SUNDAY SCHOOLS PLEDGE CHRISTMAS AID TO THE NEAR EAST

Time Found in Midst of Festival Activities to Hear Lectures on Needs—Dr. R. M. Pratt Opens Series of Public Forum Addresses.

IN THE midst of greeting their guests, about half of the Sunday schools of Portland found time on June 20 to hear the latest news from Armenia, presented in ten-minute talks by some of the ablest speakers of the city. As a result they have been busy even during carnival week sending in pledges for a large Christmas offering. Near-east relief, with headquarters at 606 Stock Exchange building, will advance for immediate use all funds pledged now to be paid at the Christmas season. This will get supplies to the homeless children in time for the cold weather.

The First Christian Sunday school has already sent in a pledge to save 12 lives. Last year they made the same pledge and almost doubled it, assuring life with all its necessities to 21 children. One young woman teacher of a class of girls will give $50 to this offering, which her girls will probably more than duplicate. Other pledges to open the campaign are: Rose City Presbyterian, $375, the superintendent to be responsible for one life himself; First Congregational will duplicate last year's offering of over $500; Rockwood Methodist pledges almost $3 per member and many other equally good reports were made.

A large number of schools will listen to the talks on Armenia today.

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Dr. Robert Murray Pratt last Wednesday opened in the Y. M. C. A. auditorium a series of public forum addresses which are a popular presentation of the philosophy of modern manhood in the light of psychology, scientific research and common experience. Mr. Pratt is instructor in psychology and dean of the faculty of the Portland training school for church workers.

"The Religion of Sensible Men" is the subject of the series, with the following individual subjects:

Wednesday, April 28, "The Spice of Life"; Wednesday, May 5, "The Matters of Profit and Loss"; Wednesday, May 12, "The Moral Center of the Universe"; Wednesday, May 19, "The Principle of Universal Relationship."

Gault Patton, baritone, and Henry J. Dirkson, bass, are the soloists.

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Dr. William A. Waldo, Ph. D., whose resignation as pastor of the White Temple recently was accepted, has received a call from the First Baptist church of Corvallis, Or. He has also been consulted as to a special lectureship in the Oregon Agricultural college, located within a block of the church. The student body of this great institution, numbering from 3500 to 4000, makes a powerful appeal to Dr. Waldo, the more especially that Dr. Waldo has two sons now ready for college, which, with the many opportunities offered for service by that institution, greatly enhances this call, so that taken all together the doctor has announced his entire satisfaction with the call and has accepted it.

The Corvallis church has a strong appeal of its own, owing to strategic position beside one of the greatest educational institutions of the state and the fact that it is equipped with the best-working Baptist plant in Oregon outside of one or two of the Portland churches. The church has established groups of members in the entire west. It was the first Baptist church in the state to go over the top in the recent new-world movement, raising an allotment of $20,000 for that movement and another $20,000 for the enlargement of equipment. The present building is very unique and commodious in its appointments, just erected two years ago, and having now a seating capacity of approximately 1200, which will be greatly increased by the added improvements.

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With a special address on the theme, "My Confession of Faith," Robert Murray Pratt will close his ministry as pastor of Pilgrim Congregational church this morning. During the two years of his pastorate he has been closely identified with a number of inter-denominational movements in addition to the work of his own community. As chairman of the congregational conference education committee he has done much to obtain larger recognition for Pacific university.

From the beginning of his work in Oregon he has held the chairmanship of the education committee of the Oregon Sunday School association. With the organization of the Portland Federation of Churches, he was appointed to a place in the education department, serving as acting chairman during the retirement of Professor Ewing. Much of the success of the Portland training school for church school workers has been due to his efforts. He served as instructor in psychology and dean of the faculty.

He is undecided as to the future, a number of attractive offers being considered.

Former Pastor to Occupy Presbyterian Pulpit.

Rev. Robert H. Milligan to Preach Farewell Sermon This Morning in Rose City Park Church.

THE First Presbyterian church will have in its pulpit next Sunday at both services its former pastor, Rev. John H. Boyd, D. D., now professor of homiletics in the McCormick Theological seminary in Chicago. There will be special music both morning and evening. In the morning Mrs. Blanche Williams Segersten will sing a soprano solo, "He Shall Give His Angels Charge," by Scott. In the evening Edgar E. Coursen will give an organ recital from 7:30 to 7:45 and Mrs. Virginia Spencer Hutchinson will sing a contralto solo, "Ave Maria," by Mascagni.

At 12:15 P. M. the Sunday school will meet in the auditorium for a lecture, illustrated by lantern slides, on "The Gospel According to St. Luke." The pictures will be of famous Madonnas and other pictures, showing the childhood and youth of Jesus.

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During the month of July Westminster Presbyterian church will only hold a morning service. During August, due to repairs being made in the auditoriums, the Bible school will meet during the church hour.

