Sedums, and Sempervivums, of which he had a large collection. He raised many seedling saxifrages, particularly those of a dwarf habit. One of the best of these was from *Saxifraga muscoides*, and he named it *Saxifraga Lindsayi*, after Mr. Robert Lindsay. His plants were grown all massed together, and though his quick eye often detected a hybrid, he unfortunately was hardly ever able to identify the parents. He became a Fellow of the Society in 1873, and was a frequent exhibitor at the meetings. Some of his more recent exhibits were :—

LIST OF CONTRIBUTIONS TO THE BOTANICAL SOCIETY.

Specimen of *Saxifraga hypnoides densa* (p. 127).

Specimen of *Saxifraga Cotyledon* (p. 154).

Specimen of *Rodgersia podophylla* (p. 154). Transactions, vol. xix., 1893.

Exhibition of Seedling Saxifrages and Cut Blooms of hybrid Primulas. Transactions, vol. xxi., 1900 ; Appendix vii.

Exhibition of Saxifrages grown by himself, and of some natural Crosses. Transactions, vol. xxii., 1905 ; Appendix xxvii.

He became a member of the Scottish Alpine Botanical Club in 1876, and during an excursion to Dalwhinnie in

1887 he discovered *Saxifraga aizoides*, var. *aurantiaca*. *Montbretia* or *Tritonia Pottsii*, a South African plant, was found growing in his garden, and he never managed to account for its being there, though it has been suspected that he must have got it from Mr. Maw. It is from this *Montbretia Pottsii* that all the fine and really handsome varieties of *Montbretia* now in cultivation have originated. He raised a very handsome *Dianthus* which is known as "Fettes Mount Pink." During a visit to the Continent about thirty years ago he picked up in Paris a variety of *Sedum brevifolium* which he named *Sedum Pottsii*. He was not a scientific botanist, but an enthusiastic amateur horticulturist with a sharp eye to detect any departure from the normal form in the plants he cultivated. He was a keen angler and chess-player, a genial, good-tempered, and kind-hearted fellow, and an excellent companion on excursions. He died at his residence, Fettes Mount, Lasswade, on 6th June 1907, in his 77th year.

SIR JAMES HECTOR, M.D., K.C.M.G.

Sir James Hector, F.R.S., F.G.S., F.L.S., was the son of Mr. Alexander Hector, W.S., and was born in Edinburgh in 1834. He was educated at the Edinburgh Academy and the High School. At the age of fourteen years he entered his father's office, and shortly afterwards was apprenticed to the well-known actuary, Mr. James Watson. Having determined to study medicine, he became a student at the University of Edinburgh in 1852, and was a member of Professor J. H. Balfour's class at the Botanic Garden in 1853. He graduated M.D. in 1856. In the following year he was selected by his University for appointment as surgeon and geologist to the Government Expedition under Captain John Palliser to explore the Canadian North-West, which occupied from 1857 to 1860. He received his instructions for this expedition from Sir Roderick Murchison, Director-General of the Geological Survey of Great Britain. The scientific work of the expedition was done chiefly by Sir James, who, with only two companions, took long, arduous journeys on snowshoes in order to collect full information about the country. He penetrated as far as the Rocky

Mountains, where he was the discoverer of five mountain passes, in one of which, Kicking Horse Pass, he was severely kicked in the chest by his horse, and had a narrow escape with his life. This incident is commemorated in the name he gave to the pass. In this expedition his particular department was that of geology, the botany and flora being in the hands of Monsieur Bourgeau, who gathered an immense collection of alpine plants, and whose reports were sent to Sir William Hooker. But in all Hector's geological reports there are most interesting and valuable references to the meteorology and the flora and fauna of the districts explored. His versatility and eminent qualifications for pioneering work are acknowledged by the commander of the expedition, Captain John Palliser, who says in his report to Lord Stanley, M.P., Secretary of State for the Colonies, in October 1858:—

“In addition to being an accomplished naturalist, Dr. Hector is the most accurate mapper of original country I have ever seen, and is now an experienced traveller. By long and severe journeys with dogs and snowshoes last winter, and in connection with his hard trip this autumn, he has laid down the whole north branch of the Saskatchewan, and the south branch from where we met it to the glaciers of its source; and there is no department of the expedition in which he is not competent and willing to assist.”

