

Each meeting of the Board of Trustees is conducted by the President, or the Vice-President in his absence. However, the Superintendent can do much to make the work of the Board at its meetings simpler, more effective and expeditious, and busy Trustees will appreciate his efforts in this direction. Part of the Superintendent's job is to think ahead and prepare in advance for various actions which must be taken by the Board, or by other agencies. For example, each November he should prepare letters addressed to the Board of Supervisors or to the City Councils of the cities in his district, notifying them of the expiration of the terms of office of Trustees on January 2nd following, and requesting the appointment of a Trustee for the ensuing two year term. At the November meeting the Board should direct the Secretary to send these letters.

At the proper time, also, the Superintendent should prepare the preliminary budget for the ensuing fiscal year, with supporting data, and preferably should send individual copies to each Trustee about 2 weeks in advance of the date for considering and adopting the budget.

When any special problems of major importance are to come up for consideration by the Trustees, the Superintendent should prepare and send to the Trustees, in advance of the meeting, a special report or memorandum giving all essential information thereon.

If an annexation is to be accomplished, the Superintendent should see not only that all necessary forms are prepared with the advice of the District Attorney's office, but he should prepare a schedule for all the actions to be taken, including publication, and also an agenda for the hearing on the annexation petition.

The suggestions made herein will make it possible to conduct Board meetings in an orderly and efficient method, and the saving in time and energy of the Trustees will be appreciated by them.

Mr. Gray: The paper on DDT will be presented by an Assistant, Mr. McGowan.

TWO YEARS' EXPERIENCE  
WITH DDT IN THE  
ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT

by  
Thomas F. McGowan, Assistant to the Engineer  
and  
Harold Farnsworth Gray, Engineer

In December 1943 the Alameda County Mosquito Abatement District performed a limited amount of experimental spraying with DDT and cooperated in laboratory experiments at

the University of California. A sum of five hundred dollars was granted by the Board of Trustees to the University of California for research on this material which was performed under direction of Professor W. B. Herms. It was not until June of 1945 that the District was able to obtain, through the Chemurgic Corporation of Richmond, a small supply of DDT, part of it in emulsifiable form. Purchases at this time netted the very modest amount of fifty gallons of 25% DDT dissolved in 65% solvent with 10% emulsifier added. There was also obtained at the same time twenty five gallons of 25% DDT concentrate dissolved in 75% solvent with no emulsifier added. In July an additional fifty gallons of the 25% emulsifiable DDT was obtained.

Several types of application were started, principally to try its effectiveness on street inlets or catch basins, culverts and bridges. Zones were blocked off for comparative study, one area to receive DDT application, the other area to receive no DDT. Availability of DDT on the open market improved rapidly from June to November and the District was able to purchase a total of seven hundred and eighty five pounds of 100% DDT powder at a cost of \$453.00.

Within thirty days after starting the restricted program of catch basin spraying, it was obvious that check observations of zones not treated with DDT were unnecessary since mosquitoes were entirely absent in the treated zones and thriving in the untreated catch basins. Spraying was therefore extended to include the entire urban areas with creek channels and culverts likewise treated. The need for treatment of the underground vaults of the public utilities was recognized, but the type of spray available was objectionable to the utilities companies on account of the volatility of the solvents (xylene and diesel oil). Even the remotest possibility of fire or explosion could not be risked in these underground vaults. It was not until the spring of 1946 that a suitable DDT material (wetable powder) was obtained which was acceptable to the utilities companies.

In March of 1946 the District obtained DDT wettable powder which, when mixed with water, produced a very effective residual. Seven hundred and ten pounds of 40% DDT wettable powder was purchased between the months of March and June at a cost of \$285.00. One shipment of one hundred pounds of 50% wettable powder was obtained at a cost of \$37.00. The effectiveness of the 50% wettable powder was comparable with the 40%. With availability of wettable powder, adulticiding became highly effective under a cooperative program with the Pacific Gas and Electric Company and the Pacific Telephone and Telegraph Company. These companies agreed to furnish labor to assist in the application of residual spray to all street vaults in the Oakland metropolitan area. Utilities vaults have in the past been serious offenders producing large numbers of Culex pipiens even during the winter months. A DDT spray for applying

a residual deposit to the walls of the vaults was prepared according to the following formula:

46½ pounds of 40% DDT wettable powder added to  
100 gallons of water plus  
5 pints Medol light soluble oil.