On the coming Thursday at the mid-week service A. F. Bittner, the educational director, will give a report on the actions of the general assembly of the Presbyterian church in Philadelphia and on the church federation convention in Cleveland. The Interchurch World movement will be discussed.

Dr. Pence has two special sermons for Sunday, "When a Lie Would Choke" and "Small Sparks—Great Fire."

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Walter Henry Nugent, pastor of Central Presbyterian church, East Thirteenth and Pine, will preach Sunday morning from the topic, "Eyes Opened, Vision Forfaited," and in the evening at 8 o'clock "A Disappointed Man." The chorus under the direction of Mr. Belcher will sing in the morning "The Lord Reigneth," by Trowbridge; Robert Louis Barron will play as a violin solo "Romance," by Svendsen. In the evening Miss Edith Cornilison will sing a solo and the chorus will sing "I Am Alpha and Omega," by Stainer.

During the summer months the Sunday school will have Moving pictures, the films being very choice and will prove interesting to all. The Sunday school meets at 9:45.

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Dr. Robert H. Milligan preaches his farewell sermon in Rose City Park Presbyterian church this morning on "Unrealized Ideals." The text will be the words of David: "As for me, it was in my heart to build a house unto the name of Jehovah, my God." In the evening Rev. Floyd Dorris will preach at 8 o'clock.

Last Sunday morning 13 persons were received into the membership of the church. In the 2½ years since Dr. Milligan came to Rose City Park church the membership has increased from 425 to 600. The budget for the local work of the church has increased from $3000 to $7000. The annual contributions to the various mission boards has increased from $825 to $3000, and $1500 has been added to the pastor's salary. On Tuesday Dr. Milligan will leave for New York.

At the Fourth Presbyterian church, First and Gibbs streets, the Bible school is at 10, morning worship at 11, with communion service and reception of members. At 7:30 P. M., "Finding Life's Treasure." Rev. Monroe G. Everett will preach.

Modern New Church Is Planned at Early Date.

Rev. J. F. Ghormley Will Take for His Subject "Lessons From Portland's Greatest Week of Festival Joys."

LARGE audiences, helpful sermons, good music and numerous additions to the membership have characterized the services of late at the First Christian church, corner of Park and Columbia. Under the leadership of the Rev. Harold H. Griffis the congregation has made steady growth and expects soon to begin actual operations in the erection of a modern plant for religious work and worship.

Tuesday evening the New Church building committee, of which A. H. Averill is chairman, will meet in the church lecture room to make final decision in the matter of selecting plans and specifications for the new building.

This morning at 11 o'clock the Rev. Griffis will discuss the three natural epochs in the normal Christian life, having for his specific theme and historical setting, the dramatic incident of "Paul Before Nero." The Sunday evening service at 7:45 will include a full programme of music by the church quartet and another message by the pastor in anticipation of our nation's birthday on "Lessons From American History." At the mid-week meeting on Thursday evening W. L. McFarling will conduct the special devotions under the caption: "Our Nation Great Through Service."

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In Kern Park Christian church, Forty-sixth avenue and Sixty-ninth street, at 11 A. M., Dr. J. F. Ghormley will speak, taking for his theme: "Lessons From Portland's Greatest Week of Festive Joys." At 8 P. M. he will give another illustrated lecture on missionaries and their fields.

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Rev. D. A. Thompson, pastor of the Mizpah Presbyterian church, corner of East 19th and Division streets, will preach at 11 A. M. on the theme "Creation, Old and New," and at 7:45 P. M. on "Things of Heaven in Terms of Earth."

Seattle Congregational Official Preaches Today.

Rev. Ernest H. Tippett, Executive Secretary of Church Federation, to Occupy First Church Pulpit.

REV. ERNEST H. TIPPETT formerly of the Congregational church of Cleveland, O., and now executive secretary of the Church Federation of Seattle, will occupy the pulpit at the First Congregational church at both morning and evening services. Rev. Mr. Tippett, shortly after returning from Y. M. C. A. service in France, was called to take charge of the work of the Seattle Federation of Churches as executive secretary. He was recently appointed state secretary of the interchurch world movement for Washington.

Before going into war work he served a pastorate at the Hough Avenue church, one of the largest Congregational churches in Cleveland. He led the fight against commercialized vice in that city.

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Rev. J. T. Abbett of the Portland church federation will explain in detail the plan of the church-survey at the Thursday evening meeting. This city-wide religious census is to be started September 13.

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The pastor, Rev. Elbert E. Flint, of the Atkinson Memorial Congregational church will preach this morning on "The Science of Religion." This evening will be another sermon in the series on "The Great Events in the Bible in World Building." The sermon topic for this evening will be "Can God Save the World?" Accompanying these sermons will be trips to the national parks of the United States with moving pictures.

The Sunday school continues in interest and numbers so that the regular class work is yet uninterrupted.

