THEY'D HAVE US DEAD

Stop Aerial Spraying of

MALATHION
POISON

TO GET THE MED

For the next two months, the State Department of Agriculture will drop the pesticide, Malathion, from helicopters at night to control the spread of the Med Fly. The spray will effect the entire County (approximately one million people). The plan is to spray six times in two months. Since Malathion takes three to five days to settle, this means for the next two months we shall be exposed many times to an untested, dangerous poison which many doctors and the whold pharmacological department of Stanford University say could be very dangerous to our health. INFANTS and CHILDREN are two to four times more affected than adults because of their smaller size. And what about UNBORN children?

Did you know that low doses of Malathion can produce:

SKIN BURNING and BLISTERING -- especially the face.

ALLERGIC REACTIONS, ASTHMA, RESPIRATORY PROBLEMS.

BIRTH DEFECTS -- Malathion can move between the mother and unborn child. Even low exposure to the mother can produce poisonous effects.

NERVE SYSTEM DAMAGE -- Malathion can cause extreme weakness, muscle twitching, slow heartbeat shaking, nausea, vomiting and headaches. Malathion can also disrupt learning and memory.

Malathion is also harmful to pets, livestock, and wild animals. It can destroy tropical flowers. And it has been shown to damage the paint on cars.

There are alternatives --Malathion is not the only thing that kills the Med Fly. Did you know that Bees, Wasps, and Beetles are the natural enemies of the Med Fly? Malathion also kills these natural enemies, upsetting God's natural order.

When they spray . . .

Before spraying, put aloe vera gel on face

After spraying, take a hot shower or steam bath

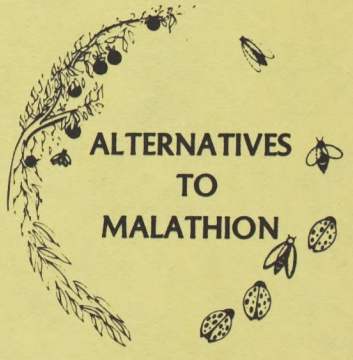
Drink bottled water (especially pregnant and breast-feeding mothers)

The Department of Agriculture and the Health Department in their door-to-door notices are claiming that none of these things will occur. This is to protect themselves from any future lawsuits or claims against them. The "COALITION FOR TRUTH ON MALATHION SPRAYING" has been formed with members from local clinics to help spraying victims and to collect information.

WHAT YOU CAN DO . . .

Picket the HEALTH DEPARTMENT
corner of Bascom and Moorpark Avenues
San Jose, CA
Every day at NOON . . .

and speak out at your place of work and church . . .

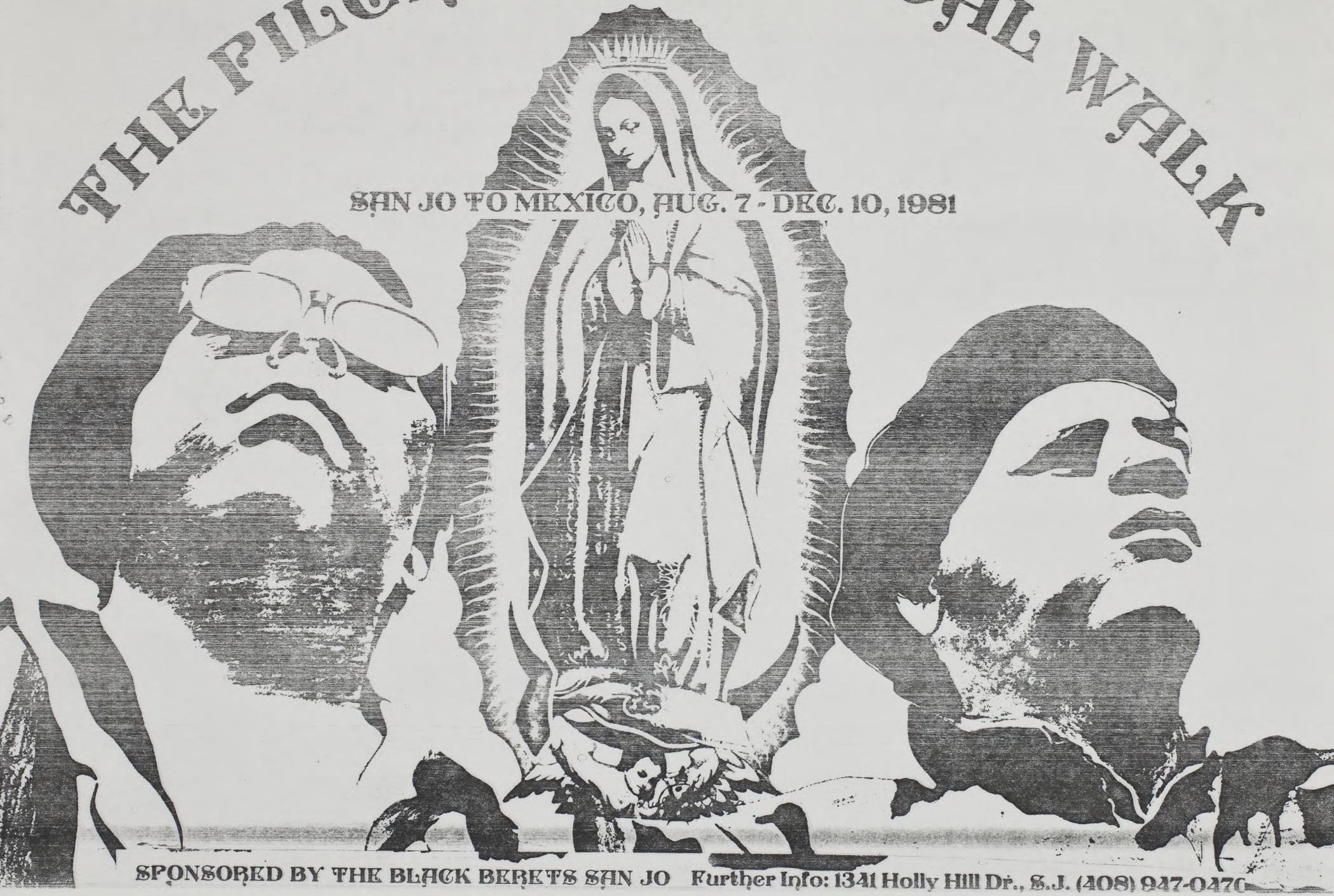


FOR MORE INFORMATION, CALL 287-7720
OR CONTACT
ROY JIMINEZ, COALITION MEMBER AND DIRECTOR OF THE ALVISO CLINIC
947-0470 262-7944

TODAY

THE PILGRIM SPIRITUAL WALK

SAN JO TO MEXICO, AUG. 7 - DEC. 10, 1981



SPONSORED BY THE BLACK BERETS SAN JO Further Info: 1341 Holly Hill Dr., S.J. (408) 947-0470

Estimado padre,

La paz esté con usted y su congregación. Nosotros, los miembros de la caminata espiritual del 29 de agosto de San José de Guadalupe, California deseamos informarle a usted y a su gente que debido a la violencia que existe por todo el mundo contra la gente de dios, en la Tierra Santa y en San Salvador; y debido al intento violento contra el Santo Papa Juan Pablo y a los rumores de guerra, prometemos que el septimo día de agosto de 1981 comenzaremos la santa peregrinación espiritual que consistirá en la caminata de paz a la ciudad de México hasta llegar al santuario de nuestra Señora de Guadalupe. Debemos llegar el septimo día de diciembre y luego celebrar los días santos de nuestra Señora de paz.

Nuestra señora se le apareció a un indio llamado San Diego para informarle a los indios de las Americas que el Señor también quiere a los niños rojos, en palabras de paz, y que el amor es para todas sus creaciones y colores de hombres. Según vayamos caminando de pueblo en pueblo, trataremos de compartir nuestros pensamientos y nuestras oraciones. Trataremos de permanecer cerca de las misiones que nuestros antepasados construyeron, algunos a través de la guerra y otros a través de la esclavitud.

Cuando la cruz era solamente el mango de la espada que trajeron los españoles del sur al norte y hoy quien sabe cuantos descendientes caminarán del norte hacia el sur solo con una cruz y sirviendo solo a un Dios, el principe de la paz, que es el unico que puede darle la paz a San Salvador, Iran y a las Tierras Santas. Nuestra suplica principal y oraciones a nuestro Señor Jesucristo es que se vengue de sus enemigos por los inocentes y por las victimas de la guerra y la envidia.

Le pedimos a usted, padre, que lleve nuestro mensaje a la gente de su comunidad para que siete pacificadores se unan con nosotros en nuestra santa misión al santuario de nuestra Santa Madre y a prepararse en la más santa peregrinación para compartir la experiencia de trabajar juntos mientras aprendemos los unos de los otros. Todos somos hermanos por la sangre que nos dió nuestro creador. Sabemos que enfrentaremos tiempos dificiles, pero solamente por medio de este sacrificio y el de la Misa obtenemos la gracia para continuar en nuestra jornada a la paz. Sabemos que algunos hermanos tienen familias y no pueden acompañarnos. Entonces les pedimos su apoyo en nuestros esfuerzos para alcanzar a todos nuestros hermanos, no importa de donde sean -- San José, California, Arizona o México. Que nuestras oraciones vayan junto con las suyas en el espiritu de nuestra caminata, especialmente los padres cuyos niños sufrirán en los años próximos. Pues ellos son los verdaderos cuidanderos de nuestra tierra madre.

A nuestros hermanos, especialmente los que somos padres, vean a sus hijos; ¿cuánto tiempo hemos dedicado a enseñarles lo que es la paz y el entendimiento hacia sus hermanos? ¿Acaso no queremos, nosotros como padres, que nuestros hijos sean cristianos humildes? Desde el principio los padres y los hijos han sido maldecidos por el idioma del orgullo que existe entre ellos y sus padres y los hijos de sus hijos. Padrinos, ya que estamos pasando por estos tiempos de tantas familias sin padres, enseñenles a sus ahijados acerca de la paz, ya que asi podremos deshacer la maldición del orgullo. Vemos televisión, películas, libros y deportes de violencia. Sepamos que los hombres de violencia nunca podrán poner un alto ni a la violencia ni a la

guerra, y que los verdaderos cristianos honran a los pacificadores sin armas y no a los guerrilleros que se dicen en el nombre de paz.

Padre, solamente le pedimos que comparta con nosotros algo de comida y un lugar para lavar nuestros pies, pero sobre todo, le pedimos que ruegue en sus oraciones para que nos dé fuerza de convertir esto en una realidad. Queremos recordar a aquellos que deseen acompañarnos, que no se permiten drogas, alcohol ni armas. Nos hemos dado cuenta en caminatas anteriores (por toda la nación) que estas cosas solamente debilitan el espíritu. Sabemos que será dificil dejar estas cosas a un lado por poco tiempo a quienes las han usado en el pasado, pero un espíritu debil se alimenta de orgullo y nosotros sabemos lo que nuestro Señor Jesús opina acerca de estas cosas de gente orgullosa. Nuestra caminata será dificil y peligrosa, pero nuestra fé y nuestra seguridad estará con el Principe de Paz y su voluntad y con las oraciones de nuestra Virgen de Guadalupe. Regresaremos a nuestros hogares en paz compartir la hermosura de estas tierras de nuestros antepasados.

La paz del Señor Jesucristo esté con usted.

Dear Priest

Pax Vobis

Peace be with you and your congregation.
We the members of the August 29 Spiritual Walk from San Jose De Guadalupe California wish to inform you and your people that because of the violence against God's people throughout the world, in the Holy Lands and in San Salvador and the brutal attack on our Most Holy Pope John and the great rumors of war, We pledge that on the seventh day of August, 1981 we will begin a Holy Spiritual Pilgrimage of Peace Walk to Mexico City to the Holy Shrine of Our Lady of Guadalupe, to arrive on the seventh day of December and then to celebrate the holy days of our Lady of Peace.

Our Lady appeared to an indian named Saint John Diego to let the indios of the Americas know that the Lord also loved his red children, in his words of peace, and that Love was meant for all his creations and for all colors of men. As we walk from town to town we will try to share our thoughts and prayers. We will try to stay close to the missions that our ancestors built, some through war and some through slavery.