This produced a suspension of approximately 2½% strength. A heavier suspension was tried but found unsatisfactory due to persistent clogging of spray nozzles. Addition of the light soluble oil greatly improved the sticking quality of the spray and we credit it with extending the effective life of the application.

Our own successful experience with urban catch basin, culvert and utility vault spraying coupled with reports from Army, Navy and civilian agencies, prompted extension of use of this material as rapidly as availability permitted. From May to August, 1946 a total of three thousand six hundred and thirty pounds of 100% DDT powder was purchased. Three thousand pounds were procured from Surplus Stocks of War Assets Administration at the very attractive price of twenty four cents per pound for one thousand pounds and twenty eight cents per pound for two thousand pounds. With assurance of adequate quantities of DDT obtainable, a comprehensive plan for spraying cesspools in the rural areas was developed and, using the same control procedure as was already in use with straight diesel oil spraying, cesspools in the townships of Eden, Washington and Pleasanton were completely serviced. A 5% solution of DDT in diesel was used in accordance with recommendations of research agencies for the residual application of one hundred milligrams of DDT per square foot of surface. Results obtained from cesspool spraying were so encouraging that wider use of DDT was planned extending its use to open water areas in the marshes, to creek beds and to artificial water channels. The Meekland Avenue drain in Hayward, which for the past several years had been a prolific mosquito breeder requiring routine semi-monthly ciling with diesel, received an application of a residual spray on May 22, 1946. Inspections of this drain as late as August 6, 1946 showed complete effectiveness. This drain was given a second residual DDT application on October 26, 1946 and to date no form of insect life is present.

In nearly all cases of open water spraying on marsh areas repeat operations were only necessary once in two months. Where repetition of spraying was formerly necessary with straight diesel as often as every two weeks, an immediate drop in this requirement occurred.

With availability of the State of California subvention funds for combattin; the vector of encephalitis, a vigorous program was undertaken to reduce Culex tarsalis, particularly in farm buildings. It was intended to accomolish

reduction by application of residual spray to farm buildings, particularly those housing animals which are suspected as links in the transmission chain. Poultry farms and dairies were the principal recipients in this program. Many concentrations were experimented with and for a considerable length of time the 5% solution recommended by federal and state agencies was applied. It became apparent after extended use that the spray could be applied with somewhat less tediousness on the part of the operators and less waste of DDT if a lower concentration was used. It was observed that the workmen would apply enough spray to visibly wet the surfaces, thus over-applying the amount of DDT in a 5% emulsion. In addition to improving the mechanics of application, reduction in concentration resulted in a slight lowering of cost by reducing nozzle clogging appreciably.

The present use of 2½% to 3% solution seems to be optimum for our equipment and operators. For spraying farm buildings or interior surfaces, attempt is made to conform as closely as possible with the theoretical recommendations of one hundred milligrams DDT deposited per square foot surface covered. By applying a 2½% to 3% spray in such quantity as to result in a visible wetness of the surface, the required deposition is readily accomplished.

We felt before embarking on a county-wide undertaking of residual spray that public acceptance might be hesitant. The reverse was true. Following our completion of a half dozen spray jobs, our activities became widely known through local farm organizations and a list of prospective jobs was at once compiled. In a very short time we had more applicants for residual spray than we were able to schedule. In addition to private individuals, municipalities expressed interest in the program and requested assistance for obnoxious conditions existing particularly at garbage dumps. The Oakland garbage disposal plant was the only place of this character that we felt we could materially benefit. It is entirely enclosed and in the summer flies have been so great a nuisance as to seriously handicap personnel employed there. Residual spray was applied in this plant on July 20, 1946 and subsequent inspections as late as November 13, 1946 revealed that the DDT was still very effective. Other open garbage and refuse dumps, particularly those receiving the wastes of San Leandro and Hayward, were not treated, although we do feel that a definite need exists for fly abatement and that a DDT spray program can be designed which will be economical and effective.