In 1860 he became a non-resident Fellow of the Botanical Society of Edinburgh. He appears to have been attracted to that geologically most interesting land, New Zealand, and in 1863 we find him, in the capacity of geologist to the province of Otago, undertaking an expedition to the then little-known Western Coast of Otago, where he discovered an important low pass through the mountains from the coast at Martin's Bay to Lake Wakatipu. The report of this expedition, published in the “Otago Provincial Government Gazette,” and in abstract in the “Journal of the Royal Geographical Society,” vol. xxxiv. p. 96, at once drew attention to his eminent fitness to be of service in the development of the colony. Like all his reports, this one is interspersed with valuable and thoroughly scientific observations on the flora and fauna of the regions traversed. In 1865 he was appointed by the Government Director of the Geological

Survey of New Zealand, and occupied this position till his retiral in 1903. His many articles were chiefly published in the "Transactions and Proceedings" of the New Zealand Institute. He was Executive Commissioner for New Zealand to the Sydney International Exhibition of 1879, and in that connection published a handbook of New Zealand, of which a fourth edition was issued in 1886. One chapter of this handbook is devoted to the vegetable and animal products of the islands. In 1889 he edited for a Government Commission an important monograph on the New Zealand flax, *Phormium tenax*, as a fibrous plant, in which the plant, its growth, cultivation, fibre, preparation, properties, and statistics, are exhaustively dealt with.

Sir James Hector was held in high esteem by the public of the colony, and occupied the position of Chancellor of the University of New Zealand. He was made a C.M.G. in 1875, and a K.C.M.G. in 1887. He was also a Fellow of the Royal, the Geological, and the Linnean Societies. In 1868 he married Maria, daughter of Sir D. Munro, M.D. Since 1903 he had lived in retirement at Ratanui, Pentone, Wellington, New Zealand, where he died on 6th November 1907, aged 73 years. His son, Charles Munro Hector of Wellington, graduated at the University of Edinburgh, M.D. with honours in 1898, and B.Sc. in Public Health in 1899.

AFFORESTATION IN SCOTLAND.

I have not found it an easy matter to fix on any topic that might appropriately form the subject of a few remarks at the beginning of another session. While looking up some facts in the life-history of Sir Dietrich Brandis I was greatly impressed with the importance and value, from an imperial point of view, of a thoroughly organised and systematic scheme of forest conservancy. It occurred to me that a passing reference to the recent purchase by the Government of the estate of Inverleiver in Argyllshire for purposes of afforestation would be opportune. To the botanist and arboriculturist this is one of the most interesting incidents of the year in Scotland. The necessity for some such step has long been keenly felt, and it has been strenuously advocated by this Society and many other parties for many years.

We shall all, therefore, cordially hail the announcement as the first great step in a national system of afforestation from which results of great value must ultimately be reaped. Immediate results are not to be expected. It is just because work of this nature involves considerable, and probably for a long period unremunerative, expenditure and the financial credit of a State guarantee, that it is essential the experimental work should be undertaken by Government and not by private individuals. The estate extends to some 12,000 acres, but appears to be chiefly unwooded. While it is fitted to be an important object-lesson in many departments of forestry, it nevertheless falls short of what is required in many other respects. It has been pointed out that for adequate forestry demonstration purposes it is essential to have blocks of well-grown timber, and there is nothing of this kind at Inverleiver. The place also is inaccessible from any of the teaching centres. The rainfall of the west coast is normally greatly in excess of the east, and what might suit Inverleiver might be inadvisable in a district with a lower rainfall. While great good would accrue from the systematic afforestation of lands in the Highlands at present yielding probably not more than 3s. per acre, it is pointed out that one great practical problem at the present time is the improvement of existing woods by a scientific system of underplanting. In a valuable letter to the "Scotsman" on 11th November 1907, Lord Balcarres rightly indicates that the treatment and re-stocking of existing woodlands throughout Great Britain, amounting to some 3,000,000 acres, is as great a necessity as the planting of new forests. It appears to be the general opinion of experienced horticulturists that while the recent purchase is all in the right direction it does not go far enough. I observe with satisfaction that the East of Scotland College of Agriculture has taken steps to acquire an easily accessible piece of wooded land on the Penicuik estate. But it seems to me that to meet the case in a satisfactory manner it ought not to be left to an Institution which, though deserving of all commendation for the energy and success with which it seeks to apply scientific methods to the promotion of the basal industry of the country, can hardly be expected to have the resources necessary to provide a demonstration forest on an adequate scale. We must