When the cross was only the handle of the sword which came from the south to the north by the Spaniards and now who knows how many descendants will walk from the north to the south with only a cross and serving one Master, the Prince of Peace, who is the only one who can bring peace to San Salvador, Iran and the holy lands. Our main plea and prayers to our Lord Jesus Christ is to avenge his enemies of the innocent and victims of war and greed.

We ask of you father to take our message to your people of your community for seven peacemakers to join us on our holy mission to Our Holy Mother's Shrine to prepare themselves in a Most Holy Pilgrimage to learn to share the experience of working together as we learn from each other. We are all brothers and sisters by the blood given to us by our Creator. We expect the hard times, but only through this sacrifice and that of the Mass are we given grace to continue on our road to peace. We realize that some of our brothers and sisters have families and cannot make it. We then ask for your support in our efforts to reach out to all brothers and sisters, no matter where you are from -- San Jose, California, Arizona or Mexico. That our prayers go along with yours in a spirit of our walk, especially the parents whose children will suffer in the years to come. For they are the true caretakers of our mother earth.

To our brothers, especially those of us who are parents, look to your sons; how much time have we spent teaching them about peace and understanding for their fellow brother. Don't we as fathers really want our sons to be humble Christians. Fathers and sons have been cursed since the beginning by the language of pride between them and their fathers and sons of their sons. Godfathers, because of these times of so many fatherless families, teach your Godsons about peace, for surely we can break that curse of pride. We see th Television. Movies. Books and sports of violence. Let it be said violence and war can never be stopped by men of violence, and that true Christians honor the peacemakers without arms and not the war makers in the name of peace.

We ask of you Father only to share a little food and a place to wash our feet, but most of all your prayers to give us strength so that we will make it a reality. We remind those who wish to join our walk that no drugs or alcohol or guns will be allowed. We have learned from previous walks across the nation that these things only weaken the spirit. It will be hard for those who used these in the past to leave them behund for a little time, for a weak spirit feeds from pride and we know how Our Lord Jesus feels about these things of proud people. Our walk will be hard and dangerous, but our faith and security will be with the Prince of Peace and with his will and the prayers of Our Virgine De Guadalupe, we will return to our homes to share the beautifulness of these lands of our ancestors in peace.

May the peace of Our Lord Jesus Christ be with you.

Footprints

One night a man dreamed he was walking with the LORD. Across the sky flashed scenes from his life. For each scene, he noticed two sets of footprints; one belonging to him, and the other to the LORD.

Redeemer of Man

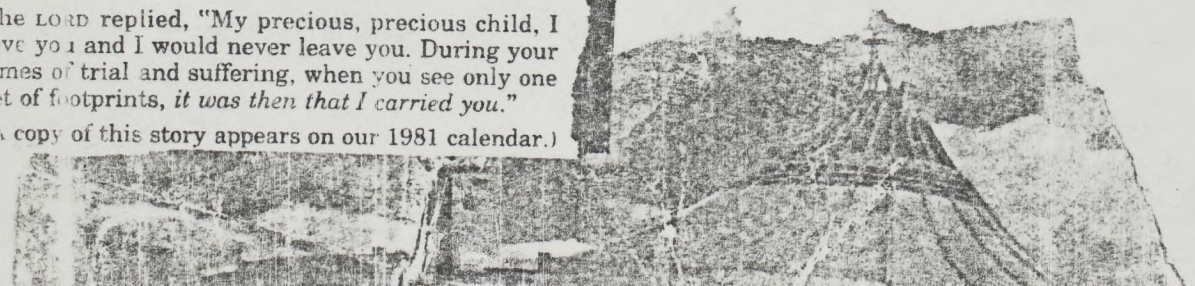
When the last scene of his life flashed before him, he looked back at the footprints. He noticed that many times there was only one set of footprints—always at the very lowest and saddest times in his life.

This troubled him and he questioned the LORD: "LORD, you said that if I would follow you, you'd walk with me all the way. But during the most troublesome times in my life, there is only one set of footprints. When I needed you most, why did you leave me?"

The LORD replied, "My precious, precious child, I love you and I would never leave you. During your times of trial and suffering, when you see only one set of footprints, *it was then that I carried you.*"

(A copy of this story appears on our 1981 calendar.)

SU SANTIDAD JUAN PABLO II
Primera Visita a México



NEEDED SUPPLIES FOR AUGUST 29TH S[illegible]WALK WALK TO MEXICO

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Please donate what you can

FOODSTUFF

CANNED JUICES - Apple, Banana, Grape, Grapefruit, Nectars, Orange
CANNED VEGETABLES - Whole tomatoes, tomato sauce, corn, bean, peas, yams, chili peppers, soups, salsa,
CANNED MEAT - Chili con carne, spaghetti, ravioli, corned beef, seafood
CANNED FRUITS - Mixed fruits, peaches, pears, mandarin oranges , pineapple
COOKING OIL - First cho ice is vegetable oil (corn, safflower, etc), lard or fat is bad for heavy physical exertion (like the walk) and hot weather.
GRAINS - Sacks of rice, beans and flour are particularly needed
VEGETABLES - Sacks of onions, potatoes, chilipeppers, garlic
FRUITS - Oranges, bananas, pears, apples, pineapples
MEATS - There won't any refrigeration so canned meats would be preferable.
CONDIMENTS - Salt, sugar, honey, teas, coffee, chocolate, powdered milk

COOKING AND EATING GEAR (To loan or donate)

COLEMAN STOVE -
POTS, PANS, FORKS, SPOONS, KNIFES, DISHES, CUPS,
WATER JUGS, COOLERS, CANTEENS, ANY KIND OF WATER CONTAINERS

MEDICAL SUPPLIES

SALT TABLETS
VITAMIN C
ACE BANDAGES
FOOT CARE - Foot powder, Epsom salt, linament, heavy white socks, corn pads
FIRST AID - First aid kits, bandages, aspirin, snake bite kit, ben gay

CAMPING EQUIPMENT (To loan or donate)

TENTS
SLEEPING BAGS - air mattresses, ground pads, tarps
AXES, SHOVELS, SAWS, COOKING FIRE GRILLS
PORTABLE TOILETS
CAMP CHAIR, PORTABLE TABLES, CAMP COTS
WASH PANS, METAL MIRRORS

TRANSPORTATION (To Loan or donate)

SMALL OR MEDIUM BUS
STATION WAGON OR VAN
SMALL OR MEDIUM TRUCK
PICKUP TRUCK
CARS
10-SPEED BIKE (for scouting and communications)
MOTORCYCLE (for scouting and communications)
GAS AND WATER CONTAINERS, FLAT TIRE FIXINS, FLARES, ROPES AND CHAINS

****

If you can loan or donate any of the above, please contact the Black Berets at [illegible] Street, San Jose, CA 95122 or phone (408) [illegible] 947-0470 HENRY
1341 HOLLY HILL DR SAN JOSE, CA or at (408) 998-2264 x31 (Jesse) OR (Bill?)
OR [illegible] OR 926-5050 (VINCE)

Chvey 251-9125

GUSTAVO 286-9247

Allen K. McGrath, Jr., M.D.
431 Monterey Avenue
Los Gatos, California
May 4, 1981

There are three points that I would like to make: The first has to do with malathion as a commercial product, the second, the administration's concept of "trade-off" and third, the nature of illness we may face if aerial spraying is pursued.

The Dept. of Agriculture has stated repeatedly that because malathion may be purchased for home use, it is, therefore, safe for the State to apply it aerially over the general population. Nothing could be further from the truth: Malathion is a very toxic substance for humans that, according to the manufacturers, must be used with great discretion. Our concerns, however, are not primarily for the healthy and non-susceptible who use the product around their homes and according to the directions on the label. People who are susceptible to malathion do not use it around their homes. Pregnant women do not apply it around their gardens and, most assuredly, toddlers do not go around spraying it into their sand boxes. Normal use is volitional and with discretion. The State's proposed use is involuntary and without discretion. Our grievance is with a massive, indiscriminate and repeated use of the product over everything and everybody - over the general population with its incalculable medical variables.

There are bureaucrats and legislators who have stated that they would approve aerial spraying only as a last resort, only if necessary. They are saying, in effect, that they are willing to make a trade-off of the publics' health (human illness) for economic reasons. As a physician, I find this attitude abhorrent.

Other administration advisors have suggested that illnesses sustained during the aerial spraying are remedial, that is, they are reversible if recognized and treated in time. This brings me little consolation. My conscience demands that I recommend, at least to my patients, the following: Those persons who may

be hypersusceptible to the substances used, that is, malathion, isomalathion, bait and an unknown carrier; those persons with respiratory and allergic problems; those with severe heart, liver or anemic problems; those with infants and pregnant women ought to consider avoiding the areas being sprayed during each of the 6 to 12 weekly applications and to avoid such areas for at least 2 days afterwards. Regarding genetic and long-term problems, no one knows for certain their ultimate potential for harm.

Some notes on the magnitude of "walking-ill" and susceptible in the general population:

RESPIRATORY DISEASE (U.S.A.)

Chronic bronchitis	15%	150,000/ million
Emphysema COPD	5%	50,000/ million
Bronchial asthma	3%	30,000/ million

(American Lung Association)

SEVERE ALLERGIC REACTION TO MALATHION, PROTEIN BAIT, CARRIER
Including angioneurotic edema and contact sensitivities of the skin

SEVERE CONGESTIVE HEART FAILURE, LIVER, ANEMIA
Hospital adminissions Santa Clara Co., 1979-1980
5% of 150,000 or 7,500 persons ("at home" the day before admission)
(Health Facility Planning Area)

PREGNANT WOMEN 15,000 at all times - Santa Clara County
(S.C.Co. Bureau Vital Stat.)

LIVE BIRTHS 19,721 per year 1979 (SCCo. Vital Stat) *
Infants under 2 months approximately 3,300 at all times

EMOTIONAL AND MENTAL ILLNESS (U.S.A.)
Hypochondriasis - very common
Personality disorders - common
Anxiety disorders 2 - 4 %, 20,000 to 40,000/ million

Rural and urban surveys show that 20% of adults have impairment of function resulting from psychiatric disorders
(American Psychiatric Association)

* Infants under 2 years approximately 40,000 at all times

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THE PILGRIM SPIRITUAL WALK

SAN JO TO MEXICO, AUG. 7 - DEC. 10, 1981

SPONSORED BY THE BLACK BERETS SAN JO Further Info: 1341 Holly Hill Dr., S.J. (408) 947-0470

COMBATIENDO LA MOSCA DEL MEDITERRANEO

PRECAUCIONES QUE DEBEN TOMAR LOS RESIDENTES DEL AREA AFECTADA

Los oficiales estatales han aconsejado a los residentes de las áreas que van a ser regadas desde el aire con "Malathion" que tomen estas precauciones:

--Permanezca dentro de su casa, cierre todas las puertas y ventanas y apague el aire acondicionado. Si tiene que viajar en su automóvil durante las horas de esta actividad, mantenga las ventanas de su carro cerradas, el aire acondicionado apagado, y todos los conductos de aire cerrados.

--Si usted ha sido expuesto directamente al líquido usado, tome un baño de regadera y lave su ropa.

--Si recibe alguna cantidad de líquido en los ojos, enjáguelos pronto con agua.

--No deje ropa o juguetes de sus niños afuera durante la hora del tratamiento desde el aire. Vuelva a lavar cualquier ropa que haya tenido contacto con la carnada de malathion para las moscas.

--Mantenga a sus niños fuera del área que van a tratar por TRES DIAS. Después de tres días, enjuague o lave las áreas de afuera de la casa así como los juguetes que hayan quedado afuera.

--No permita que los niños coman zacate, hojas o tierra que haya sido tratada con el "Malathion".

--Las personas que sufran de asma, enfermedades respiratorias o alergias probablemente no necesiten tomar precauciones especiales. Algunos expertos en salud, sin embargo, opinan que estas personas, así como las mujeres embarazadas, deben mantenerse fuera de las áreas que van a ser tratadas. CONSULTE A SU DOCTOR.

--Otra precaución para las mueres embarazadas o que sospechen que puedan estar embarazadas, es permanecer adentro de la casa UN DIA DESPUES de que se haya terminado el tratamiento desde el aire.

--Cubra los estanques de pescados.