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Communion of the Lord's Supper will be observed at the Highland Congregational church this morning, preceded by a sermon by the pastor, Rev. Edward Constant, on "A Unique Fellowship." The brief evening meeting will open with a song service, to be followed by an address on "Honoring God With Our Work."

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Dr. J. J. Staub of the Sunnyside Congregational church will speak Sunday morning on the subject "The Christian Base of Supplies." His hopic for the evening service will be "A Man Who Walked with God."

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A sermon of the season will be given at 11 A. M. by Rev. Oliver Perry Avery, pastor of the Waverly Heights Congregational church, corner East Thirty-third street and Woodward avenue, on the subject "The Power of the Unseen." The evening topic will be "Birds of Passage." Morning and evening preaching, Sunday school and prayer meeting will continue all through July at the regular hours.

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The Sunday school of the Clay Street Evangelical church, Tenth and Clay streets, west side, will begin at 9:30 and will be in charge of the superintendent, E. J. Keller.

The preaching service will commence at 10:45 and the pastor will speak on "The Paths of the Riches, Both of the Wisdom and Knowledge of God."

At 7 the Young People's alliance will meet and at 8 the pastor's theme of the evening discourse will be "The Son of God Superior to Moses."

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At the morning service of the St. Johns Evangelical Lutheran church, corner Peninsular and Kilpatrick streets, Edward Butenschoen, student of theology at the Lutheran seminary at St. Paul, Minn., will deliver the sermon.

For 8 o'clock in the evening a reunion service for those confirmed in St. John's church has been arranged. Special invitations have been mailed out and a roll call in connection with the service is to tell who has responded to this invitation. The address of consecration will be delivered by the pastor, Rev. L. Ludwig.

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At St. Paul's Lutheran church, East Twelfth and Clinton streets, Rev. A. Krause, pastor, the annual mission festival is being held. Services begin at 10:30 A. M. and 2 P. M. Rev. L. Ludwig, pastor of St. John's Lutheran church, of our city, will speak in the morning on "Home and Foreign Missions," and at 2 P. M. theological students Butenschors and the pastor will be the speakers. During noon hours visitors are invited to free lunch in the basement. No service in the evening. Sunday school meets at 9:30 A. M. and the choir rehearsal is held Wednesday and Friday at 8 P. M. Summer school daily from 9 to 12 A. M.

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At the Glencoe Baptist church, Forty-fifth and East Main street, Rev. F. C. Laslette, who has just recovered from an attack of malaria fever, will preach this morning and evening.

At 11 o'clock his topic will be "The Book That Is Alive." At 7:45 he will speak on "A Study in Life's Epochs."

At the evening service the male quartet will sing. Strangers are welcome.

Sunday School Specialist to Occupy Pulpit.

Dr. Earl Else of Rose City Park to Speak in Sellwood Methodist Church This Morning.

DR. EARL ELSE of Rose City Park, who is recognized as a specialist in modern Sunday school methods, will occupy the pulpit of the Sellwood Methodist church this morning at 11 o'clock. The pastor, Rev. W. S. Gordon, will speak in the evening on "Simon the Cyrenian, or An Insult Turned Into a Blessing."

Prof. F. C. Streyfeller will sing in the morning and Miss Evelyn Lawrence in the evening.

The Sunday school meets at 9:45 A. M., Junior league at 2:30 P. M. and Epworth league at 7 P. M.

Patriotic services will be held on July 4, both morning and evening.

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At the Woodlawn Methodist church, the pastor, Rev. J. H. Irvine, will discuss "Fun and Folly—Drink Folk," at the morning service. In the evening E. R. Martin, superintendent of the American Sunday school union, will speak on the subject, "Who Is My Neighbor?"

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Rev. Alfred Bates will preach at the Tualatin and Wilsonville Methodist Episcopal churches today. Both services will be of special interest. The pastor will be the soloist at Tualatin at 11 A. M., and Sherman Seely will sing at Wilsonville at 8 P. M.

Wednesday evening the Wilsonville Ladies' Aid will have an ice cream social in the church parlors and a good programme will be given.

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At Grace Baptist church today the pastor, F. W. Starring, will preach. His subject at 11 o'clock this morning will be, "Euroclydon, or the Crisis of a Christian," a tribute to the heroism of the Apostle Paul in shipwreck, and a lesson for believers in time of stress.

At 8 o'clock tonight the pastor will preach on "The Good Shepherd." All are cordially invited to attend. Visitors take Montavilla car to East Seventy-sixth street, and go three blocks south to East Seventy-sixth and Ash.

The Newberg orchestra with Mrs. R. Heimbach, pianist, will assist in the Tualatin church service this morning at 11 A. M. and Mrs. Frank Brobst will be the accompanist at the Wilsonville church at 8 P. M. The pastor will preach at both services.

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At the Mt. Tabor Methodist Episcopal church the morning subject will be "Cancelled Bonds," and the evening subject "Henceforth."