Another problem of somewhat similar nature occurred with request for DDT spray of the San Pablo Livestock Sheds on the outskirts of San Lorenzo Village. The owners of this hog ranch had purchased fifty gallons of Shell "Barntox" (a 5% DDT emulsion). They were considering various procedures for applying this solution and requested technical advise of the District. It appeared advantageous for us to apply this solution with our own equipment. Flies on this ranch were so

numerous that it was practically impossible to work about the place without a mask. The interiors of vehicles parked even for short periods at the ranch were infested by so many flies that several days after completing work at the ranch the cars were still harboring flies. Spraying was performed on June 25, 1946 and subsequent inspections at monthly periods as late as November 12, 1946 revealed no recurrence of this intense infestation. At this hog ranch we really demonstrated the "miraculous" power of DDT as a toxic agent against flies.

The Fairmont Hospital appealed for DDT spray of their dairy barns and chicken sheds. Chickens were infested with lice and flies were nearly as much a nuisance at this ranch as at the San Pablo Livestock Sheds. Residual spray operations were commenced on June 8, 1946 and due to their requirement for transfer of fowl during spraying, several visits to this ranch were necessary before the entire place was sprayed. Almost immediately gratifying reports came to us that chickens formerly ailing were showing a remarkable return to healthful condition. Mites and lice and flies completely disappeared from the sheds.

We have found by actual demonstration that it is not necessary to remove the birds from chicken sheds while spraying, as the DDT does not damage them even if the spray comes directly in contact with them.

In Alameda County there are several commercial agencies engaged in pest control and they include in their corrective practice the application of DDT as a toxic residual, principally for combatting flies. Some objections by these agencies were expressed when we initiated our residual spray program, but they gradually became adjusted to our activity in this field, apparently satisfied with our explanation that a threat of encephalitis was the reason for our work. They found some degree of satisfaction in our prediction that widespread use of DDT in Alameda County by this District would materially benefit their future activities.

#### EFFECTIVENESS

The preceding explanation of uses of DDT in this District serves to indicate our general favorable opinion of this material. We believe that within the next year sufficient data can be accumulated to demonstrate impressive reduction in cost of control when specific areas are compared which formerly were treated with repeated applications of diesel oil. The following tabulation of inspections made in the Hayward area reflect the results being obtained throughout this District.

RECENT INSPECTIONS OF PREMISES TREATED  
WITH RESIDUAL DDT -- 1946 SEASON

DATE		TYPE OF JOB			<u>Findings</u>	
<u>Inspected</u>	<u>Treated</u>	<u>Dairy</u>	<u>Drain</u>	<u>Cesspool</u>		<u>Name and Location</u>
August 5	June 3	x	x		Martin Dairy	Entirely free of mosquitoes and flies
August 5	June 3	x	x		Bucher Dairy	Entirely free of mosquitoes and flies
August 5	June 8	x	x		Camensind Dairy	Entirely free of mosquitoes and flies (139)
August 6	May 22				Leckland Ave. Storm Drain, Hayward Sprayed interior of pipe with 5% DDT residual	No insects of any kind inside pipe
September 6	April 16			38	Castro Valley and Hayward Highland	2 Breeding 4 New 5 Failures all Open type *
September 12	August 12				Alvarado Gun Club, Open Marsh Area Sprayed with 1/2% DDT in Kerescene	No breeding

RECENT INSPECTIONS OF PREMISES TREATED  
WITH RESIDUAL DDT — 1946 SEASON

<u>DATE</u>		<u>TYPE OF JOB</u>				<u>Name and Location</u>	<u>Findings</u>
<u>Inspected</u>	<u>Treated</u>	<u>Dairy</u>	<u>Drain</u>	<u>Cesspool</u>			
September 13	May 13			49	Ashland South San Leandro	4 Breeding 2 New 2 Failures both Open type *	
September 14	May 14			95	Hayward, Tennyson, Valle Vista	2 Breeding 7 Open type * 2 New  (140)	
September 16	June 3	x	x		Eucher Dairy	No Breeding Very few flies pre- sent. See inspection of August 5	
September 16	July 9	x	x		Don Pedro Dairy	No flies; no mos- quitoes. Completely effective	
September 16	June 3	x			Mt. Eden Dairy	No flies; no mos- quitoes. Completely effective	