--Cubra los carros o vehículos o póngalos adentro del garage durante a operación del "Malathion". Si ésto no es posible lávelos después.

--Enjuague o lave todos los muebles del patio o equipos de juego que hayan permanecido afuera.

--Los oficiales del proyecto dicen que no es necesario cubrir las albercas porque el gran volúmen de agua diluirá el líquido lo suficiente para hacerlo inofensivo.

--Para aquéllas personas que deseen abandonar sus hogares durante la operación, la Cruz Roja está estableciendo albergues desde las 7 de la noche hasta las 7 de la mañana el día de hoy, el martes y el miércoles.

--Los albergues están localizados en la California School for the Deaf en Fremont, 39350 Gallaudet Drive; En el Colegio San Mateo en San Mateo 1700 W. Hillsdale Blvd; en Santa Cruz en la Universidad de California (puede dejar su carro en el Centro del Gobierno Santa Cruz en el 701 Ocen Ave. y tomar el autobús hasta el campo del colegio; y en Milpitas en Milpitas High School, 1285 Escuela Parkway.

--Se pide a las personas que deseen usar los albergues que traigan cobijas de cama, medicinas y cualquier otros alimentos especiales que necesiten.

NO SE ADMITIRAN ANIMALES DOMESTICOS. NO HAY FACILIDADES PARA COCINAR, PERO SI HABRA USO DE TOILETS.

También estarán abiertas tres iglesias para albergar a las personas que lo deseen desde las 7 de la tarde hasta las 7 de la mañana para aquéllas personas que consideren que necesitan dejar sus hogaras por razones médicas: Fremont United Methodist Church, 2950 Washington Blvd., Fremont; St. Paul's en el 405 Sur de la Calle 10 en San José; y la Iglesia Grace United Methodist 1024 Soquel Ave., en Santa Cruz.

Se han establecido líneas telefónicas de emergencia en varios condados y por grupos de personas interesadas. Para más información llame:

OFICINAS CENTRALES PARA LA ERRADICACION DE LA MOSCA DEL MEDITERRANEO----------	356-6188
AYUDA PARA PISCAR FRUTA----------	358-3787 866-1294
AREA DE CUARENTENA----------	358-1710
MOSCA DEL MEDITERRANEO-LINEA ESPECIAL----------	358-3673
PARA REPORTAR LARVAS O MOSCAS----------	866-1294
INFORMACION SOBRE SALUD----------	947-8895
CENTRO MEDICO EN STANFORD---------- (Llame para oír un mensaje telefónico de las precauciones que debe tomar durante la aplicación por el aire del líquido mata-moscas)	497-5000

CAMPBELL---------- 378-8141
Ext. 242

CUPERTINO---------- 252-4505
Ext. 213

FREMONT----------
(De las 7 de la mañana hasta las 10 de la noche) 791-4104

LOS ALTOS---------- 948-1491
Ext. 35 o 36.

(Bolsas plásticas gratuitamente en todas las estaciones de bomberos)

LOS ALTOS HILLS---------- 941-7222

LOS GATOS---------- 354-6882

MIL PITAS----------
(Pregunte por Starla Jerome) 942-2325

MONTE SERENO---------- 354-6882

MOUNTAIN VIEW---------- 964-3873
964-3877

(Bolsas plásticas gratis en la biblioteca pública, el centro de la comunidad y en la estación de bomberos en 201 Norte Whisman Road.

PALO ALTO---------- 329-2474
329-2475

(Bolsas plásticas en las bibliotecas durante los fines de semana) 329-2250

SAN JOSE---------- 272-BUGS

SANTA CLARA---------- 984-5101

SARATOGA---------- 867-3438 (De las 8 de la mañana hasta las 8 de la noche y también los fines de semana)

SUNNYVALE---------- 732-5240, 5243, 5246.
(Número limitado de bolsas plásticas gratis en Murphy Park Center)

RJ/mbm

July 13,1981

and hornets from mules. The ancients also were of the firm belief that the "king" (or what later become known as the "queen bee") was produced from the brain of the ox, and that the worker bees were produced from its flesh. Chinese and Japanese writings reveal that the idea of the "ox-born bee" was current in the Orient at a very early date. Greek writers referred to the "ox-born bee" in their epigrams, and Archelos [illegible] them "the screaming children of the decaying ox," but even [illegible] the rise of Greece the Egyptians along the mouth of the Nile prescribed a laborious ritual in an attempt to produce bees from oxen. They buried a slain ox in the ground, with only the horns sticking out, and then sawed off the horns. From these openings, as the carcass decayed, bees were supposed to fly. Egypt, under the Ptolemies, seems to have been the center of this belief. One of the reasons why such attempts to produce bees continued was that for centuries seasonal inundation of the Nile Valley destroyed beehives so that whole colonies of bees died from famine and disease. Virgil (Georgics iv, verses 281–559) recorded the myth that was the basis for the belief: Aristaeus, the demigod, benefactor of mankind, who taught men to hunt and to keep bees, lost his hives by famine and disease. In his distress he appealed to his mother, and through her intervention, and that of the sea-god Proteus, he was initiated into the mystic rite by which a swarm of bees was produced from a slaughtered ox.

The belief that bees were developed from the decaying carcasses of animals persisted until comparatively recent times, but, of course, the simplest kind of an experiment—the attempt to obtain honey—would at any time have proven that these insects were not bees. What the ancients described, produced *flies* aplenty, among them *Eristalis tenax*, the fly that *looks* like a bee, but naturally, not a single *bee*.

Pliny mentions that during a festival in honor of Apollo an ox was sacrificed to flies and a god of flies was invoked for relief from the flies' annoying visits. Baal was called the Lord of Flies and was thought to defend the people from them, especially at places of sacrifice where flies were attracted in great numbers. The idol of Baal usually was represented by the figure of a fly, and thus to the ancients the fly became an object of adoration.

Why flies are scavengers is explained by our North American Indians

in the following myth: Once two tribes of little people lived near each other. The difference between them lay in the fact that one tribe looked for food and put it safely away for the winter, while the other tribe played and sang and danced all day. The first winter the busy workers were sorry for their friends and fed them from their stored supplies. Thus the tribe that had by no means earned it was as comfortably fed as if they too had worked diligently all summer. The following summer the lazy tribe again wasted their time in playing and singing and dancing. That fall the workers moved away and left the lazy tribe to starve. The lazy tribe wailed and bemoaned their fate, whereupon the Great Spirit decided to teach them a lesson. He first gave the workers wings and made them bees, and then to the lazy tribe said: "You shall be flies and also have wings, but while the workers fly from flower to flower and eat the yellow honey, your food shall be that which has been thrown away!"

The Mission Indians of California have a legend which accounts for the fly's peculiar habit of rubbing its feet together. Tee-chai-pai (The Maker) was greatly concerned with his people's steadily dwindling supply of food and drink. He appeared before them and gave them one of three choices: To die and have done with life forever; to live forever; to die for a time and then return. They debated the merits and disadvantages of each choice but though they talked for days they seemed unable to make up their minds. It was at this point that the fly came along and said: "Oh you men, why do you talk so much? Tell him you want to die and have done with life forever!" Thus influenced, his people gave their choice to The Maker—to die and have done with life forever. That is why, ever since, the fly has rubbed his feet together in a supplicating gesture—begging forgiveness for those words he so testily uttered.

Many South American Indians say that spirits and demons sometimes assume the shape of insects. The Araucanian Indians believe that departed tribesmen, chiefs in particular, take on the form of horseflies. These insects are regarded as spirits from the Beyond, which the Araucanians call "Shadeland," and horseflies appearing at their frequent "drinking bouts" are accepted as an indication that their dead kinsmen are taking part in the feast. When such insects enter a village

County of Santa Clara
California

Office of the Board of Supervisors
County Government Center, East Wing
70 West Hedding Street
San Jose, California 95110
299-2323 Area Code 408

Rod Diridon
Supervisor, Fourth District

STATEMENT BY
ROD DIRIDON, CHAIRMAN
SANTA CLARA COUNTY BOARD OF SUPERVISORS

BEFORE THE
CALIFORNIA ASSEMBLY

JULY 10, 1981

OPPOSING AERIAL SPRAYING OF MALATHION OVER SANTA CLARA COUNTY

I'M ROD DIRIDON, CHAIRMAN OF THE SANTA CLARA COUNTY BOARD OF SUPERVISORS THAT SENDS YOU THANKS FOR GIVING THE PUBLIC THIS OPPORTUNITY TO BE HEARD ON THIS MATTER OF INTERNATIONAL IMPORTANCE. TODAY YOU WILL DECIDE AND SET PRECEDENCE ON WHETHER AN URBAN JURISDICTION OF 1.3 MILLION PEOPLE CAN CONTROL ITS OWN DESTINY OR WILL BE SUBJECTED INVOLUNTARILY TO THE POISONOUS RAIN OF A HIGHLY QUESTIONABLE AERIAL SPRAYING PROGRAM THE FALLOUT FROM WHICH WILL AFFECT, BY ITS PRECEDENCE, EVERY CITY AND TOWN IN THIS NATION. IS THERE SUCH A THING AS LOCAL CONTROL?! IF THERE IS, DO YOU BELIEVE IN IT? LET'S REASON THROUGH THE LOGIC STEPS OF YOUR DECISION.

FIRST, LET ME DISPELL THE RUMOR THAT SANTA CLARA COUNTY IS ANTI-AGRICULTURE. BY ACTIONS OF OUR BOARD AND OUR VARIOUS CITIES, WE ARE PROTECTING AGRICULTURAL LANDS AND SUPPORTING AGRICULTURAL MARKETS AS ARE FEW OTHER AREAS IN THE UNITED STATES AND WE WILL CONTINUE TO DO SO.

SECOND, LET ME DISPELL THE RUMOR THAT THE PROJECT, AS ADMINISTERED BY JERRY SCRIBNER AT THE ORDER OF GOVERNOR BROWN HAS BEEN OTHER THAN A TREMENDOUS SUCCESS. IN FACT, THE MEDFLY WAS ERADICATED FROM THE AREA OF INFESTATION IN JANUARY AND FEBRUARY. UNFORTUNATELY THE RECENT OUTBREAK OCCURRED IN AN AREA NOT COVERED EARLIER AND WAS APPARENTLY SERIOUSLY AGGRAVATED BY THE RELEASE OF A SHIPMENT OF INEFFECTIVELY STERILIZED PERUVIAN FLIES. THAT PROBLEM WILL NOT RECUR AS THE STERILE FLIES NOW BEING RELEASED ARE FROM MEXICO AND OUR NEW FACILITY IN HAWAII.

THE BOARD OF SUPERVISORS OF SANTA CLARA COUNTY HAS TAKEN A FIRM STAND FOR MORE THAN A YEAR IN FAVOR OF EVERY REASONABLE ACTION TO ERADICATE THE MEDITERRANEAN FRUIT FLY. THESE REASONABLE ACTIONS ARE THE SAME THAT HAVE BEEN USED BY ISRAEL TO COMPLETELY ELIMINATE THE MEDFLY FROM THAT AREA. THEY ARE THE SAME ACTIONS THAT WERE SUCCESSFUL IN ELIMINATING AN OUTBREAK OF THE MEDFLY IN LOS ANGELES LAST YEAR AND IN FIRMLY CONTROLLING THE FLY IN LAST YEAR'S INFESTATION IN SANTA CLARA COUNTY. THESE CAREFULLY INTEGRATED REASONABLE ACTION STEPS ARE, 1) STRIPPING OF ALL HOST FRUIT AND VEGETABLES, 2) THE SATURATION RELEASE OF STERILE FLIES, AND 3) MULTIPLE APPLICATIONS OF GROUND SPRAY ON POTENTIALLY INFESTED HOST PLANTS AND PROPERTIES. I STRESS AGAIN, THIS APPROACH HAS BEEN SUCCESSFUL WHERE APPLIED OVER AN EXTENDED PERIOD OF TIME; AND THIS APPROACH WHICH IS NOW BEING APPLIED IN

SANTA CLARA COUNTY WITH STRONG COMMUNITY SUPPORT, WILL BE SUCCESSFUL UNLESS THE TACTIC IS INTERRUPTED BY OUTSIDE GOVERNMENTAL CONTROL.

