trated solution exists.

The kind of crop grown is also a factor to be considered, as plants not only vary in their tolerance to any given salt, but the order of their tolerance is often different for different salts or for different combinations of salts. Thus, under one set of conditions of soil and salts present, wheat may prove more tolerant than barley, while under another set (which is more usual) barley is more tolerant than wheat.

It is thus seen that the kinds of salts present, their relative proportions, the phenomenon of antagonism of ions, the class of soil and its moisture content, type of plant grown, and its age, the distribution of the salt in the soil, &c., all tend to make the problem very complex. In spite of this, Loughridge, an early Californian investigator, prepared tables showing the tolerance of different plants to various salts when present in the soil.

Generally speaking, citrus trees are among the most susceptible to alkali injury, lemons being more susceptible than oranges. Grape vines generally prove more tolerant than stone fruits, while plants of the Chenopodiacae family are among the most tolerant. This family includes such well-known members as the salts bushes (Atriplex spp.) fat hen (Chenopodium album), beets (Beta), including sugar beet, silver beet, and mangels, &c., Roly poly (Bassia quinquicuspis) and samphire (Salicornia). Some of these plants are useful as being those that may be grown commercially in soil too salt for other crops (in this connection it is recalled that in Europe salt is often used as a fertiliser for mangels), while others, though of no economic importance, are useful as being "salt indicators" when present in the native flora, plants of this family often occurring to the exclusion of all others on salt lands. Mature lucern is also very tolerant, but in the seedling stage is verey susceptible to salt injury. Date palms sometimes prove extraordinarily resistant, but are of little concern to us.

Origin of Saline Soils.

Saline soils owe their origin to various causes:—

(1) Former geological formations, such as the drying up of inland seas or arms of the ocean at some previous geological period. As an example of this may be cited the salt lands of Utah, U.S.A., the salt in this case having been derived from the drying up of the huge Lake Bonneville, which existed in past geological times, and of which the Great Salt Lake is a remnant. The salt in this region is, therefore, mainly sodium chloride, of which a large amount may be present in the virgin soil.

In parts of Wyoming and Colorado the shale from which the soil has been derived contains pyrites (sulphide of iron), and during the processes of soil formation by the weathering of this rock the pyrites are converted into sodium sulphate. For this reason the salt in this region, as mentioned before, is mainly sodium sulphate.

(2) Irrigation Water.—If the irrigation water that is used has a high saline content the salt may accumulate in the soil after repeated irrigations to such an extent as to become harmful, although the amount of salt in the water may not be sufficient to be immediately harmful. It is difficult to arrive at a figure showing the danger limit of salinity in irrigation water. Hilgard, a pioneer in this work, set the limit at about 50 grains to the gallon, while other authorities consider up to 100 to 200 grains per gallon may be present with safety, but it must always be borne in mind that if sodium carbonate is present in the water much less quantities of total salts will prove harmful.

Rivers in arid countries usually are more saline than those of humid countries. For example, Australian rivers generally contain more dissolved matter than those of Europe. The composition of the water varies with the season; in flood time rivers carry very little dissolved material, although they carry much more solid material in suspension in the form of sand and silt. Generally speaking, rivers arising from mountains, especially if fed by snow, are very pure. Fortunately, the Burrinjuck dam ensures a good supply of fresh water at all times to the Murrumbidgee irrigation area.

(3) Concentration of Salts already present.—This is the chief cause of salt trouble. During the processes of soil formation from rocks, soluble salts are formed which are valuable as mineral plant-foods. The greater part of this salt is washed out of the soil and carried by rivers to the ocean, where it has been accumulating since the world began, which accounts for the salinity of the sea. In wet localities there is a greater tendency for the salts to be leached from the soils than in arid regions, where a relatively high percentage of salt is consequently usually present in the soil. This accounts, to a great extent, for the proverbial fertility of arid soils in contrast to humid soils, where the deficiency of salts has usually to be made up by the application of artificial fertilisers.

The relatively high percentage of salt normally found in arid soils is quite harmless; in fact, it is beneficial so long as it remains evenly distributed throughout the soil. When large quantities of irrigation water are applied, however, there is a tendency for the salt to accumulate in specific layers. Under the conditions water rapidly evaporates from the surface of the soil owing to the high evaporation of the locality, and fresh water rises by capillarity from below, bringing with it the dissolved salts and depositing them near the surface where evaporation is going on. This salt, however, may be washed down into the lower layers when water is again applied to the soil. We thus find two opposing factors at work. The percolating irrigation water washes the salt down, while the capillary rise to the surface brings it up. The latter effect, however, is the more marked, as percolating water goes down through the larger spaces of the soil, such as worm burrows, cracks, &c., and dissolves very little salt in its passage, but the water rising by capillarity does so through the finer interstices of the soil, dissolving the salt and bringing it to the surface. The result of these interactions is the accumulation of salts near the surface, and any treatment which will decrease the evaporation from the surface soil (such as the creation of a surface mulch or the shading of the soil by the growth of lucerne) will counteract this.