Farewell Sermon Will Be Preached by Dr. Waldo.

White Temple Minister to Take Three Months' Rest, and in Fall Will Assume Pastorate in Corvallis.

DR. WILLIAM A. WALDO, pastor of the White Temple, says farewell today to his church and congregation. Dr. Waldo's presence in the last few years in the White Temple has not only been felt by his own congregation, but by the city in general. While he gives his closing messages today, his pastorate is not concluded until September 30.

The White Temple has given him a vacation, with salary, for three months, July, August and September, in which time he will try to have a complete rest and be ready for his new work at Corvallis, beginning October 1. In the morning his subject will be "The Minister's Valedictory," and he will deliver his farewell address in the evening. His subject will be "Love's Benediction."

The Temple quartet will render special and appropriate music. Ample time will be given at the close of each service for friends to bid Dr. Waldo farewell.

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This morning in the East Side Baptist church the associate pastor, Rev. Herbert H. Cash, will preach from the subject, "Mightier Than Dollars," and at night his theme will be "He That Showed Mercy."

The pastor, Dr. W. B. Hinson, is in Buffalo, N. Y., attending the Northern Baptist convention.

The annual picnic of the Sunday school will be held at Columbia park Tuesday, June 29. A special car will be at East Morrison and Twentieth streets at 1:30 P. M. to convey the small children to the park.

The Women's society will meet Thursday at 10 A. M. for regular monthly business and sewing, with a missionary programme at 2 P. M.

The second, in a series of organ recitals which are being given under the auspices of the Pathfinders' club will be rendered Friday evening, July 2, at 8 o'clock.

Almost the entire programme will be furnished by talent within the church. A silver offering will be taken.

Christian Science Churches Announce Services.

Usual Mid-Week Testimonial Meetings Scheduled for Wednesday Evening at 8 o'Clock.

"CHRISTIAN SCIENCE" will be the subject of the lesson sermon in all Christian Science churches in Portland today.

Regular services will be held this morning at 11 o'clock in all the Christian Science churches, and all the churches except Fifth and Seventh will hold evening services at 8 o'clock. Mid-week meetings will be held in all the churches on Wednesday evening at 8 o'clock. At these meetings testimonials of Christian Science healing are given.

Sunday schools convene at all the churches except Third and Fifth at 9:45 for the older classes and 11 for the younger classes. In Third and Fifth churches sessions are at 9:30 and 11.

Free public reading rooms are maintained in the Northwestern Bank building, at Morrison and Broadway, at 266 Burnside street and 148 Killingsworth avenue.

Christian Science churches are located as follows: First church, Nineteenth and Everett streets; Second church, East Sixth and Holladay avenue; Third church, East Twelfth and Salmon streets; Fourth church, Vancouver avenue and Emerson street; Fifth church, Sixty-second street and Forty-second avenue southeast; Sixth church, Pythian building, 388 Yamhill; Seventh church, 403 Smith avenue, St. Johns.

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The First Divine Science church of Portland will hold services at the Wilber rest home, 394 East Forty-eighth street north, at 11 o'clock this morning. Rev. T. M. Minard, pastor, will take for his subject, "All in One and One in All."

St. Stephens' Pro-Cathedral Organist Returns Today.

Carl Denton Recovers From Illness and Will Direct Special Music Both Morning and Evening.

AT ST. STEPHEN'S PRO-CATHEDRAL today Carl Denton, organist and choir master, who has recovered from his illness, will direct the special music at 11 A. M. and 7:45 P. M.

The Young People's society will meet in the parish house when Messrs. Nerrell and Diddlebrandt will show special pictures they have prepared on the stereopticon. Visitors are welcome.

Bishop Walter Taylor Sumner is conducting confirmation this week end at Elk City, Yaquina, Toledo and Newport.

Dean Quainton of Victoria, B. C., lectured before the summer school on "Spiritism."

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At the Church of Our Father (Unitarian), Broadway and Yamhill street, this morning at 11 o'clock, the pastor, William G. Eliot Jr., will preach on the subject "When the Tumult and the Shouting Dies." The choir will sing the anthem, "Peace and Light" (Chadwick), and the offertory solo will be sung by the choir's newly elected soprano, Mrs. Herman J. Hucke. The church school and evening services are intermitted.

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Services will be held as follows in the four United Brethren churches of the city next Sunday:

First church, Fifteenth and East Morrison streets, Dr. Byron J. Clark, pastor, morning, "The Oasis of Life's Desert"; evening, "Divine Healing and Otherwise."

Second church, Twenty-seventh and Sumner streets, Rev. Ira Hawley, pastor, morning, "Servants Have No Choice"; evening, "And You Yourselves Shall Be Thrust Out."

Third church, Sixty-seventh street and Thirty-second avenue southeast, Rev. E. O. Shepherd, pastor, morning, "The Joyful Life"; evening, evangelistic service.