BUT AERIAL SPRAYING, THE DUMPING OF TONS UPON TONS OF POISON FROM THE AIR ON NUMEROUS OCCASIONS ON AN URBAN POPULATION IS NOT A REASONABLE ACTION. WHY? FIRST, IT IS NOT EFFECTIVE, CERTAINLY NOT AS EFFECTIVE AS THE THREE REASONABLE ACTIONS STRESSED ABOVE. THE SPECIALISTS INDICATE AERIAL APPLICATIONS WILL NOT ERADICATE THE FLY BUT ONLY REDUCE ITS NUMBERS. THAT CAN LIKEWISE BE DONE BY THE REASONABLE APPROACH WHICH WILL BE REQUIRED EVENTUALLY ANYWAY TO ELIMINATE THE SURVIVORS.

SECOND, THE AERIAL SPRAY PROGRAM IS GOING TO BE VERY EXPENSIVE. THE COST OF THE CHEMICALS AND SPRAY PLANES IS ONLY THE BEGINNING. THE AMOUNT OF LEGAL DAMAGES BOTH IN TERMS OF THE ETCHING OF PAINT AS WELL AS THE LAWSUITS, WHICH WILL FOLLOW EVERY TIME A LOCAL RESIDENT SNEEZES, WILL BE TREMENDOUS. THESE ACTIONS WILL BEGIN IMMEDIATELY AND EXTEND OVER THE NEXT THIRTY YEARS AS THE CARCINOGENIC, MUTAGENIC AND TERATOGENIC ACCUSATIONS ARE EACH ADJUDICATED IN TURN. BUT THE MOST DISRUPTIVE AND EXPENSIVE ASPECT OF THIS PROGRAM WILL BE THE DISASTROUS LEVEL OF ABSENTEEISM WHICH WILL UNDOUBTEDLY OCCUR AS PARENTS AND PARENTS-TO-BE FLEE OUR VALLEY TO AVOID THE MULTI-MONTH SEQUENCE OF SPRAY DATES.

THE FINAL REASON WHY THIS IS AN UNREASONABLE APPROACH IS THAT IT IS DANGEROUS! IT IS DANGEROUS FIRST BECAUSE EVEN THE

STATE HEALTH DEPARTMENT, WHICH SUGGESTS THE CHEMICAL MAY NOT BE DANGEROUS TO PEOPLE, INDICATED THAT THERE COULD BE SIGNIFICANT DANGER OF THE NUMEROUS LOW-FLYING AIRCRAFT FLYING AT LESS THAN 300 FEET CRASHING INTO OUR DENSELY POPULATED AREA. REMEMBER THAT SANTA CLARA COUNTY HAS AN INTERNATIONAL AIRPORT, THREE VERY BUSY GENERAL AVIATION AIRPORTS AND A HIGHLY TRAFFICKED NAVAL AIR STATION, THE FLIGHT PATTERNS OF WHICH WILL BE SERIOUSLY IMPACTED DURING THE PROCESS.

SECOND, AS NOTED ABOVE, THE CHEMICALS CAUSE THE IMMEDIATE ETCHING OF VARIOUS KINDS OF PAINT AND LONGER TERM CORROSIVE ACTION THAT IS ILL DEFINED. BUT, MY GOD, IF IT ETCHES AND CORRODES PAINT, WHAT WILL IT DO TO A BABY'S SKIN?

AND THE THIRD AND MOST IMPORTANT REASON OF ALL FOR DANGER IS THAT THERE IS MORE THAN A SHADOW OF A DOUBT THAT MALATHION MAY BE DANGEROUS TO THE HEALTH OF HUMANS, ANIMALS AND SOME PLANT LIFE. WHY IS THERE A DOUBT? ATTACHED IS A MEMORANDUM SIGNED BY THE DEPARTMENT OF PHARMACOLOGY AT STANFORD UNIVERSITY WHICH INDICATES THERE COULD BE DANGER FROM THE PROPOSED AERIAL APPLICATION. THIS MESSAGE IS FROM ONE OF THE MOST PRESTIGIOUS ACCUMULATIONS OF SCIENTISTS IN THE WORLD; NOT SPEAKING, AS YOUR ENTYMOLOGISTS HAVE SPOKEN, ABOUT THE CHEMICAL'S EFFECT ON INSECTS, BUT RATHER SPEAKING THE WAY PHARMACOLOGISTS SPEAK, ABOUT THE EFFECTS ON PEOPLE AND ANIMALS. DR. SUMNER KALMAN OF STANFORD WILL SPEAK TO YOU ON THIS SUBJECT TODAY.

IN ADDITION, I HAVE PROVIDED TO THE SPEAKER AND THE CHAIRMAN OF THE ASSEMBLY HEALTH COMMITTEE A COPY OF THE REPORT FROM THE PRESTIGIOUS MUIR INSTITUTE IN BERKELEY INDICATING THAT THERE IS

SUBSTANTIAL CONCERN FOR THE DANGER TO HUMANS AND OTHER ANIMALS FROM THIS AERIAL APPLICATION. PLEASE REFER SPECIFICALLY TO THE "PESTICIDE HEALTH HAZARD DATA SHEET", THE ACUTE AND CHRONIC HEALTH EFFECTS SECTION. YOU WILL ALSO FIND ATTACHED A LETTER WHICH HAS BEEN ENDORSED BY OVER 100 MEDICAL DOCTORS IN SANTA CLARA COUNTY INDICATING THEIR BELIEF THAT SIGNIFICANT DANGER COULD EXIST FROM THIS KIND OF SPRAYING.

FINALLY, THE MEMBERS OF THE BOARD OF SUPERVISORS HAVE RECEIVED TENS OF THOUSANDS OF COMMUNICATIONS FROM THE RESIDENTS OF OUR VALLEY WHO ARE CONVINCED BEYOND ANY DOUBT OF THE POTENTIAL DANGER FROM THIS RADICAL APPROACH. THIS ATTITUDE IS ALSO EXPRESSED IN THE LOCAL NEWS MEDIA FROM WHICH A REPRESENTATIVE EDITORIAL IS ATTACHED. FURTHER, JUST LAST NIGHT THE INTER-CITY COUNCIL WHICH REPRESENTS THE MAYORS OF THE FIFTEEN CITIES OF OUR COUNTY ENDORSED THE GOVERNOR'S ACTION TO PROHIBIT SPRAYING.

I'M NOT A SCIENTIST; I'M JUST A LOCAL PUBLIC SERVANT. BUT IT'S OBVIOUS TO ME THAT THERE IS MORE THAN JUST A REMOTE POSSIBILITY FOR SERIOUS NEGATIVE REPERCUSSIONS FROM THIS QUASI-EFFECTIVE, EXPENSIVE AND DANGEROUS OVERREACTION BEING FOMENTED PRINCIPALLY BY THOSE FROM OUTSIDE THE AFFECTED AREA WHO ARE NEITHER WELL INFORMED NOR DIRECTLY INVOLVED IN THE MATTER.

IF THERE IS A DOUBT, AND THERE IS -- AND IF WE MAY ERR, AND WE MAY -- THEN WE MUST ERR IN THE DIRECTION OF HUMAN SAFETY, THE SAFETY OF MY CHILDREN AND FUTURE UNBORN GENERATIONS RATHER THAN FOR PURELY ECONOMIC INTERESTS WHICH WILL BE PROTECTED ANYWAY BY FOLLOWING THE DEFINED REASONABLE APPROACH.

NOW PLEASE LET ME CLOSE WITH A DESCRIPTION OF THE PREFERRED SOLUTION. FIRST OF ALL, PLEASE FIRMLY REJECT AERIAL SPRAYING SO THAT ALL OUR RESIDENTS WILL BE COMMITTED IRREVOCABLY TO OUR CURRENT PROGRAM OF HOST TREE STRIPPING AND GROUND SPRAYING.

SECONDLY, PROVIDE EVERY POSSIBLE ASSISTANCE TO THE GOVERNOR AND THE AFFECTED CITIES AND COUNTIES AS WE FIGHT THIS BATTLE IN THE TRENCHES; THE INFANTRY WILL WIN -- WITHOUT THE AIR FORCE!

THE MORE AGGRESSIVE QUARANTINE AND THE IMPROVED STERILE FLY RELEASE PROGRAM WILL RESTRICT THE SPREAD AND ERADICATE THE SURVIVORS AS OUR STRIPPING AND GROUND SPRAY PROGRAMS PROGRESS. IT CAN BE DONE! ISRAEL DID IT! WE DID IT IN LOS ANGELES LAST YEAR. PLEASE, FOR THE SAKE OF OUR CHILDREN, GIVE US THE CHANCE TO DO IT AGAIN, NOW.

Department of Pharmacology, Stanford University School of Medicine

Statement on Proposed Malathion Spray Program

In response to newspaper and television reports and after questioning the State Department of Food and Agriculture about the possible aerial spraying of Malathion over 120 square miles of Santa Clara County to combat the Mediterranean fruit fly, the faculty of the Department of Pharmacology of the Stanford University Medical School met to discuss this matter. We have serious reservations about this plan and feel that the public should be informed about the following relevant issues:

Malathion belongs to the group of organo-phosphorous compounds that kill insects by inhibition of acetyl-cholinesterase, an enzyme vital for the functioning of the nervous system in insects, animals and people. This insecticide is more toxic to insects than animals or humans because an enzyme in animals or humans converts Malathion to less toxic chemicals. Although Malathion is toxic to the Mediterranean fruit fly, it is also poisonous to other insects. It will, for instance, also kill bees and any possible natural predators of the fruit fly and predators currently being used in ongoing pest control programs. The effects on the natural ecological balance cannot be predicted.

Moreover, although Malathion is rapidly detoxified in people, it may still have undesirable complications. In particular, irritations could result from Malathion droplets landing on skin or eyes. Inhaled droplets might cause complications before being detoxified.

Lastly, we do not have enough information on possible carcinogenic (cancer causing) or teratogenic (causing birth defects) effects of Malathion, but we feel that caution is warranted in use of a chemical as reactive as Malathion.

Because of the aforementioned concerns, we feel the responsible authorities should carefully review the plan for the aerial spraying of Malathion on inhabited areas. The fact that human health may be jeopardized and beneficial insects will be harmed is reason enough for considering other strategies for combatting the fruit fly.

Faculty Members of the
Department of Pharmacology:
Helen Blau, Avram Goldstein,
Dora Goldstein, Sumner Kalman,
Tag Mansour, Gordon Ringold,
Howard Schulman, James Whitlock

Note: This statement was dictated over the telephone; copies of the actual statement are on their way to San Jose.

ALLEN K. McGRATH, JR., M.D. F.A.C.P.

F. GILBERT GREGORY, M.D. F.A.C.P.
A PROFESSIONAL CORPORATION

431 MONTEREY AVENUE
LOS GATOS, CALIFORNIA 95030
354-8140
Practice limited to Internal Medicine

To: Board of Supervisors
Santa Clara County
California

3-26-81

I represent a number of concerned practicing physicians in the area who oppose the aerial spraying of malathion bait over the heavily populated towns and cities of Santa Clara County. We believe that the California Department of Health Services has presented no relevant facts or data establishing the safety of this proposed spraying. We believe that the Department has not addressed itself to the recognized medical problems in the use of malathion.

Many thousands of persons will be subjected to undue health hazards by the proposed aerial applications of malathion. I include here, persons in the susceptible or compromised population, that is, persons who may suffer acute neurotoxicity because of deficiency of the cholinesterases and the effects of the pesticide, malathion. Acquired deficiency may be found in persons with liver disease, malnutrition from any cause, anemia, women in late pregnancy and persons on various medications.

Many studies in both man and animals suggest chronic nervous system damage following organophosphate exposures. Infants and immature animals have a higher susceptibility to malathion poisoning.

Many experimental studies in animals have shown that malathion causes both birth defects and gene damage. Thus, unborn babies and future generations may be at increased risk.

A prominent investigator at the National Cancer Institute has stated that malathion and its potent breakdown product, malaoxon, cause cancer.

Many allergic sensitivity reactions of the skin and respiratory passages would result from the malathion bait aerial applications. The repeated exposures would increase the severity of reactions in persons with skin sensitivities, asthma and other respiratory diseases.

Cholinesterase depressions may persist in a sub-clinical fashion for over two weeks after malathion exposures. Thus, sub-clinical and chronic poisonings from malathion may occur as persons are repeatedly exposed to small amounts. This could be particularly hazardous to the compromised populations described above.