RECENT INSPECTIONS OF PREMISES RELATED  
WITH RESIDUAL DDT -- 1946 SEASON

DATE		TYPE OF JOB			Name and Location	Findings
Inspected	Treated	Dairy	Drain	Cesspool		
September 16	May 15			98	Mt. Eden, Tennysen, Valle Vista	20 Breeding 3 New 17 Open type *
September 17	May 17	x	x		Horat Dairy	No flies; no mos- quitoes. Completely effective
September 17	May 17			73	Russell City South San Leandro San Lorenzo	12 Breeding All open type *  (141)
November 12	July 16	Arnold Chicken Hatchery				No flies; no mos- quitoes. Completely effective
November 12	June 8	Fairmont Frison Farm (Alameda County) Dairy and Chicken Farm				No flies; no mos- quitoes. Completely effective
November 12	June 25	San Pablo Livestock Sheds (Hog Ranch) Shell "Barntox" 5% Residual to Exteriors Used				Some flies present but tremendous reduction
November 13	July 20	Oakland Garbage Disposal Plant				Some flies present but tremendous reduction

\* "Open Type" Cesspools are open excavated pits without any roof or wall construction of any kind.



FAILURES

The number of failures in cesspools were very few and the reasons therefor were in most cases due to climatic conditions, rain, mist and general wearing of the surfaces treated. In some cases cesspools were alternately flooded, resulting in destruction or loss of residual deposit. In urban areas, some catch basins had to be treated twice during the summer and fall of 1946 and the reason for this is believed to be sluicing from gutters due to washing of vehicles in the street or testing of hydrants whose flow was permitted to drain to the catch basins. In general, a very small number of these failures occurred. The utilities companies advised us of several vaults they found harboring mosquito adults. A re-check on these in all cases showed that these vaults had been missed on the first tour and that actually no failures in DDT on these enclosed vaults occurred during the spring, summer and fall of 1946.

Some dairy barns required spraying twice in the 1946 season and the reason for this is that the initial application of 5% solution was made too sparingly and that actually a "wetted surface" was not obtained on the original spray.

A trial of acetone as a solvent was made, and when we attempted to use it as an emulsion difficulties were encountered immediately. Apparently acetone, even though the same amount of emulsifier is added as with xylene, will not produce a stable emulsion. It is satisfactory, however, as a solvent for further dilutions either with diesel oil or kerosene, but has no distinctive merit over these two aside from ability to dissolve DDT at about the same rate as xylene.

An interesting use of DDT occurred in the Castro Valley School where the walls in one wing were re-finished with a paint containing DDT. The manufacturer furnished the paint and the school and the District each paid one half of the cost of painting. Painting was completed in May 1946 and was thoroughly effective through summer and fall and still retains some effectiveness. We anticipate that it will be necessary to re-apply DDT to these walls next spring if the source of the fly infestation is not eliminated. However, subsequent spraying of the exterior of buildings with residual DDT emulsion and general improvement of sanitation in the surrounding area has materially reduced the fly population. It has been concluded from this experience that the economy of applying DDT in paint may be questionable if it becomes necessary to repeat the DDT application prior to the need for redecorating.

It was observed in the treatment of duck club areas, which are flooded in the late summer, that the application of a concentrated emulsion of DDT directly to inflowing water was not successful. The procedure was as follows:

A fifty gallon drum with a small petcock outlet was filled with DDT emulsion and permitted to drip directly into the inflowing water. Thorough mixing occurred in the turbulent flow which occurred before the water ponded in the open marsh area and it was expected to create a residual toxic effect to prevent development of mosquito larvae. A wide range of dosages was tried, varying from 0.01 parts per million to 0.10 parts per million. These dosages were controlled by varying the strength of emulsion in the fifty gallon drum and the rate of chemical application was maintained directly proportional to the quantity of inflowing water. This method was a complete failure. We do not know the reason for the failure but intend to try again next year using 666 and DDD.

After this failure, we sprayed a  $\frac{1}{2}\%$  solution of DDT in kerosene on this duck club, and got excellent results. In addition, the club caretaker told us that there was a startling reduction in the number of sick ducks on the property after the application of DDT. We do not know the reason for this, but mosquitoes transmit bird malaras. An interesting research project along this line could be conducted by the wildlife conservation people.