therefore earnestly hope that the Government will proceed further in the right direction, and that we shall have perhaps a demonstration forest in the South of Scotland where the growth and treatment of hardwoods would receive special attention, and a similar demonstration forest in the Highlands where the growth and treatment of conifers would more fittingly be specialised. Experience in other lands seems to prove that the afforestation of extensive areas in Scotland can be economically carried out. It would incidentally introduce many complementary industries, and might tend largely to solve some of the crying problems associated with rural depopulation and the crowding into cities and towns of the majority of the inhabitants of our land. It has an important bearing also on the pressing problem of coast erosion. What seems desirable is the scientific and systematic application of the advice said to have been given by the old laird to his son: "Be aye stickin' in a tree; it'll be growin' while ye're sleepin'."

IMMUNITY.

Incidentally the projected experimental work at Inverleiver suggests a subject which I had at one time thought of as a suitable topic for an opening address. I refer to the important question of the incidence of disease in plants, and the work that has been done in the direction of selecting individuals that are more or less immune. On the side of what may be called the climatic diseases of plants an important practical question might be the selection of varieties of fruit trees of frost-resisting quality and otherwise adapted to our rigorous Scottish climate. It is perhaps partly the want of such knowledge that accounts for what often seems to me the lesser attention to fruit-growing in Scotland compared to England and other countries. In this connection it is interesting to note the work of Dr. William Saunders, who, by crossing the hardier varieties of the apple with the Siberian crab apple, obtained new varieties specially adapted for the higher latitudes of North America. Inverleiver might profitably give opportunity for the practical application of discriminating hybridisation in the production of new varieties of forest trees and of cultivated fruit trees.

At any rate, such work should be undertaken in any national forest department. But a far more important department of plant pathology is that of diseases caused by vegetable or animal parasites, and there will be many opportunities of studying these in a State forest. Any man who could furnish a reliable means of producing a larch tree that would be immune to larch canker would be a national benefactor. In the classic researches of Marshall Ward it was shown that in fungoid diseases of plants the infection or power of resisting infection depends on whether the enzymes and toxins of the attacking fungus were powerful enough to overcome the anti-toxins and other resistant bodies in the plant attacked. By injury or exposure to certain vapours the vitality of otherwise resistant plants may be so reduced as to give the victory to the disease fungus. The growing of great colonies of one plant in crowded areas opens the way to many of the bacterial diseases of which we have the parallel in such diseases of civilisation in man as tuberculosis or cholera. The great problem of plant hygiene, therefore, is to discover those cultural and other conditions which secure races of disease-resisting or immune individuals. To do this and at the same time to secure good cropping varieties, is not always easy. For example, *Vitis riparia* and *Vitis rupestris*, though both resistant to the vine disease, phylloxera, yield very poor grapes. But by crossing *Vitis vinifera*, Millardet with them Mr. Lewton Brain mentions that hybrids have been obtained which resist both phylloxera and mildew. By somewhat similar methods several workers have produced disease-resisting strains of wheat. Of course, when a crop of any kind is attacked, recourse may legitimately be had to any feasible plan for checking the evil. But in this connection I am satisfied that there is far too great a tendency to resort to the indiscriminate use of poisonous insecticides and parasiticides. The use of these powerful substances is always attended with danger, and has, in a large number of cases, led to very disastrous consequences. I am inclined to think their use is unscientific. Instead of a wholesale massacre of the enemy after he has entered the city, it would be more scientific to devise some adequate means for his exclusion, or to surround him with those elements which would render

his presence innocuous. There is undoubtedly a great and fruitful field for research on such lines in the department of plant hygiene just as there is in animal hygiene.

BOTANICAL EDUCATION.

While looking up the record of some deceased Fellows, I was impressed with the fact that many of the great botanists of the past were members of the medical profession. One cannot but regret that less attention is paid to systematic botany by the medical student of to-day, for many of them receive appointments in foreign lands or distant parts of the empire, and their botanical training fits them to become pioneers of empire and benefactors of science. There is some compensation for this loss in the fact that the value of economic botany and applied science to commercial industries is now more generally recognised, and thus there is no fear of any real diminution in botanical education.

NATURE-KNOWLEDGE.