Finally, in our population, there are many persons who are emotionally unstable, neurotic or psychotic who would doubtlessly be made ill by the proposed aerial applications.

It is for these reasons that our group of clinicians and many others are opposed to the aerial applications of malathion over our highly urban area. The temporary suppression of the Med Fly does not warrant the public's exposure to known health hazards, potential health hazards, or to hazards yet unforeseen.

Allen K. McGrath, Jr., M.D.

TABLE 23-4. SPECIFIC POISONS: SYMPTOMS AND TREATMENT *(Cont'd)*

Poison	*Symptoms*	*Treatment*
Paint solvents: see Mineral spirits (under Petroleum distillates) and Turpentine		
Paints: see Lead		
Paradichlorobenzene Insecticide Moth repellent Toilet bowl deodorant	Abdominal pain, nausea, vomiting, diarrhea, seizures, and tetany	Ipecac emesis, gastric lavage; fluid replacement; diazepam for seizure control
Paraldehyde	Paraldehyde odor on breath, incoherent, pupils contracted, respirations depressed, coma	Ingestion: Ipecac emesis, gastric lavage; support respiration, O_2
Parathion Chlorothion Demeton Diazinon Dipterex (trichlorfon) HETP (hexaethyl tetraphosphate) Malathion Nerve gas agents OMPA (octamethyl pyrophosphoramide) Systox TEPP (tetraethyl pyrophosphate)	Nausea, vomiting, abdominal cramping, excessive salivation; headache, rhinorrhea, blurred vision, miosis; slurred speech, mental confusion; breathing difficulty, frothing at mouth, coma. Absorbed through skin	Remove clothing, flush & wash skin. Empty stomach; atropine: adults 2 mg, children 1–2 mg, IV or IM q 15–60 min if no signs of atropine toxicity; pralidoxime chloride (PAM): adults 1–2 Gm, children 0.25 Gm, IV over 5–10 min, repeat in 12 h if needed; O_2; support respiration; correct dehydration. *Do not use morphine or aminophylline*
Paris green: see Arsenic & antimony		
Pentobarbital: see Barbiturates		
Permanent wave neutralizers (bromates): see Chlorates		
Pesticides: see Arsenic & antimony, Barium compounds, DDT, Dinitro-o-cresol, Fluorides, Paradichlorobenzene, Parathion, Phosphorus, Pyrethrum, Thallium salts, Warfarin		
Petroleum distillates (see also HYDROCARBON POISONING in §10, Ch. 4) Asphalt Benzine (benzin) Fuel oil Gasoline Kerosene Lubricating oils Mineral spirits Model airplane glue Naphtha Petroleum ether Tar	Vapor inhalation: Euphoria; burning in chest; headache, nausea, weakness; CNS depression, confusion; dyspnea, tachypnea, rales Ingestion: Burning throat & stomach, vomiting, diarrhea; pneumonia; late pulmonary changes Aspiration: Early acute pulmonary changes	All exposures should be seen. *Do not give emetics.* Gastric lavage only with rapid-onset depression from large amounts ingested; arterial blood gas levels to monitor care; supportive care for pulmonary edema; O_2, respiratory support
Petroleum ether: see Petroleum distillates		
Phalloidine: see NONBACTERIAL FOOD POISONING in §7, Ch. 12		

TABLE [illegible] SPECIFIC POISONS: SYMPTOMS AND TREATMENT *(Cont'd)*

Poison	*Symptoms*	*Treatment*
Phenacetin: see Acetanilid		
Phenmetrazine: see Amphetamines		
Phenobarbital: see Barbiturates		
Phenols Carbolic acid Creosote Cresols Guaiacol Naphthols	Corrosive. Mucous membrane burns; pallor, weakness, shock; convulsions in children; pulmonary edema; smoky urine; respiratory, cardiac, & circulatory failure	Remove clothing, wash external burns. Lavage with water, activated charcoal. *Do not use alcohol or mineral oil.* Demulcents; pain relief; O_2; support respiration; correct fluid balance; watch for esophageal stricture (rare)
Phenothiazine Chlorpromazine Prochlorperazine Promazine Trifluoperazine (etc.)	Extrapyramidal tract symptoms (ataxia, muscular & carpopedal spasms, torticollis), dry mouth, drowsiness, coma, hypothermia, respiratory collapse. Leukopenia, jaundice, coagulation defect, skin rashes	Ipecac emesis, gastric lavage; diphenhydramine 2–3 mg/kg IV or IM for extrapyramidal symptoms; diazepam for convulsions; warm patient. Avoid levarterenol & epinephrine
Phosgene gas: see Carbonyl chloride		
Phosphine: see Hydrogen sulfide		
Phosphoric acid: see Acids & alkalis		
Phosphorus (Yellow or white) Rat poisons Roach powders (NOTE: Red phosphorus is unabsorbable & nontoxic)	3 Stages of symptoms: 1st—Garlicky taste; garlic odor on breath; local irritation, skin burns, throat burns; nausea, vomiting, diarrhea 2nd—Symptom-free 8 h to several days 3rd—Nausea, vomiting, diarrhea; liver enlargement, jaundice; hemorrhages; renal damage; convulsions, coma Toxicity enhanced by alcohol, fats, digestible oils	Protect patient & attendant from vomitus, gastric washing, feces. If phosphorus is imbedded in skin, keep patient's body submerged in water. Gastric lavage copiously—preferably with potassium permanganate (1:5000) or cupric sulfate (250 mg in 250 ml water); mineral oil 100 ml (to prevent absorption) & repeat in 2 h; combat shock; vit. K_1 IV; transfusion with fresh blood. *No fat or oil in diet until after quiescent period*
Physostigmine Eserine Neostigmine (Prostigmin) Pilocarpine Pilocarpus	Dizziness, weakness, vomiting, cramping pain; pupils dilated, then contracted	Atropine sulfate 0.6 to 1 mg s.c. or IV; emesis (*no apomorphine*)

pearance. It was part of the movement that gave America automobiles with beautiful chromium fittings. The public began to demand white eggs, thinking they were "purer," and willingly paid a premium for them. Apples had to be large and perfect, without an insect bite or other disfiguring blemish. The citrus interests began to add color to oranges, and the dairy people put the cancer-causing butter yellow (now banned) into butter. Industry scandalously pandered to the consumer's taste for beauty and added eye appeal to all items of food regardless of how it damaged their nutritional values.

As the years went on, the problems in the orchards became more perplexing. The chemist mastered one insect and another appeared from nowhere. In one season chemical X destroyed insect Y, but the next year insect Y developed a tolerance to poison X. This led to the perfection of more and more powerful chemical compounds and the need for increasing the number of applications to about fifteen or sixteen a season, disturbing the balance of Nature to such an extent that even the bees that were needed by the orchardist to pollinate the apple blossoms disappeared, so that the farmer had to hire additional people to hand-pollinate his trees. And when this insecticidal bludgeoning with poison sprays got beyond the physical capability of the farmer to handle, he took to the air, and in 1951 the farmers of the United States used six thousand five hundred airplanes to shower upon the earth these expensive chemical poisons.

Entomologists' Attitude

The entomologists—those people who spend their lives trying to prove that man is superior to the insect—are having a tough time. They are frantically attempting to breed varieties of fruits and vegetables that are more resistant to disease and insects.

They are working feverishly to discover magic formulas that will stop the insect dead in its tracks. But for a long time they have had a dangerous idea in the back of their heads. Why not, they say, feed some kind of poison to the plant instead of to the insect, so that every cell and bit of tissue becomes saturated with it? Thus when an insect feeds upon the plant it will be done for. This would be science with a vengeance. They thought of it for so long that they actually did it.

Early in 1952 such a product was launched with powerful hullabaloo. Made from coal, it has the chemical name of Octamethyl Pyrophosphoramide and is either put on the soil around the roots or is sprayed onto the plant itself. In either case it forces itself into every cell of the entire plant. One can judge the potency of such a chemical which has the power of forcing itself so thoroughly and saturating every part of a plant.

Several years ago this idea was discussed in agricultural literature and it was announced that soon such a product would be placed on the market. When I was called as a witness, a few years ago, in a hearing in Washington conducted by the Pure Food and Drug Administration for the purpose of determining permissible residues of poison sprays on foods, I expressed alarm at the possibility that such a practice might be encouraged on food crops, that the public would be eating foods every cell of which was tainted by these systemic chemicals. Up jumped a representative of one of the insecticide companies and stated that it was not the intention that this product be used on food crops. It was only thought of for ornamental plants. But in my mind I harbored misgivings. It was a dangerous trend. I was sure that it was bound eventually to be used on edible crops, and that is exactly what is happening.

Professor R. W. Leiby, entomologist of Cornell University, in the June 1952 *Country Gentleman*, speaks of experiments with Systox on potatoes and apples, and states, "Much more

STOP the SPRAYING

Although the Sprayers are ignoring opposition and the press considers us old news, the campaign against the Medfly spraying program remains active.

Here's what we can do:

1. *Donate $1.00, $5.00, or $50.00* to the Campaign Against Spraying for *full-page newspaper ads to oppose the spraying*. These ads will include a version of the form below, designed to elicit complaints from citizens who presently have no place to turn with their problems.

2. MARCH ON MOFFETT FIELD SUNDAY AUGUST 30 if the spraying has not yet stopped. We will meet at 1:00 p.m. at the County Public Health Department parking lot in Mountain View (at the corner of Central Expressway [Alma] and Moffett Blvd./Castro St.). There will be a rally outside the Moffett main gate. We need volunteers and money to make this event succeed.

3. *Complete the COMPLAINT FORM below and mail it to the Campaign Against Spraying, Box 50336, Palo Alto, CA 94303*. We hope to use this information to initiate political, legal, and administrative challenges to the spraying program. (*Warning:* This is not an official claim form. It is for the use of the Campaign Against Spraying only.)

4. *Phone us to volunteer or to be placed on our phone tree for future activities*. We need people to help run our office, process complaint forms, and keep the public informed of our activities. Before August 1 our number is (415)969-1545. As of August 1 it will be 964-5237.

Please complete one or both portions of this form and return it, as soon as possible, to the Campaign Against Spraying, Box 50336, Palo Alto, CA 94303

Name(s)_____ Phone(s)_____

Address_____City & Zip_____

Part I:

___ I have enclosed $ _____ to help pay for the Campaign.
(Please make checks payable to the Campaign Against Spraying.)

___ I'd like to volunteer in the Campaign Office (in Mountain View).

___ Please add me to your mailing and phoning lists.

Part II -- COMPLAINT FORM -- COMPLAINT FORM -- COMPLAINT FORM -- COMPLAINT FORM

Please include specific information, including the nature of spraying (ground or air), the chemical (malathion or diazinon), and the date of spraying. Feel free to attach additional sheets if yours answer exceeds the space provided.

___ I have experienced the following health problem(s) as a result of the Medfly spraying program:

___ I have incurred the following property damage or economic loss (such as relocation expenses) as a result of the spraying program:

___ I have otherwise been victimized by the spraying program (such as problems caused by inadequate or incorrect notification). Please explain:

___ I would like more information about filing a legal claim for damages from the State. *Note: Claims must be filed within 100 days of the damage.*

State and Federal officials have assured public safety during the aerial spray program yet "there are significant signs from laboratory studies in cell cultures, bacteria and a few animal experiments that the possibility of long-term damage to health appears real." *S.F. Chronicle July 10, 1981.*

POTENTIAL HEALTH RISKS FROM MALATHION SPRAYING

BIRTH DEFECTS

Malathion has been shown to produce birth defects in chickens, rats, and fish. These results have been noted in at least thirteen independent studies.[1-13] In light of evidence that malathion can cross the placental barrier (move between mother and the unborn child), even low maternal exposure levels could produce toxic effects.[14] Organophosphate compounds such as malathion are ten times as toxic in humans as in rodents.

GENETIC MUTATION

"The evidence for mutagenicity is quite compelling"
Summer Kalman, MD Professor of Pharmacology, Stanford Univ.