#### COSTS

Because of expanded activities, it is not possible to make a comparison of costs between the period in which we used DDT and years in which we did not use it. Many things have happened to complicate such comparison. Extended use of power equipment has changed the application of larvicide both in costs and in area covered during the past three years. It is our opinion that the elimination of repetition such as semi-monthly oiling of cesspools, septic tanks, catch basins and utility vaults has permitted our field crews to extend their activities over a much greater area and to carry on a vastly extended control program. The need for expanding our activities is recognized when the tremendous population increase in Alameda County is considered. The increase in housing in this County has necessitated an increase in area controlled. Another factor of great value resulting from the use of DDT is a greater certainty that field work is positive and lasting.

#### OBSTACLES

In our experience the major obstacles in the use of DDT is its reputed toxicity to humans, which probably is due more to the solvent than to the DDT. It has been noted that xylene, kerosene and diesel are skin and eye irritants and are all capable of inducing headache. Precautions must be taken with use of these materials in confined spaces. Occasionally the need for spraying in small buildings requires use of protective clothing including facial coverings and for this purpose a standard army gas mask has been found quite satisfactory.

An obstacle which has caused a considerable amount of lost time has been the necessity for transferring fowl and animals from the stock pens during the spraying procedures. In hog pens and chicken batteries it is not possible in some cases to accomplish an adequate residual spray with animals and fowl remaining in the pens. It is likewise not possible to transfer livestock without a considerable amount of previous planning and scheduling. Several days and several return trips may therefore be necessary before an entire ranch can be completely treated.

An obstacle in all spray operations is the constant plugging of nozzles. Many different types of nozzles have been tried with none being outstandingly good. The most satisfactory that we have found are the D. B. Smith "Mohawk" adjustable conical spray nozzle and the Spraying Systems Company model # $\frac{1}{2}$ -T-3002 flat atomizing nozzle. The latter type is equipped with an internal screen which must be removed for wettable dust suspension spraying.

#### SPECIAL EQUIPMENT

##### 1. Power Sprayers

Sprayers in use for the usual diesel oil spraying are readily adaptable to use with DDT solutions, suspensions and emulsions. No major changes were required in the positive pressure pump type sprayer which delivers approximately three gallons per minute. It is believed that xylene has a somewhat more deteriorating effect upon pump leathers and belts than diesel oil. Major difficulties occurred in the clogging of nozzles, and this can be alleviated by using lower concentrations. It was found that the mechanical process of mixing the 100% DDT powder in diesel oil without using a solvent such as xylene required a prolonged mixing period to produce a stock solution of 5%. This mixing process was greatly shortened by construction of two mixing tanks with a re-circulating pump permitting the liquid to pour from one tank to another and agitation to continue for a period sufficient to achieve complete solution.

Mr. Peters: Mr. Jones wishes me to remind you that the new revised forms of progress reports are available and a few are here. You may take one now if you like, and more will be sent to you.

Mr. Washburn: The next paper on ditch cleaning was to have been presented by Mr. Murphy, who is not here. I will call on Mr. C. E. Snyder in his stead.

(Note: Mr. Snyder described a ditch cleaning plough made by Mr. Murphy and used in the Redding and adjacent districts.)

Mr. Washburn: This concludes the series of operating reports, and I will now turn the meeting over the President Geib.

Mr. Geib: Thank you, Mr. Washburn. I will ask our Secretary to make a statement concerning Association finances.

Mr. Peters: The Secretary-Treasurer's report, presented yesterday morning shows a cash balance of \$157.15 which is much lower than usual, and possibly insufficient to get out the proceedings of this meeting. This low balance results from our having deferred sending out bills for the annual contributions by the districts. The sending of these bills was deferred because there has been considerable discussion of a proposed change in the financing of the Association, with a permanent staff. Under the proposed plan the contributions from the districts would be increased to approximately one percent of their budget.

Some questions have already been raised at this meeting in regard to legal aspects of the proposal, and in any event the matter should be referred by all the Districts to their Boards of Trustees for expressions of opinion as to policy.

Mr. Gray: This matter cannot be properly analyzed at this meeting, in view of the time element. It has many aspects which must be carefully studied, and I therefore suggest that it be left in the hands of the Executive Committee for investigation and report at a later date.