Educationists, too, are realising that there has been too much of the mere text-book and the class-room in our system of education in public schools. We must bring the young mind into practical contact with the world of facts in which he lives and moves and has his being. Hence the modern development of nature-teaching. If this is to be properly done it involves a curriculum in biological science for school teachers, and movements are already being made in this direction. There can be little doubt, too, that a taste for botanical studies will be created in the minds of many scholars, and all that must tend to the advantage of botanical science and an increase in the number devoting themselves to its pursuit.

RURAL DEPOPULATION AND THE HOUSING OF THE POOR.

One of the greatest and most pressing problems of to-day in Scotland is the depopulation of our rural districts and the massing of the great majority of the people into a few densely crowded areas. The pressure of this problem has given rise

to many schemes of social amelioration. One of the most interesting of these to a botanist is that spoken of as the dream of Mr. Ebenezer Howard.

THE GARDEN CITY.

This modern Utopia, announced only a few years ago, has now taken definite shape as a promising and so far successful object-lesson at the Letchworth estate, near Hitchin, in Hertfordshire. The matter has attracted some attention in Scotland from a proposal to found a second Garden City in connection with the projected Naval Base at Rosyth on the Forth. The object of that movement, which has particular interest for us, is the final clause in the manifesto, namely:—

- (e) Promoting the erection of sanitary and beautiful dwellings with *adequate space for gardens* and recreation.

Speaking of the problem designed to be solved by the Garden City movement, Earl Grey says:—"What, then, is the evil? It is admitted on all hands that most of the larger cities of England, owing to their ill-regulated and anarchic growth, have become the very cancers of our body politic, and that they are sapping the strength and poisoning the character of the nation. No one who realises that physique and character are the products of environment as well as heredity can fail to regard the suburban excrescences of our smoke-enveloped and air-exhausted towns with feelings short of positive consternation. Streets upon streets of sunless slums with nothing to relieve their squalid and depressing monotony—little provision for recreation beyond that which is supplied by low music-halls and still lower public-houses; boys turned out of school at fourteen years of age, and no organised influence to mould them into honest citizenship at the age at which their characters are most impressionable. These are the evils with which we have to contend, and unless some effective steps are taken to counteract their influence on the character, temperament, and physique of our people, the manhood of our nation must deteriorate, and we shall not be able to retain our present leading position in the world."

Referring to the experience of Mr. Cadbury of Bourneville,

he said :—" A worker in the town when he leaves his factory has no place to go to for amusement except the public-house and the music-hall, and his leisure hours are consequently a drain upon his physique and his purse. At Bourneville the artisan finds in his garden that recreation which in the towns he can only obtain in the public-house and the music-hall, with the result that his leisure hours, employed as they are in the cultivation of his garden, add both to his health and the well-being of his family."

Mr. George Cadbury said :—" It is often said that men brought up in towns will not take to a garden. The village of Bourneville is kept entirely independent of the large works adjoining, so that we might try the effects of village life on men who had lived in a town ; and it has been truly marvellous to see how men who have been all their lives, perhaps till they were forty or fifty, in a town, take at once kindly to a garden. They seem to enjoy it much more than the country man who has spent all his life in the country. It has been most delightful to see children who have lived all their lives in the great dirty city of Birmingham for the first time see the marvels of Nature : the seed sown in the earth, then—first the blade, and then the ear, and then the full corn in the ear. It is like a miracle to them, and many townsmen make the very best gardeners. I should like you to walk through the streets of Bourneville to-day and see the gardens. Thousands of people come out from Birmingham to see them, and they are kept in many cases by men who have had no education whatever in country life, but nineteen out of twenty of them take to gardening as a duck takes to water. This shows that it is natural for a man to come in contact with the soil."

Mr. W. H. Lever of Port Sunlight fame said :—" He bore testimony, from his experience at Port Sunlight, as Mr. Cadbury had done in respect of Bourneville, to the delight the workpeople took in their gardens. On a late Bank Holiday it was most encouraging to see the bargemen, who were regarded in most places as a rough lot, at work in their gardens with their children round them ; as long as they had their gardens to attend to they did not find it necessary to seek amusement away from home."

This scheme opens up a new vista of hope to our teeming

millions in great centres of industry, and all lovers of Nature will wish it God-speed.

WHAT ABOUT EDINBURGH?