Chromosome studies after malathion intoxications showed direct mutagenic effects (Chromatid breaks and stable chromosome – type abberations).[15] Very low doses of malathion (2.5 ppm) produce chromosomal abnormalities as determined by sister chromatid exchanges (SCE). It was further noted that subsequent exposures to malathion using much smaller doses produced more chromatid breaks – an indication that the effects are cumulative.[16]

"The indiscriminate use of such substances would logically present the possibility of a genetic legacy of increased mutation frequency and subsequent human hazard."[17]

CARCINOGENICITY (CANCER CAUSING)

In a review of studies by the National Cancer Institute, malathion was found to be carcinogenic in rats.[18] Low doses of malathion have been found to increase the rate of cell division while just the opposite effect is noted using higher doses.

NEUROTOXICITY (NERVOUS SYSTEM)

Malathion causes paralysis of nerve-muscle and some nerve-nerve functions.

Neurological abnormalities occurred in rats after beging exposed to dosage levels roughly comparable to those predicted from the aerial spraying even though toxins were undectable in blood samples.[19] Another study, using humans exposed to organophosphorous compounds, concluded that people who were chronically exposed (over a long term) may have incurred some permanent psychological and motor deficiencies.[20]

ALLERGIC RESPONSES

Malathion is a powerful sensitizer of the skin, causing an allergic dermatitis, in many cases after a single exposure. The medical implication is the probability that many people who are exposed will be sensitized to malathion and will experience skin eruptions on subsequent exposures, even to minuscule amounts.[21] Repeated aerial spraying is likely to elicit allergic reactions ranging from a mild itchy rash to severe asthma-like respiratory disruption.[22]

VIRUSES

It is not known whether or not malathion enhances the effects of viruses yet other organophosphate pesticides do. This property has been correlated with the incidence of Reye's syndrome, which is often a fatal disease.[23]

SYNERGISTIC EFFECTS

Malathion reacts synergistically with other organophosphates. Exposure to both malathion and diazenon, another organophosphate which is now being used in the ground spray program, may thus increase the toxicity level.[24]

INGESTION VS. RESPIRATION & ABSORPTION

When malathion is ingested it has faster access to the liver. But delivered through skin or lung it is liable to persist longer and to have more chances of making "hits" at critical sites in the body. Moreover, the rates at which individuals can metabolize malathion vary. The differences are notably great between newborns and others in the population who do not have the particular enzyme to metabolize malathion or do not have much of it. This may be due to a genetic trait or disease of the liver.[25]

METABOLITES – BREAKDOWN PRODUCTS

Two breakdown products of malathion are malaoxin and isomalathion. Malaoxin is carcinogenic in mice and rats.[26] Isomalathion is more toxic than malaoxin itself. Malathion impurities apparently can appear spontaneously in stored malathion solution. Given the way this product is being stored there is cause for some concern.

DOSAGE LEVELS

Several of the chronic effects discussed above have been observed at doses corresponding to 30-100 mg/kg-body weight. It is not unlikely that some individuals could be exposed to levels as high as 12-24 mg/kg-body weight. It is commonly accepted among toxicologists that protection of public health requires limiting dosage levels to 1/100 the lowest dose which produces effects in animals. In this case there are no assurances that such doses will be achieved even on the average.[27]

ACUTE EFFECTS

Acute malathion symptoms usually develop within 12 hours of exposure and include extreme weakness, muscle twitching, slow heartbeat, tremor, and influenza-like symptoms such as nausea, vomiting, and headache.

Finally we may question whether the legacy from the current spray program will not reverberate with findings different from but just as shocking as those mentioned below.

S.F. EXAMINER – Monday March 16, 1981
SOUTH FLORIDA FROM PESTICIDE POLLUTION

Fort Lauderdale, Fla. – Nearly every resident of heavily agricultural South Florida has traces of pesticide pollution in his body, studies indicate. The area may rank second in the nation for pesticide pollution, surpassed only by the San Joaquin Valley in California, according to the report yesterday in the Fort Lauderdale News and Sun-Sentinel. Twice the amount of DDT is found in South Florida residents as in people living in Northern states, the newspaper said, and traces of a cancer causing chemical – a by-product of pesticides – can be found in urine samples from nearly every resident. The newspaper said nearly one fourth of the men tested at Florida State University had such low sperm counts that they were considered sterile and that all semen samples contained potentially harmful pesticides.

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CAMPAIGN AGAINST SPRAYING – 964-5237 – P.O. Box 50336, Palo Alto, CA 94303

Saturday night live is nothing compared to this.....

Beverlee Myers,
director of the state Department of Health Services...

We want to make sure that the public understands what is going on and that the health effects will be insignificant. Even pregnant mothers, and the fetuses they are carrying, would be in more danger from cigarette smoke than from this dose of Malathion. Project officials said that the spray may damage the lacquer-based paints of many General Moters and Japanese model cars, but that such low concentrations represent no danger to people.

But Rod Diridon, Chairman of the county board of supervisors, said Sunday he still supports leaving the county because there are too many IFs connected with the health service report on Malathion.
They made their findings based on all the data available now, Diridon said, and said they didn't think it would be a danger. But when the whole department of pharmacology at Stanford University thinks otherwise, that is enough of a question for me. They are experts in this field.... not lightweights... These are all quotes from the San Jose Mercury Monday, July 6th '81.....

Malathion: Follow-up Studies of an Epidemic of Pesticide Poisoning in Pakistan

Edward L. Baker, M.D.[1]
McWilson Warren, Ph.D.[2]
Matthew M. Zack, M.D.[2]
Ronald D. Dobbin[3]
James W. Miles, Ph.D.[2]
Stephen Miller, Ph.D.[2]
Steve Alderman[2]
Winnie R. Teeters, Ph.D.[4]

Presented at the Conference on Pesticides and Human Health, Society for Occupational and Environmental Health, Washington, D.C., December 12, 1978.

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[1]Occupational Health Program, Harvard School of Public Health, Boston, MA, and Department of Neurology, Boston University Medical Center, Boston, MA

[2]Center for Disease Control, Atlanta, GA

[3]National Institute for Occupational Safety and Health, Rockville, MD

[4]Environmental Protection Agency, Beltsville, MD

In the summer of 1976 an explosive epidemic of organophosphate insecticide poisoning struck field workers in Pakistan's malaria control program. Over 2,000 cases and five deaths were recorded over a two month period. The suspected cause of this outbreak was occupational exposure to malathion, an insecticide which had previously been felt to be safe.[1] In August of 1976, several of my colleagues from the Center for Disease Control and I visited Pakistan and conducted an investigation into the causes of this outbreak.

Malaria control in Pakistan, as in many other countries, relies heavily on the use of insecticide spraying on household services to control the malaria vector, the anopheles mosquito. In Pakistan, prior to 1976, DDT and benzene hexachloride were used as the primary residual insecticides. However, as vector resistance to these pesticides emerged, malathion was chosen as the primary insecticide used during the 1976 spray season. The malathion used during that year, a total of 7,000 metric tons of a 50% water dispersable powder, was purchased from three manufacturers, one in the United States and two in Italy. Approximately 60% of the cost of pesticide used during the 1976 spray season was provided by the United States Agency for International Development and our presence in Pakistan was as advisors to AID in this investigation.

Our investigation[2] of this episode had four components. First, an epidemiologic survey was undertaken to assess the prevalence of pesticide poisoning. This questionnaire survey of a systematic sample of ten percent of the nearly 7,500 workers

(Slide 1, Table 1) revealed that 40 percent of the workers had experienced an illness compatible with pesticide intoxication during July, 1976. Spray men and mixers, who had the most direct pesticide exposure, had the highest attack rate. There were five deaths in spray workers attributed to malathion poisoning. Illnesses occurred during the first week of spraying (Figure 1, Slide 2) and continued for several weeks as the pesticide continued to be used in field operations. Illness occurred throughout the country and seemed to be more prevalent in areas where the Italian pesticide formulations were used. Further analysis of the distribution of cases through the week (Slide 1, Figure 2) showed that illnesses seemed to have occurred toward the end of the six-day work week, consistent with the known cumulative toxicity of organophosphate insecticides.

Since the question of relative toxicity of these pesticide formulations was central to this epidemic, the second stage of our study involved a field investigation of workers using these three different pesticide formulations. As part of this field investigation, careful observation of work practices were conducted under the direction of Mr. Ronald Dobbin of NIOSH. These work practices were found to be unsatisfactory in several respects (Slide 4). The mixers used their hands for mixing the pesticide with water with resulting excessive dermal exposure to the pesticide suspension. The spray men (Slide 5) also had excessive contact with the pesticide during the filling of their spray

tanks and during pesticide application (Slide 6). Workers worked in their own clothing and carried these garments home with them at the end of the work day, with potential contamination of their home environment. Villagers (Slide 7) were also exposed to the pesticide during spray operations. We estimate that in an average work day approximately 100,000 villagers across the country were exposed to pesticide during spray operations within their homes. Although these residents were supposed to have left their homes and to have removed all the furniture from their homes, some did not.

The second phase of our field study involved determination of cholinesterase levels in field laboratories directed by Dr. Steven Miller. Cholinesterase levels were drawn before and after the work day to compare the toxic effect of different pesticide formulations under field conditions (Slide 8, Table 2). These studies showed that the mean red blood cell cholinesterase level, as measured by the Michel method[3], were lowest at day's end for spray men and mixers using the two Italian formulations. These cholinesterase levels were less than 50 percent of the control level of unexposed villagers in Pakistan. Furthermore (Slide 9, Table 3), these levels represented up to 47 percent reduction in red cell cholinesterase over one work day. The reduction in cholinesterase levels was also associated with symptoms of organophosphate pesticide intoxication in some of these workers.

In view of the apparent increased toxicity of these formulations, chemical analyses of these samples used in the field were performed in the CDC laboratory under the direction of Dr. James Miles (Slide 10, Table 4). These analyses revealed that the increased toxicity was due primarily to the presence of isomalathion, a breakdown product of malathion which is approximately ten times as toxic as malathion itself. Since we had analyzed samples of the actual pesticide used by the spray teams, we were able to compare (Slide 11, Figure 3), the amount of isomalathion in the sample with the blood cholinesterase level in workers using this product. This linear regression analysis shows that workers using the pesticide with the highest malathion content had the lowest cholinesterase levels at the end of the work day and that a close correlation existed between the cholinesterase level and the percentage isomalathion content of the pesticide formulation used. Finally, as a further index of toxicity, the pesticide formulations were tested using rats to determine the oral LD-50 concentration (Slide 12, Table 5). This testing confirmed our finding in humans, namely that the two Italian formulations had the greatest toxicity in animals, as reflected in their lower LD-50 values.

Additional field studies of dermal and airborne exposure levels in this group, that I will not havetime to discuss, indicated that percutaneous abosrption of pesticide was the primary route of exposure.

Accordingly, we recommended that effective control of pesticide-related illness could be accomplished first through proscription of use of the two formulations of malathion which were demonstrated as having increased toxicity, and secondly through improved work practices designed to minimize dermal pesticide exposure. Spraying then continued through the 1976 spray season, using only the less toxic product and more careful handling techniques. Cholinesterase monitoring was carried out through the remainder of the spray season.

To facilitate implementation of our recommendations in the following spray season, training programs under the direction of Dr. Jesse Hobbs were conducted prior to the start of spraying operations in 1977. New uniforms and equipment were provided (Slide 13) to minimize exposure to malathion during spray operations. Through the efforts of Dr. Miles and his collaborators at the World Health Organization, more precise specifications for malathion have been developed to ensure that breakdown products are not present in formulations used in future malaria programs. Further research has also revealed that the apparent source of these breakdown products is accelerated degradation of the pesticide under tropical storage conditions.

To monitor the use of malathion in these workers, field laboratories were established for the determination of cholinesterase levels using the tintometric kit[4] in the spring of 1977 (Slide 14). We used this kit, along with the standard Michel method, in our 1976 study and we found that there was relatively

poor correlation between values obtained using these two methods. Dr. Miller had investigated this discrepancy and found it to be due to the introduction of CO_2 in the sample during pipetting. He has subsequently devised a modification of the technique which corrects this problem.