Fourth church, Tremont station, Rev. C. P. Blanchard, pastor. On account of the illness of the pastor the pulpit will be supplied both morning and evening.

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The Church of the Truth holds services in room 412 Central building every Sunday at 11 A. M.

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The Comforter Center will be conducted this morning at 11 o'clock in 310 Bush & Lane building, by Florence Crawford and Ethelind Lord Campion of California.

At 8 P. M., public library assembly hall, Florence Crawford will give an important lecture on "The Gods of Laban" ("The Labor and Capital Problem Solved"). Thursday at 8 P. M., July 1, in the Portland hotel assembly room, a reception will be given in honor of Mrs. Campion and this will take the place of the weekly healing meeting.

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Today at the First Methodist Episcopal church, south, Rev. J. W. Byrd will have as his subjects the following: 11 A. M., "How to Obtain Rest"; 8 P. M., "Elements of Growth." The Sunday school of this church will have a social gathering Friday night, July 2, at which the class of Miss Elizabeth Van Poole will be the honor guests. This class recently won out in a contest conducted by the school.

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Rev. A. Christensen, pastor of the Norwegian Danish Methodist church, Vancouver avenue and Skidmore street, has returned to the city after a month's vacation spent in Iowa and Minnesota. While there he visited the general conference in Des Moines and conducted revival services in his former charges.

The pastor will preach in the morning and in the evening will speak of observations at the general conference.

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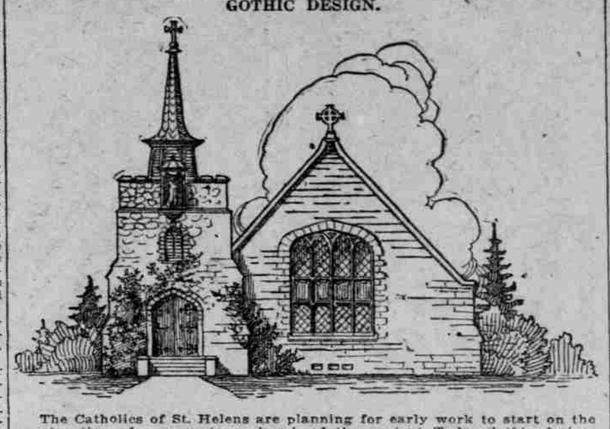
The Portland Methodist preachers meeting will not be held at First church Monday, June 28, but the annual picnic will be held at Laurelhurst park and all pastors and their families, and all retired ministers and their families, and all ministers' widows and their families, and all deaconesses, and any visiting Methodist ministers and their families are all invited to attend. It will be a basket picnic at noon.

ST. HELENS TO HAVE STONE CHURCH OF ANCIENT TUDOR-GOTHIC DESIGN.



The Catholics of St. Helens are planning for early work to start on the construction of a new stone church of the ancient Tudor-Gothic design, which, when completed and fully furnished, will cost $15,000. Experts who have examined the plans pronounce it an architect's masterpiece.

The altars, communion railing, stations of the cross, candelabra and sanctuary lamps are all of stone and marble composition. These alone will cost over one thousand dollars, and this sum has been acquired by the ladies of the altar society within a few months. The women have a sale in progress in Portland this week of some exquisite laces just received from Palestine.

Chats With Home Gardeners

DEAR FRIENDS: At the close of my last letter we were discussing sprays to use in exterminating sucking insects—especially aphids or plant lice.

These usually appear when the vitality of the plants is reduced by cold, wet weather and they must be killed by a "contact insecticide," that is a spray applied to them directly and not a poison deposited on the leaves for them to eat.

For these plant lice do not eat the surface of the leaves as other insects do, but they pierce the surface and suck the juices of the plant, by which they rob it of its life-blood.

We named three good sprays to use against plant lice—1, tobacco sprays; 2, oil sprays; 3, soap sprays. Any of these is effective against all species of aphids, or lice, so you can use the one which is most conveinent.

As you may want to know just how to prepare these and apply them, I will describe each today, in finishing my advice on the extermination of insects, as this is the time that we need to fight our insect enemies or they may destroy the results of all our previous labor.

Tobacco Solution Sprays.

Tobacco sprays are more commonly used than any other and are more efficacious. Different preparations are made of nicotine sulphate, 40 per cent, and sold as "Blackleaf 40," "Nicoteen," etc. Blackleaf 40 is very satisfactory used as directed on it; may be combined with lime-sulphur for spraying fruit in early spring.

You can purchase the refuse clippings at a cigar manufacturing plant and powder these and use them. Tobacco is said to be best applied in any form, anyway, and these clippings and loose leaves are just as good as any other form and very inexpensive.

You can steep these clippings in water and make your own nicotine water spray.

The water should be made sudsy with some kind of soap, as stated before, and whale oil soap is especially recommended for this. If the leaves of your plants are badly curled up the spray should be applied with enough force to send it into the folds where the plant lice are working.