Mr. Geib: If there is no objection, this will be done.

Mr. Pruess: We have had a rather peculiar situation which should be discussed. Perhaps we don't all understand just what the state expects and why. It seems that in order to avail ourselves of the subvention fund we have to prepare a lot of daily reports, from which we compile and submit a monthly report. At the rate things are going and from the appearance of the reports, I am afraid that we will divert the purpose of the fund which, according to my understanding, is to eradicate mosquitoes. It seems to us in the Consolidated District that it takes a lot of man hours to maintain the normal abatement work within a given area. Instead of having the State load us down with statistical reports we should put in as many man hours as possible in field work rather than hire entomologists and accountants to compile and complete our reports. Our real job is to abate mosquitoes, both pests and disease carriers. I would like to hear from some of the other districts on this. How do you feel about it?

Mr. Ed. Smith: I think any of us who have been in the service are sick and tired of paper work. We sincerely want to get away from it. At the same time, I do feel that these reports are important. Perhaps they may lean toward the side of the disease vector but still they are general and include pest

mosquitoes as well. I feel they are leading us into doing our work on a truly scientific basis.

Mr. Gray: I think our District has been carrying on rather detailed cost analysis for more years than any other District. We have developed fairly elaborate reports. Our present monthly and daily report forms have been posted on the wall for your examination. Actually I believe these reports make the work of our foremen not only more accurate but also easier for them to prepare. We want to know what our total costs are and if the unit costs are rising we want to know why. I agree that we don't want to go too far in the matter of detailed reports. There is always a tendency to have the tail wag the dog. We have always tried to keep our foremen from being just report writers. I do not believe their reports take too much time.

Mr. Bendel: Before I was in mosquito abatement work I was a plant and cost engineer for a large concern. The superintendent of that company had been an auditor by profession. He had us making so many reports of various kinds that we didn't have time to run the plant and they finally went bankrupt, though it was a large concern with plenty of money back of them.

Mr. Geib: We are all reluctant to get into a lot of report making. You can't kill mosquitoes with reports. However, we found this past season that it is definitely necessary to have some type of report in order to know what we are doing and what it is costing.

Mr. Washburn: Various superintendents have been appointed on committees. One has been on these reports. A great amount of time has been spent on this problem. Most of the suggestions have been deletions. We are trying to make report forms as simple as we can and yet get the maximum of information for our own use as well as the State. The State cannot justify giving subvention money without reports as to how that money was spent. It may mean spending perhaps five minutes each day on your report. I am sure any of us can make out the monthly progress report forms in a half hour. It is not at all an impossible task.

Mr. Dahl: I am the one who sets up the majority of the forms and definitely says which ones are required. We did not want to go into extensive records this year. I would like those districts capable of doing so to incorporate keeping of entomological records into their program. We believe that there are three forms a district needs. The first is a daily report, which the State does not need to see. It is none of our business whatever except that it is the beginning of your monthly progress report. The second is the monthly progress report, and the third is the monthly entomological report. I find where people understand what we want and why we want it they are quite willing to cooperate. Some of you have suggested things we ourselves had eliminated, feeling it would involve

too much work on your part.

We want to show you the reason why you should summarize your daily activities and see what you are trying to do and what you are accomplishing. You are going to see for yourselves where you have been making mistakes -- we all will -- where certain operations are costing too much. That, in the future, will be the key to your operations. That is why, when we provided you in many cases with 35, 40 or 50% of your money, it may cost you a thousand dollars out of that subvention to keep these reports. The State is paying for information that is really going to be your salvation.

At this conference we have talked about entomological control, and about the value of using entomology; we have talked about engineering problems; but all those things are useless unless we tabulate as we go along. We can't let reports become the essence of our activity, but if we don't know what we are doing, what is the use?