The results of cholinesterase testing in 1977 (Slides 16 and 17, Tables 6 and 7) show that despite these efforts, depression of cholinesterase continued to occur in workers using malathion in the Pakistan malaria control program. Comparison between these data and that collected in 1976 is tempting and would show that the levels noted here appear to be somewhat better than those that we noted one year previously. If, however, we look more closely at the data from one province, we can see a rather disturbing trend (Slide 17, Table 8). Cholinesterase levels begin to fall during the first and second week of spraying and reach their nadir during the third and fourth weeks. These levels appear to plateau at a median level of approximately 75 percent activity at about the seventh to eighth weeks. It is alarming to note that over 30 percent of workers had levels at or below 50 percent activity during the third to the fourth weeks of working. This is a level at which we expect symptoms and signs of cholinesterase inhibition to become manifest.

Despite these low levels, very few overt cases of pesticide intoxication occurred in 1977, in part because workers were removed from exposure when their levels dropped below 75 percent,

and they were required to remain away from work until these levels had returned to normal range. Therefore, through this combined program of medical surveillance and improved handling practices and through more stringent pesticide specifications, a repeat of the 1976 epidemic was avoided.

This investigation has clearly shown the hazards of the use of toxic pesticides in a developing country. Information obtained in more developed countries regarding the toxicity of this pesticide had resulted in a false sense of security among program leaders in Pakistan. Fortunately, a greater appreciation of the toxicity of this pesticide and of appropriate methods for handling it resulted in prevention of significant illness among workers in the program during the second year of malathion use. As vector resistance to the more conventional pesticides used in malaria programs increases around the world, more toxic pesticides such as malathion will be used. In fact, some countries in South America are now reporting resistance of the malaria vector to malathion and other organophospbate insecticides. Clearly, these trends point toward a need for a more integrated approach to malaria control with less reliance on pesticide use and, in those situations where pesticides are to be used, exercise of extreme care in handling of these toxic materials.

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TABLE 1

ESTIMATED NUMBER OF MALATHION-EXPOSED WORKERS

July 1976

Province	Supervisor	Mixer	Spraymen
Punjab	650	650	3,250
NWFP	420	420	2,100
Total	1,070	1,070	5,350
TOTAL:	7,490		

TABLE 2

END-OF-DAY RED CELL CHOLINESTERASE LEVELS

BY JOB CATEGORY AND TYPE OF PESTICIDE USED

Pakistan, 1976

	CHOLINESTERASE LEVELS (ΔpH/HOUR)*								
	Supervisor			Mixer			Spraymen		
Pesticide	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.
U.S. Malathion	14	0.62	0.12	11	0.58	0.10	66	0.58	0.12
Italy A Malathion	2	0.59	0.00	4	0.34	0.06	18	0.38	0.14
Italy B Malathion	6	0.59	0.17	6	0.39	0.25	28	0.24	0.15

*Normal range: 0.58-0.88 ΔpH/hour; based on testing of unexposed village adult males in Pakistan.

TABLE 3

MEAN RELATIVE CHANGE* IN RED CELL CHOLINESTERASE DURING SPRAY DAY BY JOB AND BY BRAND

Brand of Malathion	RELATIVE CHANGE (%)		
	Supervisor	Mixer	Spraymen
American		-0.8%	-3.1%
Italy A	+3.2%	-20.1%	-11.2%
Italy B	+0.2%	-39.2%	-46.7%

*(P.M. red cell cholinesterase level—A.M. cholinesterase level)/A.M. cholinesterase level

TABLE 4

PERCENTAGE OF MALATHION AND MINOR COMPONENTS IN SAMPLES FROM 3 SUPPLIERS USED IN PAKISTAN, 1976

Minor Component	Mean Percentage in Sample		
	U.S. (N=14)	Italy A	Italy B
DMPH	--	0.6	-
TMTP	0.2	0.1	0.5
TME	0.9	0.5	1.0
DEF	0.6	0.6	0.5
DEMS	0.3	0.3	1.2
DEMMS	0.3	0.3	0.4
PSP	0.8	0.2	2.0
Mixed ester of malathion	0.2	2.6	2.3
Malathion	44.1	45.5	35.3
Maloxon	0.01	-	0.1
Isomalathion	0.3	2.1	3.1
TEMS	0.9	0.1	0.2
TEDS	0.7	0.1	0.6

TABLE 5

MEAN ORAL LD_{50} CONCENTRATIONS, ISOMALATHION LEVELS AND POST-SPRAY CHOLINESTERASE LEVELS BY MALATHION BRAND

	Rat Oral LD_{50}* (mg/kg)	Isomalathion Content (% of weight)	Post-spray Cholinesterase Level** (ΔpH/hour)
Brand 1	1940	0.3	0.58
Brand 2	626	2.1	0.38
Brand 3	325	3.1	0.24

* For 50% malathion powder
** Mean level in spraymen using each brand during work day

TABLE 6

SUMMARY CHOLINESTERASE RESULTS, PAKISTAN MALARIA CONTROL PROGRAM, 1977

	Cholinesterase Level (% Normal Activity)					
	Total	100%	87%	75%	62%	≤50%
Number	3517	1786	794	551	228	158
Percent	100%	50.8%	22.6%	15.7%	6.5%	4.5%

TABLE 7

CHOLINESTERASE LEVELS, NORTHWEST FRONTIER PROVINCE, 1977

	Cholinesterase Level (% Normal Activity)					
	Total	100%	87%	75%	62%	<50%
Number	635	319	98	79	59	70
Percent	100%	50.2%	15.4%	12.4%	9.3%	11.0%

TABLE 8

CHOLINESTERASE LEVELS BY WEEK,
NORTHWEST FRONTIER PROVINCE,
1977

Weeks Worked	Median Cholinesterase Level	Number Tested	Percent of Workers With Level Below 62%
0	100%	211	0
1-2	100%	101	5.9
3-4	62.5%	95	34.7
5-6	87%	78	12.8
7-8	75%	67	23.8
9	75%	40	12.5

Fig.1: CASES OF PESTICIDE INTOXICATION, BY WEEK OF ONSET, LYALLPUR DISTRICT, PAKISTAN, JUNE-AUGUST 1976

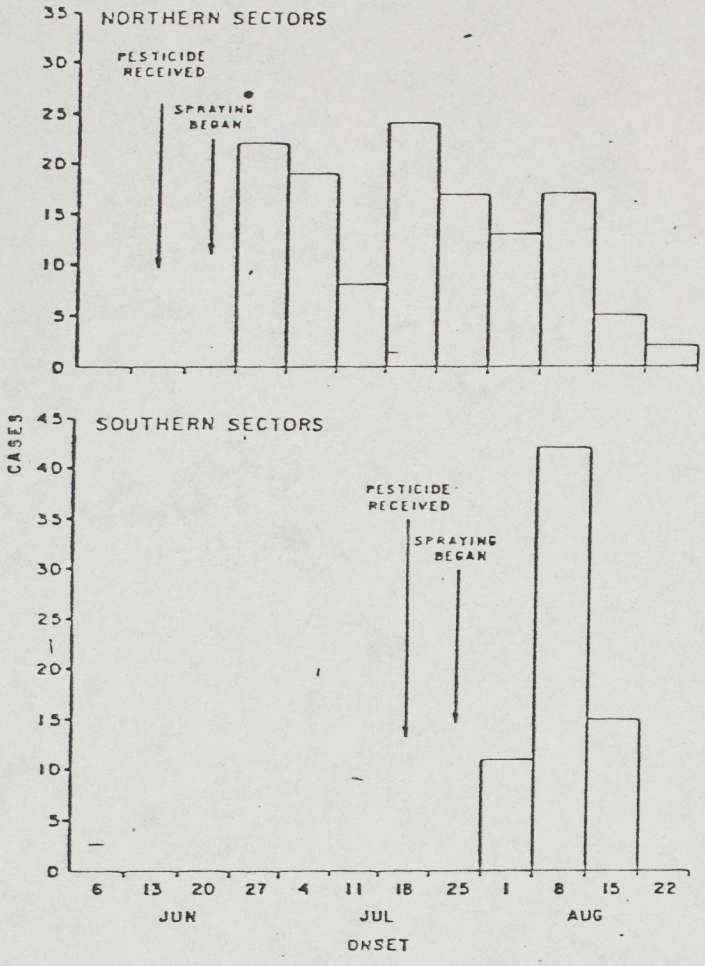
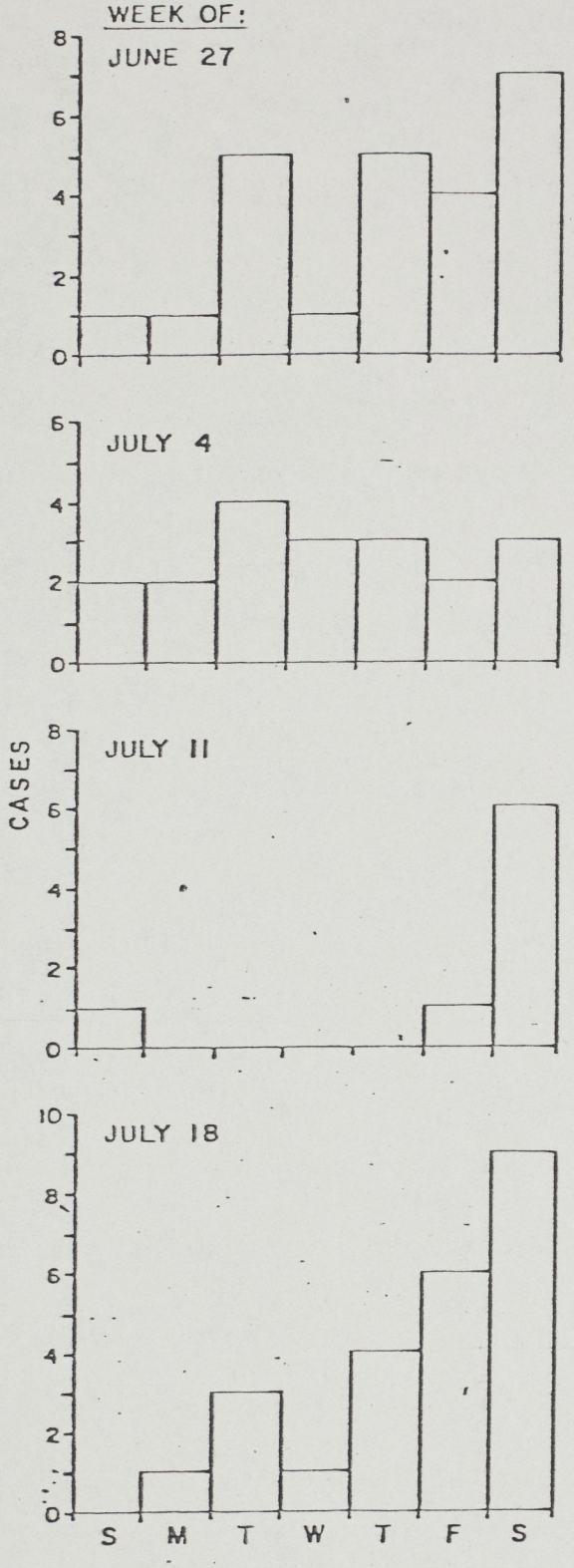


Fig 2: CASES OF PESTICIDE INTOXICATION, BY DAY* OF ONSET, LYALLPUR DISTRICT, PAKISTAN, JUNE 27 – JULY 24, 1976



*MONDAY–SATURDAY; NO SPRAYING ON SUNDAY

OFFICE OF THE GOVERNOR
Sacramento, Calif. 95814
Cari Beauchamp, Press Secretary
916-445-4571 7-10-81 #234

Following is a statement issued today by Gov. Edmund G. Brown Jr.

"The decision of the U.S. Department of Agriculture to quarantine statewide 200 types of fruits and vegetables leaves California with no alternative, we are being forced into aerial spraying.

"The quarantine would require a massive fumigation program imperilling the lives and health of thousands of produce workers.

"That is not acceptable.

"Fumigation requires use of poisons that are deadly, they kill humans.

"They are a hundred times more deadly than malathion, the medfly spray.

"We also face an economic disaster of unprecedented proportions, the virtual shut down of a major part of the state's $14 billion agricultural industry by federal order.

"I am not prepared to expose thousands of workers to the peril of deadly fumigation poisons and I am not prepared to precipitate an economic crises that would cause huge losses and widespread unemployment.

"Therefore, I am ordering the beginning of aerial spraying as soon as we can establish safety procedures and properly inform the residents of the affected areas.