But what about our ancient cities and towns which cannot be easily adapted to these changed conditions? I will avoid all controversial matter, but one of the admitted difficulties, for example, in the idea of small holdings is that so many town dwellers have lost all taste for country life and ways, and are blind to the beauties of Nature around them. Again, does it not seem mockery to interest a child in plants and flowers who is condemned to live in a house with no garden, and cut off from all opportunity of gratifying the awakened nature-knowledge faculty? I will make bold here to mention a scheme which has been in my mind for many years. We have in Edinburgh itself at this moment two examples of a plan not unlike what I venture to propose.

About 1855 that very remarkable citizen, Mr. John Hope, W.S., conceived the idea of providing small garden plots for respectable working men. He set apart a piece of ground extending to about three acres at the back of Hope Crescent, and stretching from there along to M'Donald Road. This he had laid out in small gardens about 80 or 100 feet square, and separated by hedges. For this work he employed an experienced landscape gardener, Mr. William Gordon, 15 Elm Row, who was retained as superintendent. These he called "The Patriotic Gardens," and they are still in existence. Each tenant pays a rent of from 14s. to £1, 10s. per annum, and holds the tenancy on a fourteen days' notice tenure. One of the conditions is that no alcoholic or excisable liquors are to be brought within the subjects, nor is anyone under the influence thereof to be allowed to enter or remain within the premises. The occupant must cultivate the garden by spade or fork, and the produce is to be for the use of himself and family, and never for sale at a profit. I had the privilege of seeing the gardens two days ago in company with an occupant who is an ironmonger. Born and brought up in Edinburgh, he was totally ignorant of horticulture till he took this garden five years ago. Already he gives evidence of high cultural skill. He has more than

forty varieties of chrysanthemum in cultivation, all of which are renewed by cuttings every year. He grows more vegetables of all kinds than he can make use of. In a small greenhouse 12 feet by 7 feet he raised this summer more than 1 cwt. of tomatoes. In another house belonging to a retired working blacksmith I saw some large beautifully-grown chrysanthemums in pots, ready for removal to the Chrysanthemum Show in the Waverley Market. He is a constant prize-taker. Among other owners of gardens I found a retired seaman, a policeman, several postmen, a caretaker, a saddler, a designer, a clothier, a printer, a compositor who has acquired a scientific knowledge of the plants he cultivates, and is a centre of useful information for his neighbours. In one garden, occupied by a collector of taxes, I found a large vinery in which grapes and peaches are grown.

On an adjacent piece of ground there is another series of about twenty similar gardens which were originated about thirty years ago by the late William Young, who was for forty years secretary to the Scottish Horticultural Association. Mr. Young was a shoemaker to trade, but was passionately fond of horticulture, and proved that the maxim "*Ne sutor ultra crepidam*" is not of universal application. He rented from Messrs. T. Methven & Son a piece of ground behind East London Street, at the east end of Bellevue Park, and laid out a portion of it as small gardens for working men at a rental of £1 each per annum. The area covers about one and a half acres. It is practically a duplicate of the Patriotic Gardens, but not quite so carefully laid out, and the gardens are unhedged. I am informed that there is a keen demand for these garden plots, and more applicants than can be supplied. I cannot detail the many advantages and benefits I was told they secured to the fortunate occupants, whose keen enjoyment of practical gardening was revealed in their smiling faces as I was shown round and introduced to their pet cultures.

It was with genuine regret I learned that the possible purchase of Bellevue Park by the town may result in the disappearance of the East London Street Gardens—surely a very doubtful city improvement. After the death of Mr. Young the gardens were taken over by the Heriot Trust,

who seem so far from understanding the spirit of George Heriot, that they are more inclined to create new bursaries by erecting incipient slums than to promote the cause of a Garden City. Whatever happens, let us not reduce but rather expand the area of working-men's garden grounds.

We cannot have all these within the city bounds, but in these days of cheap and easy transit, why should it not be possible to have land sufficiently near the city, say in the direction of Davidson's Mains or Cramond, where every city dweller who has no garden in the town might, if he so wished, have a small plot of land for himself and his family to cultivate? I am persuaded that the idea is practicable, and the results, I feel assured, would bring a vast amelioration of those elements of city life which are the despair of every thoughtful citizen. In the words of Arthur Bennett:—

“I can see the people crowding from the alleys,
And from reeking court and slum,
To the freshness and the verdure of these valleys—
They are singing as they come ;

And the nightmare of the old life closes,
And the sickness and the heartache melt away,
As they toil with willing hands amid the roses,
Where the rainbow fountains play.”