Oil Sprays.

Emulsified oil sprays are made of oil made into an emulsion wit hsoap, the most common oil in use being kerosene.

Kerosene emulsion is usually prepared as a stock solution and then diluted as needed to the strength required for spraying. It is made as follows: Hard soap (any kind), ½ pound; water, 1 gallon; kerosene, 2 gallons. The soap should be dissolved in the boiling water and when thoroughly dissolved it should be removed from the fire and the kerosene added. The mixture must then be powerfully shaken together until it becomes a creamy white emulsion (like thin mayonnaise dressing). This is best accomplished by forcing the mixture back and forth through a hand pump for 15 minutes or so.

When this becomes a smooth emulsion we will have three gallons of a stock solution which can be kept and diluted for use in quantities as desired. If you wish the usual 15 per cent solution add ten and one-third gallons of water to the three gallons of stock solution or use part of it in the same proportion.

For use on trees it is diluted to 10 or 15 times its bulk with water and is sure death to scalds and plant lice if applied early enough. It is even fatal to the dreaded San Jose scale.

Soap Sprays.

Whale oil soap is usually used, though ordinary laundry soap will do. Whale oil soap in combination with quassia chips makes a splendid spray for use against aphids. Soap spray is very effective alone applied thoroughly at the rate of one pound of soap to six or seven gallons of water.

A very common application of this spray is the practice of housewives in turning the washing suds over the rose bushes, as many of us remember helping to do every week in summer when he were children.

This is also very good for all bush fruits or plants liable to be infested with lice. Strive especially to reach the under-side of the leaves and buds and other affected parts. Dipping a whole branch in a pail of suds and shaking it around is a very effective way.

Besides the value as an insecticide, the wash water enriches the soil as a fertilizer, but be sure to stir the soil well afterwards—don't let it crust.

Carbolic Acid Emulsion.

For the cabbage and radish maggot Oregon Agricultural college recommends a crude carbolic acid emulsion to use on plants after they are infected. It is made as follows: Crude carbolic acid, 1 pint; soap (any), 1 pound; water, 1 gallon. Dissolve the soap in the boiling water, remove from the fire and add the carbolic acid. Shake well. To apply, use one part of this emulsion to 50 parts of water. Then use about one cupful for each plant, drawing back the soil and applying to the roots especially. Or use a force pump, if you have it, with less of the liquid. Apply as soon as the plants are well rooted in the garden and repeat every eight or ten days as needed.

A commercial preparation called "Carco" is for sale at all seed stores and is very good, but you will find it much cheaper, always, though a little more trouble, to make your own preparations.

"3-in-1" Liquid Application.

An Oregon Agricultural college bulletin says: "To provide for the control of both those insects which chew their food and those which have sucking mouths, we have developed a combination insecticide termed '3-in-1,' which may be prepared and applied either as a dust or as a liquid spray."

The dust preparation has been described earlier in this article. The liquid spray is made as follows: Lead arsenate powder, ½ pound (or lead arsenate paste, 1 pound); black leaf 40, 1 ounce (2 tablespoonfuls); powdered glue, 1 ounce (dissolved in hot water); water, 15 gallons. Mix thorougly. It can be applied with a spray pump very satisfactorily but the liquid must be prepared fresh each time it is used, as it does not stick well to slick foilage and it may burn very tender plants.

In general, it seems much easier to use dry sprays where weather conditions permit us to do so, as should be the case with most of our summer campaigns of insect and disease extermination.

Here is a very interesting letter:

Mrs. Inez Gage Chapel, care of The Oregonian, Portland, Oregon:

Dear Mrs. Chapel: I have been a very interested reader of all your writings. I feel that we owe you a debt of gratitude for the interest you take in making things clear to all those who love to grow vegetables.

Perhaps you will find time to mention why some vegetables must be transplanted so that they may fruitify. I should like to know why we must transplant tomatoes, cabbage, kale and such. How often is it wise to transplant tomatoes and is it necessary to pull off some of the leaves each time? I should be very thankful for this information. Yours truly, MRS. H.

I am certainly very grateful for your words of appreciation. I have always loved to grow plants myself and it is the very greatest of all satisfactions to me to feel that I may help others to do so and to love the work. The production of food is, above all things, the most vital to the physical life of our people, and it is worth a good deal to feel that you are interested in something that you are sure is fundamentally necessary to the life of our country—especially now when we all feel that our world is sadly awry, and we want to help straighten things but are not sure of just what is necessary and right in these large new issues.

And besides the vital necessity of food production, there is a feeling of spiritual satisfaction and happiness in working with the great laws of the universe in the development of life and growth that we can hardly put into words but which I am sure every real garden-lover feels. That is the reason that the desire to "grow things" is so universal every spring in people of all ages, from the tiny child to the oldest man. It is our response to the pull of nature's forces—as the tides follow the moon—and dead of soul must be he who does not feel it.