It is well to note that the accumulation of salt takes place where the greatest evaporation is going on, and this is usually near the surface, but is not necessarily always at the surface, because the soil water may evaporate into the soil atmosphere below the surface. In fact, the exact position of the zone of greatest salt accumulation is the resultant of the two opposing tendencies of the percolating water and capillary rise, which wash down and bring up the salt respectively.

The concentration of salt may be considerably increased in a similar manner in any particular position of the soil where lateral seepage from ditches takes place, when salt will accumuate where the water is continually evaporating from the surface of the soil, even if the water in the ditch is not at all saline. In this case the salt naturally present in the soil through which the water percolates becomes concentrated where the water evaporates.

ADV. 29.11.26

STUDENTS' CHRISTIAN MOVEMENT.

The beautiful grounds of Mrs. C. R. Morris, at Victoria-avenue, Unley Park, presented a gay appearance on Saturday afternoon, when a garden fete in aid of the Sturt Christian Movement Foreign Funds was held. Professor Rennie, who opened the fete, referred to the inauguration of the movement in this State, which was the result of a visit of Dr. John Mott, the chairman of the World Student Federation. He said he had taken an interest in the work in Adelaide ever since its inception, and he wished success to the day's fete. (Applause.) Professor Rennie is a past-president of the Christian Student Movement. The present president is Professor McKellar Stewart. Dr. Mott visited Adelaide in April last, and his addresses did much to stimulate interest in the organisation. A tennis tournament, arranged by Misses K. Miell, M. Johnston, and P. Mann created much interest, the successful competitors being Misses F. Ehmcke and M. Fisher. A good deal of amusement was occasioned by an ugly students' competition arranged by Miss E. Deland and Mr. L. Dawkins. The winner was Mr. C. Bartholomaeus.

The stallholders were:—Work—Misses K. Mellor, G. Young, J. Goldse; cake, Misses B. Hamilton, M. Sarrell, E. Mesient; produce, Misses D. Hassell, W. Rutt, G. Davidson, Edith and Elma Sasely, and N. Jenkin; cool drinks, Misses P. Mann, I. Rogers, G. Fraser, E. Dickinson, and B. Jones; strawberries and cream, Miss A. Dickenson; cool drinks, Messrs. L. Allen, C. Bartholomaeus, H. McIntosh, and Misses Burton and M. Jenkins. The gatekeepers were Messrs. J. Loughhead and L. Dixon.

ADV. 29.11.26

At the meeting of the council of the University on Friday the members took occasion to bid good-bye to Professor Naylor, who leaves for Europe on December 9. The Vice-Chancellor expressed the thanks of the council to the professor for carrying out in so admirable a manner its desire that professors and lecturers should be of service to the community outside the University as well as within. Professor Chapman expressed the regret of all his colleagues at losing an intimate friend, and Mr. McCoy spoke for the large number of his teachers who had been inspired by the example as well as the teaching of Professor Naylor when they were students.

ADV. 29.11.26

UNIVERSITY SCHOLARSHIPS.

The council of the University at its meeting on Friday adopted the examiners' reports recommending the award of the following prizes.—Elder scholarship for singing, Ruth Winnifred Naylor (the examiners specially commended Margarey Cecilia Walsh); Elder scholarship for violin, Katy Yoerger; Eugene Alderman scholarship, Arthur Roger Willson (the examiners specially commended Harry Wellington Hutchins and Betty Froome Puddy); Robert Whinham prize for elocution, Victor Allen Edgeloe and Merle Nona Jenkins (equal).

REG. 29:11:26

A DEPARTING PROFESSOR.

The State generally, little less than the University and the students who have come directly and constantly under his influence, has benefited from the labours and the personal character and example of Professor Henry Darnley Naylor, and widespread regret is felt at his impending removal from our midst. In the realms of higher education, philanthropy, religion, and politics (using the word in its best sense) the Professor has performed able and wholehearted service for the community. His intellectual endowments are happily attended by an urbane disposition, pleasant manners, and a keen sense of humour, the whole inspired by love of humanity, and a warm appreciation of all things beautiful and of good report. The Professor's devotion to classical studies, particularly Greek literature, would seem to have stimulated his interest in modern democracies and their occasional efforts to cast off the unfruitful works of darkness and to hasten the coming of a brighter age for the world. He has never hidden his clear light under a bushel, but has freely and heartily sought to serve his day and generation by disseminating noble and uplifting thoughts, and pointing to ideals worthy of the best endeavours. A native of Scarborough, England, the future Professor, after a promising career as a schoolboy, won a first-class classical tripos and the Walker Prize in classics at Trinity College, Cambridge. He was appointed lecturer and tutor at Ormonde College, University of Melbourne, in 1895, and Vice-Master of Ormonde in 1903; and he has held the appointment of Professor of Classics at the University of Adelaide since February, 1907. He is highly esteemed and beloved by his fellow-workers in the domain of higher education, and he has achieved enviable distinction by original work in classical literature, which includes valued contributions to *The Classical Review* and *The Classical Quarterly*.