We have asked for monthly progress reports and sent you forms to be filled out. I have had to defend my stand with our business manager and with the State finance department. They say we haven't rigid enough control. My idea has been that this year is the time to organize and I am not going to burden you with more than necessary report making. If we have problems and are not able to solve them, let's bring them up and take a good look at them. Let's see what we have to do, what we have to solve, what the problem really is. I feel that in the coming year we have a great opportunity to go ahead. So far there are three reports we request from you -- the monthly operational report, which is a summary. We furnish a form in case you don't have one of your own. We are only trying to work with you and increase your efficiency and the effectiveness of the work you are doing. That summary report you will find is going to contain basic information. The next thing required is a record of mosquitoes, both adults and larvae. There are two reasons for this. You should know from year to year what is happening in your District. You want to know whether disease vectors are present, and what species are increasing or decreasing, and where. These are also selling points to the Legislature. The third report is the financial report, which is designed and required by the Department of Finance. It is a breakdown of the expenditures according to your budget during the period of operations, certified to by the county auditor or whoever is responsible for your funds. Recently we have taken the attitude that if you will send us the information for the financial report we will even prepare the invoice for you and send it back to you for your signature. I figured it would be quicker to do it myself than to take the time for a lot of letters of explanation.

In granting these subventions the State is trying to bring about not only better mosquito control work in California

but better business practices by the districts and more accurate accounting and recording of their work. It will cost you a little money and effort to get this money, but it is worth while to you.

Mr. Peters: I suggest that this is another matter which can be referred to the Executive Committee, along with the proposal for a stronger central organization. (This was put to motion and carried).

Mr. Geib: Is the Resolutions Committee ready to report?

Mr. Gray: The Resolutions Committee moves the adoption of the following resolutions:

1. WHEREAS, the California Mosquito Control Association has again met at the University of California in its annual conference as the guest of the University of California, for its Fifteenth Annual Conference on December 13 and 14, 1946, now therefore

BE IT RESOLVED, that we hereby extend to the President of the University of California, the Dean of the College of Agriculture, the Dean of the School of Public Health, the Director of the Hooper Foundation for Medical Research, and to all other members of the faculty and administrative staff whose assistance contributed to the success of the conference our sincere thanks and appreciation for the courtesies and use of the facilities of the University.

2. WHEREAS, the experience of various mosquito control districts in California during the past two years has shown that in dichloro-diphenyl-trichloroethane (DDT) we possess a material which is extremely useful and valuable as a mosquito larvicide and adulticide, with concurrent value in the control of flies, fleas and other homonoxious arthropods, now therefore

BE IT RESOLVED, that we strongly recommend the use of DDT by all mosquito abatement districts and health departments in appropriate situations; that we find that this material enables us to combat these insects with greater certainty and effectiveness than heretofore; that we are confident that its use will result in economies in operation; and that we find that when properly used by trained and experienced persons the material is harmless to man and domestic animals, to crops and to wildlife.

3. WHEREAS, T. Frank Gainer, Superintendent of the Pulgas Mosquito Abatement District in San Mateo County, California was most unfortunately called by death on July 19, 1946, now therefore

BE IT RESOLVED, by the members of the California Mosquito Control Association, that we hereby express our regret at the loss of one of our members, and that when we adjourn we adjourn out of respect to the memory of T. Frank Gainer.

(Each resolution was duly adopted.)

Mr. Geib: The business of this fifteenth annual conference of the California Mosquito Control Association being completed, we will now adjourn out of respect for the memory of our former member, T. Frank Gainer.

ADJOURNED

REGISTERED ATTENDANCE AT THE CONFERENCE

MOSQUITO ABATEMENT DISTRICTS:

Alameda County

William B. Herms, Trustee  
Harold F. Gray, Engineer  
T. F. McGowan, Ass't. Engineer  
Margaret A. Prefontaine, Clerk  
Roland Bendel, Division Foreman  
L. Percy Mapes, Division Foreman  
Paul T. Garcia, Laborer  
Thomas L. Brannan, Laborer  
Harley A. Dennis, Laborer  
Herbert Brown, Laborer  
Woodrow L. Paxton, Laborer  
Ivan Best, Laborer  
Jack D. Rowlett, Laborer  
Jack Duffy, Laborer  
Wm. C. Hanim, Laborer

Ballona Creek

E. J. Bumiller, Manager  
H. J. Crawford, Foreman

Carpenteria - None

Coachella Valley - None

Consolidated

Ed Davis, Supt.  
A. F. Preuss, Trustee  
Donald Merritt, Foreman