Why We Transplant Plants.

There are various reasons for transplanting plants which we will try to specify:

First—It is not really necessary to transplanting any plant. Each will grow from seed where it is sown. It is only advisable sometimes to do so to improve the plant in some way.

Second—The main reason, perhaps, here is that we have an exceptionally cool climate during the spring summer and fall, and so in order to get enough warm growing weather to mature our hot-climate crops—like tomatoes, peppers, eggplant and cucumber and melon vines—it is desirable to get them well started in an artificially warmed place so that they may have the long growing season which they need to mature all their fruit.

Third—Besides this, there is the reason for transplanting the Kohl crops—cabbage, cauliflower, broccoli, Brussels sprouts, Kohl-rabi, kale—which will grow here readily during cool weather (hence their name—Kohl or cool).

The strongest growing and hardiest of these are usually sown where they are to grow like other vegetables. I would never transplant kale, Brussels sprouts or Kohl-rabi, unless I wanted to put them in place of some spring crop that was not yet harvested, and so sowed the seed early in a little prepared seed bed to give them an earlier start by transplanting, just as was mentioned above.

Fourth—But the fundamental reason lies deeper. Why does transplanting cabbage, cauliflower, broccoli and the hot-season plants help their growth? Why does it make them stockier?

These questions lead us to the study of the root systems of plants which we have never considered in our three years of chats together. We have always been concerned with the growth of the plant above the ground, and, beyond providing a good seed-bed for the roots to grow in, we have never considered the importance of the development of the root system—except with potatoes, where usual conditions are reversed and it is the root condition that is valuable while the vines and fruit are of no use to us.

Extent of Roots.

Different investifators have attempted to determine the weight of the roots as compared with the weight of the plant above ground. It was found by one that "the roots of a well-established field of clover weighed as much as the total weight of the stems and leaves of the year's crop," and that the weight of roots of one of the grasses was as great as the weight of the part above ground.

Other experiments varied, but they all showed that the weight of the roots is considerable—much more than is usually believed.

The relative weights of the roots and the stems and leaves do not alone show the large quantity of roots; the total length of the roots is even more striking. For instance it was "found that the total length of roots, that is, the sum of the length of all the roots of one wheat plant was about 268 feet, and that the total length of the roots of one plant of rye was about 385 feet."

Also "one corn plant produced in the upper three feet of soil 1452 feet of roots." These surprisingly large numbers indicate with emphasis the thoroughness with which the roots invade the soil.

Depth of Root Penetration.

There is a general belief among farmers and gardeners that the roots of all cultivated crops are very near the surface and that few reach a greater depth than one or two feet. But the results of many experiments made in eastern and central states was that every crop, without exception, penetrates the soil deeper than was thought possible in earlier days. For example, it was found that corn roots penetrated fully four feet into the ground and that they occupied all of the soil to that depth. On deeper and somewhat drier soil corn roots went down as far as eight feet. The roots of the small grains—wheat, oats, barley—penetrated the soil from 4 to 8 or even 10 feet.

Various perennial grasses rooted to a depth of four feet the first year; the next year, five and one-half feet, and increased later. Alfalfa was the deepest rooted of all plants. Potato roots filled the soil fully to a depth of three feet; sugar beets to a depth of nearly four feet.

In every case it appeared that the normal and usual depth of the roots of ordinary field crops was from three to eight feet. These results have been confirmed later so that there is no doubt about them.

Depth of Roots in Dry Sections.

It may be interesting to know what roots do in dry sections, as many parts of Oregon have insufficient moisture in summer. In California fibrous plants such as wheat and barley descend in sandy soils from four to seven feet. Plant roots on dry farms in Utah have frequently been found to grow to a depth of ten feet and alfalfa roots from 30 to 50 feet in length are frequently exposed in the gullies formed by the mountain torrents.

Roots of trees, shrubs and vines also go down to great depth. Roots of grapevines have been found at a depth of 22 feet below the surface and a common shrub in Nebraska sends its roots to a depth of 50 feet. Orchard trees in arid parts of the west when grown properly with a loosened subsoil are observed to send their roots down to great depth.

In fact it has become the custom in many arid regions where the soils are easily penetratetd to say that the root system of a tree corresponds in extent and branching to the part of the tree above ground.

Kinds of Roots.

The root of every plant has numerous branches, twigs and filaments just as the tree we have just spoken of has visibly above the ground.

The root which first forms when the seed bursts (and which may be said to correspond to the trunk of the growing tree) is known as the primary root. From this primary root other roots develop just as branches form from the trunk above. These are known as secondary roots.

When the primary root grows more rapidly than the secondary roots the so-called taproot, characteristic of alfalfa, clover and similar plants, is formed.

When, on the other hand, the taproot grows slowly or ceases its growth and the numerous secondary roots grow long a fibrous root system which is characteristic of the cereals, grasses, corn and other similar plants.