The Education Department and the State school teachers, and the members of the Workers' Educational Association have found him a most competent friend and counsellor, and his stirring and graceful oratory in behalf of religious and charitable agencies, and many commendable public movements, has had far-reaching and beneficent effects on the mind of the public. In combination with Mrs. Naylor—who will be greatly missed from women's welfare activities—the Professor has directed his splendid powers enthusiastically for several years to the building up of the League of Nations Union in South Australia; and no one else has done quite so much towards promoting an intelligent conception of the aims and possibilities of the League, along with a deep sense of the responsibilities attaching to Australian citizens in respect of the Commonwealth's duties towards both the League and the Empire. Professor, Mrs., and Miss Naylor may be assured of the abiding gratitude and goodwill of hosts of South Australians in the spheres which they will hereafter occupy in the Mother Country. One reason for consolation in parting with them is the confidence we have that they will continue to exercise in a much more extended field the wise and telling influences for good which will cause them to be long remembered in Australia.

REG. 29:11:26

SINGING SCHOLARSHIP.

Won by Miss R. W. Naylor.

At a meeting of the Council of the University on Friday the award of the Elder Scholarship for singing to Miss Ruth Winnifred Naylor was approved.

Miss Naylor is an extremely promising singer. About two years ago she won a scholarship, tenable for 12 months, founded by the community singing committee. It was awarded by Dr. Whitaker, an examiner of the Associated Board of Music, who had been invited by the committee to adjudicate, and who preferred the performance of Miss Naylor to that of Miss Charlotte Grivell, who was also a candidate for the scholarship. Miss Naylor had had no training for singing at that time, though she was a brilliant pianist and a musical girl of great talent. After gaining the Community Singing Scholarship she studied with Miss Hilda Gill, and then, for the first time, began to take singing seriously.

The Elder Scholarships are tenable at the Elder Conservatorium, and entitle the holders to tuition for three years, subject to the right of the University Council to extend the term. The holders are to study for the diploma of associate in music, and must pass the prescribed examinations during each year of study, under penalty of forfeiting the scholarship in the event of failure.

REG. 29.11.26

UNIVERSITY PRIZES.

The Council of the University at its meeting on Friday adopted the examiners' reports recommending the award of the following prizes:—Elder Scholarship for Singing—Ruth Winnifred Naylor (the examiners specially commended Margery Cecilia Walsh); Elder Scholarship for Violin—Katy Yoerger; Eugene Alderman Scholarship—Arthur Roger Willson (the examiners specially commended Harry Wellington Hutchins and Betty Froome Puddy); Robert Whinam Prize for Elocution—Victor Allen Edgeloe and Merle Nonah Jenkins (equal). The Eugene Alderman Scholarship has been won by a boy of 13 (Arthur Roger Willson), who is a resident of Port Pirie. He has studied with Mr. Caulfield Barton in that town, and is regarded as having an extraordinary talent for violin playing. His exceptional gift has been well developed by Mr. Barton.

REG. 29.11.26

At the monthly meeting of the council of the University on Friday the members took occasion to big good-bye to Professor Naylor, who will leave for Europe on December 9. The Vice-Chancellor expressed the thanks of the council to Professor Naylor for having carried out in so eminent a manner its desire that professors and lecturers should be of service to the community outside the University as well as within. Professor Chapman expressed the regret of all his colleagues at losing an intimate friend, and Mr. McCoy spoke for the large number of his teachers who had been inspired by the example as well as the teaching of Professor Naylor when they were students.

REG. 29.11.26

The several faculties and boards of the University have reported to the council that the following have been appointed Deans or Chairmen for 1927:—Faculty of Arts, Professor W. K. Hancock; Science, Professor T. G. B. Osborn; Medicine, Dr. W. Ray; Dentistry, Sir Joseph Verco; Board of Commercial Studies, Mr. S. Russell Booth; Library Committee, Professor Wilton; Joint Committee for Tutorial Classes, Professor J. McKellar Stewart.

REG. 29.11.26

The Board of Examiners of the Adelaide University has reported favourably to the Council of the University upon the thesis presented by Mr. L. K. Ward, B.A., B.E., for the Doctor of Science degree. The subject of the thesis was "The Geology of Central Australia." The board has also reported favourably on the work presented by Mr. T. A. LeMessurier for the degree of M.Sc. The degrees will be conferred at the annual commemoration in December next.