With any type of root the tendency of growth is downward, though under conditions that are most favorable for the downward penetration of the roots the lateral extensions may be very large and near the surface. This is also true where excessive light watering of the surface is practical, as inexperienced gardeners spray their gardens with the hose every day and the plants receive so much water at such untimely seasons that the roots acquire the habit of feeding very near the surface where the water is so lavishly applied. This means not only that the plant suffers more greatly in times of drought but that since the feeding ground of the roots is smaller the crop is liable to be small.

Pruning the Roots of Plants.

Pruning is the art of cutting off parts of plants or vines or shrubs or trees with a view to increasing the efficiency of those that remain or of developing different forms of growth. Pruning varies according to the kind of plant or tree to be pruned and according to the object in view.

Just as the tree is pruned to make it send out side branches and assume a symetrical shape, so plant roots can often be advantageously pruned to cause them to send out a mass of small branch rootlets instead of a tap root or one or two main stems.

The great difference in the pruning of plant top growth and plant root systems is that a plant often "runs all to leaves and vines" when we want it to produce fruit and we cut off part of the branches to throw the strength into fruitage. On the contrary, a plant cannot have too large a root system. All plants take the nourishment from the soil by which they grow and develop, not by the main large roots but at the ends of the finest hair-like roots which form in the secondary root system. This corresponds quite closely to the way the villi of the small intestine absorbs food in our own bodies.

Therefore—and as a long delayed answer to Mrs. S.'s question—we transplant plants to break up the root systems and cause more fine roots to form. Transplanting is simply a form of pruning the roots and the effect is just the same as when we pinch off the ends of our geranium shoots—new growth starts out all down the stem.

It is also sometimes recommended that we "shear off" a large part of the roots in transplanting, especially with strawberry and celery plants, where I have seen recommendations that one-third of the roots be sheared off when the plants are set in the ground. This of course causes them to throw out a mass of new roots and enables them to absorb more of the water and with it the liquid food which these two plants particularly need.

This is a fascinating subject. One would like to go on and find out why some plants will not stand transplanting at all, that is, where any slight disturbance of their root systems kills them, and why others which might be transplanted are never so treated. I suppose in the latter case it is largely because the pecuniary value of the returns from these vegetables would not warrant the extra labor involved.

In answer to Mrs. S.'s last questions, tomatoes are strengthened by being transplanted two or three times, as it does not hurt the plants to break up their root systems and causes more root branches to form. Also little plants can be set near together, while larger plants require more space between them, so the consideration of space occupied is one factor. It is not necessary to pull off some leaves each time, though tomatoes and many other plants possess the power of sending out new roots from the stem in place of branches if the stem is buried below the soil and this gives the plant just that many more roots. Also a short stem can hold up a bushy plant better than a long, spindly one. Of course all plants fructify without reference to transplanting. It is only that the stronger the root system the stronger the plant and the stronger the plant the more fruit it naturally produces.

Your Garden Neighbor,
INEZ GAGE CHAPEL.

Beach Changes Its Color.

The beaches of Snails island in the Gulf of Mexico change color twice daily with the tides, and are in consequence of great interest to the traveler. The sands are really of a golden color, and when the rising tide spreads over the wide beach still remain golden, but when the tide ebbs they look quite purple, and this is accounted for by myraids of tiny purple snails crawling in the wake of the ebbing tide. It is to these snails that the island owes its name.

Acid Stomach

due to Indigestion or Dyspepsia is promptly relieved by one or two

Stuart's Dyspepsia Tablets

These tablets are pleasant to the taste, do not discolor the teeth and give to the stomach the alkaline effect so much needed in acid conditions of indigestion.

Eat what you like best and have no fear of digestive troubles.

Sold by druggists at 50 cents.

Proper Thing Now Is to Peel Off Soiled Skin

Those who abhor sticky, greasy, shiny, streaked complexions should religiously avoid creams, powders and rouges during the heated days. There's no need for them, anyway, since the virtues of mercolized wax have become known. No amount of perspiration will produce an evidence that you've been using the wax. As it is applied at bedtime and washed off in the morning, the complexion never looks like a make-up. Mercolized wax gradually takes off a bad complexion, instead of adding anything to make it worse. It has none of the disadvantages of cosmetics and accomplishes much more in keeping the complexion beautifully white, satiny and youthful, free from freckles, pimples, blotches and other blemishes. Just get an ounce of it at your druggist's and see what a few days' treatment will do. Use like cold cream.—Adv.

Lift Off Corns!

Doesn't hurt! Lift touchy corns and calluses right off with fingers

Apply a few drops of "Freezone" upon that old, bothersome corn. Instantly that corn stops hurting. Then shortly you lift it right off, root and all, without pain or soreness.

Hard corns, soft corns, corns between the toes, and the hard skin calluses on bottom of feet lift right off—no humbug!

Tiny bottles of "Freezone" cost but a few cents at drug stores