"The action of the Reagan administration in threatening a quarantine is sabotage. We asked them to give us time to allow our ground spraying operation to work. I called the White House and I also talked directly with Secretary of Agriculture Block. They have rejected our program in favor of aerial spraying which threatens the well being and security of 500,000 residents, including pregnant women, infants and children. The Reagan administration has effectively taken away the ground spraying option which I am convinced will work.

"Aerial spraying is widespread and indiscriminate. Ground spraying is specific and controlled. This program has worked effectively in combination with fruit stripping, the local quarantine and the use of biological controls through sterile fruitflies.

"Now it must be abandoned for a program which takes this country further and further down the road to increased use of deadly and toxic chemicals. We must draw the line against the further spread of deadly chemicals in our environment and in the food we eat."

# # # # # #

FAMILY HEALTH FOUNDATION OF ALVISO, INC.

DECLARACION DE POLIZAS RELACIONADAS CON EL TRATAMIENTO AEREO CON "M A L A T H I O N"

1. La Fundación FHFA ha urgido al Gobernador Brown que tome cualquiera y todas las medidas necesarias para prevenir el tratamiento aéreo de "Malathion" sobre las áreas pobladas.

2. Urgimos a todos los pacientes que reduzcan el exponerse al "Malathion" manteniéndose dentro de su casa durante el tratamiento aéreo y por o más de 24 HORAS DESPUES DEL MISMO.

3. Los siguientes pacientes constituyen o forman grupos de alto riesgo y se les aconseja tomar medidas para reducir el contacto con el mismo líquido tóxico permaneciendo dentro de su casa durante el tratamiento aéreo y por 72 HORAS DESPUES, o si es posible, salirse del área afectada:

*Las mujeres que sospechen o que sepan que están embarazadas y que estén durante el primer trimestre de embarazo y niños pequeños.

*Los pacientes que padezcan enfermedades cardio-respiratorias. (heart and lungs)

*Los pacientes que padezan alta sensitividad organofosfática.

*Pacientes con deficiencias de inmunidad a las enfermedades

4. Por la primera semana del mes de julio 12 hasta el 19 del mismo, la sesión de las mañanas en las clínicas de la Fundación a partir de las 9 de la mañana hasta la una de la tarde del día siguiente a cada uno de los tratamientos aéreos se RESERVARAN SOLAMENTE PARA EMERGENCIAS. A los pacientes electivos se les darán otras fechas para sus citas, TODOS LOS EMPLEADOS DEBEN CONSULTAR CON SUS SUPERVISORES EN LA MAÑANA DESPUES DE CADA TRATAMIENTO AEREO PARA SABER DE LAS HORAS DE TRABAJO.

5. La Fundación intenta coordinarse con las agencias de salud pública y los grupos comunitarios en esfuerzos combinados para prevenir la aplicación aérea del "Malathion" o cuando menos aminorar la exposición al mismo.

POR FAVOR TOME NOTA DE LAS PRECAUCIONES ADICIONALES ADJUNTAS

Sylvester Quevedo, M.D., M.P.H.
Medical Director

Roy Jiménez
Executive Director

La Donna Bray
Chairman of the Board

JR/mbm -July 13, 1981

was some decrease in plasma cholinesterase activity in certain workers.

During the St. Louis encephalitis epidemic in Corpus Christi, Texas, in the fall of 1966, malathion was applied by aerial spraying over the city and outskirts to control the vector mosquito. Gardner and Iverson (1968) studied a group of 119 volunteers who received varying degrees of exposure to this spray. This study involved comparing pre-spray and post-spray cholinesterase activities and compiling histories of exposure and symptoms. A 5% incidence of mild and transient symptoms such as headache, nausea and weakness was noted in the exposed volunteers, but there were no pathognomonic signs. There was no correlation of symptom frequency or severity with enzyme activity and no statistically or clinically significant change in enzyme activity related to time of spraying. It was concluded that there was negligible risk to human health involved in aerial applications of malathion.

Although the measurement of cholinesterase activity in humans has been used in the control of occupational exposure to organophosphate insecticides, it is a nonspecific method and requires high levels of exposure for detection of significant decreases in cholinesterase activity. This is especially apparent in the case of those pesticides which are weak cholinesterase inhibitors. In addition, the levels of cholinesterase vary greatly, thus making interpretation difficult.

A more precise method for determining exposure to the newer biodegradable pesticides, such as organophosphorous and carbamate insecticides, is the determination of their metabolites in body fluids. Studies in laboratory animals indicate that the determination of their metabolite concentration in body fluids, especially urine, provides a specific and more reliable index of exposure (Hunter et al. 1972 and Mattson and Sedlak 1960).

The objectives of this article are to report the incidences and levels of certain organophosphorous metabolites in human urine before and after exposure to the insecticide naled, applied for adult mosquito control. Metabolite determinations were made on urine from the general population and from occupationally-exposed mosquito control workers. Additionally, information was collected regarding the location of the person sampled at the time of spraying and about the accidental or intentional protective measures used.

METHODS AND MATERIALS

An area near Dover, Delaware, was selected for this experiment. This area of approximately 3,400 acres was chosen because it is routinely treated for adult mosquito control whenever mosquito biting counts and other measures of mosquito activity reach pestiferous levels. The insecticide used was naled (Fig. 1) applied by a twin-engine aircraft. The spray plane was calibrated to deliver 2 quarts of No. 2 fuel oil per acre (0.05 lb. actual). The droplet characteristics, as measured prior to application, were as follows:

Mass Median Diameter = 120μ
Range = 35 275μ
Average Deposit = 15 droplets/in^2

The actual application was made under the direction of the Mosquito Control Section of the Division of Fish and Wildlife, Delaware Department of Natural Resources and Environmental Control, and in all respects conformed to label directions.

A sample of the prepared insecticide was analyzed by a U.S. Environmental Protection Agency Laboratory at Beltsville, Maryland. Thin layer chromatography and gas chromatography—flame photometry systems were employed. The results indicated that naled was present in the solution at a concentration of about 1%. The tests also showed that another insecticide, temephos, was also present in trace amounts (less than 0.04%). Temephos is an organophosphate insecticide also used in mosquito abatement. Its chemical structure and exact nomenclature are given in Figure 2. No investigation was made to determine the sources or causes of this contamination.

THE BEELZEBUB PLAN

Once again David Rockefeller is attempting to control our life style. He owns Chevron (Ortho), the main producer of malathion and, the City. of San Jose is preparing to smother itself with this poison come March.

This modern Pharoah, that carries a scarab and worships Beetles is using this city for a madness plan (to spray with flammible poison or any kind of poison is madness) we call the "Beelzebub Plan".

The same thing happened in Florida, in 1929 between May 1st and October 1st. and, again in 1956 (this spread into 28 counties) then again in 1962. Ask the victims what really happened after these mad scientific experiements. It's like putting Exxon's lab experimenting on a powerful flamable formula exactly on an earthquake fault or P.G.E.'s Diablo Nuclear Power Plant 2 miles from a earthquake fault.

There are questions to ask this Dragon Fly that gives authority to the beast, the Shah of Babylon (Iraq), that even now is bringing nations together against Iran's Black Gold.

A war monger can not save us from this man caused pestilence. We must put our faith in God. Not on any false one that plays a major role in causing these plagues, sufferings, wars, and then later comes as a "savior" for this world. Hasn't the history of the Holy Bible taught us anything about the way he has deceived us? Knowing the weakness of our pride, there are questions that we must answer so we can develop natural solutions and increase spiritual security to endure this test of our faith in our Lord.

Following is a sample of the questions we want answered <u>before</u> the spraying:

1. What is the complete history of usage of malathion?
2. Cythion is a premium grade of malathion. What does it do to us or animals of any kind? What differences if any from malathian does it have?
3. Is malathion flamable?
4. How much will be needed?
5. What will it do to the Lady Bug, Praying Mantis or any insect that protects us from other insects that can really clean us out in the garden?
6. What does it do to the livestock? Birds? Fish?
7. How much of the malathion will reach our water supply above and below ground?
8. Can we drink our water after the aerial spraying?
9. What effect can malathion have on our skin or bodies after ingesting the contaminated water?
10. What would it do to people on different medication?
11. What effect will or reaction will malathion have when combined with other chemicals used to treat sewage at our sewage plants?
12. Do these sterile male flies have chemicals with cancerous properties?
13. Can mass aereal spraying do something to the weather?

Illustration by Alex Gnidziejko

OFFICE OF THE GOVERNOR
Sacramento, Calif. 98614
Cari Beauchamp, Press Secretary
916/445-4571 7-10-81

RELEASE: Immediate

#283

Gov. Edmund G. Brown Jr. signed the following emergency proclamation Order No. 2, on Thursday, July 9:

Executive Department
State of California

MEDITERRANEAN FRUIT FLY
EMERGENCY PROCLAMATION ORDER NO. 2

This order is based on the Amended Proclamation of a State of Emergency dated July 8, 1981 concerning the infestation of the Mediterranean fruit fly in the counties of Alameda, Santa Clara, and San Mateo, a copy of which is attached hereto and made a part hereof, and Government Code Section 8646 (d).

Those portions of Alameda, Santa Clara and San Mateo Counties described as follows, within which the Mediterranean fruit fly is known to exist, are hereby proclaimed to be a quarantine area with respect to said pest:

(1) Santa Clara County. That portion of Santa Clara County within the following described lines: starting at the point near Coyote on U.S. Highway 101 (also known as Monterey Road) where Bailey Avenue begins; thence southwesterly on Bailey Avenue to McKean Road; thence generally northwesterly on McKean Road to Almaden Road; thence along a straight line drawn due south from the juncture of McKean Road and Almaden Road to the boundary line of the Almaden Quicksilver County Park; thence along the northeast, southeast, and south boundary line of the Almaden Quicksilver County Park to Hicks Road (near Twin Creek); thence along a straight line drawn from the juncture of Hicks Road with the Almaden Quicksilver County Park line near Twin Creek southerly to where Loma Prieta Road crosses the Santa Cruz and Santa Clara County Line; thence generally northeasterly along the Santa Cruz and Santa Clara County Line to the San Mateo and Santa Clara County Line; thence northeast along the San Mateo and Santa Clara County Line to the Alameda and Santa Clara County Line; thence generally easterly along the Alameda and Santa Clara County Line to Mount Day Road (near Camp Ohlone); thence along a straight line drawn southeasterly to the peak of Black Mountain; thence from the peak of Black Mountain along a straight line drawn due south to the boundary line of the Joseph D. Grant County Park; thence along part of the northern, all of the eastern, and part of the southern boundary line of the Joseph D. Grant County Park to San Felipe Creek; thence generally south along San Felipe Creek to San Felipe Road No. 2; thence generally southwesterly along San Felipe Road No. 2 to Metcalf Road; thence generally southwesterly along Metcalf Road to U. S. Highway 101 (also known as Monterey Road); thence from the juncture of Metcalf Road and U. S. Highway 101 (also known as Monterey Road) southeasterly along U. S. Highway 101 (also known as Monterey Road) to the point of beginning.

(2) Alameda County. That portion of Alameda County which includes all of the Cities of Fremont and Newark and part of Union City and is within the following described lines: starting at the point where the Fremont City limit line meets the

eastern shore of the San Francisco Bay near the mouth of the Alameda County Flood Control Channel or Coyote Hills Slough; thence along the Fremont City limit line to Dry Creek (just about .3 of a mile south and slightly east of the intersection of Alvarado-Niles Road and Central Avenue); thence generally northerly to Whipple Road; thence easterly to the intersection of Whipple Road and Mission Boulevard; thence along a straight line drawn easterly to the most northern tip of the Fremont City limit line; thence along a straight line drawn due east for three miles, thence along a straight line drawn due south to State Highway 84 (Niles Canyon Road); thence generally southwesterly along State Highway 84 (Niles Canyon Road) to the Fremont City limit line; thence starting south and following the Fremont City limit line all the way around part of the eastern, all of the southern, and part of the western city limit lines of the City of Fremont to the point of beginning.

(3.) San Mateo County. That portion of San Mateo County within the following described lines: starting at the point where the San Mateo-Santa Clara County line joins the Alameda County line in the Bay of San Francisco; thence southwesterly along the San Mateo-Santa Clara County line until it intersects Skyline Boulevard (State Highway 35); thence northwesterly along Skyline Boulevard to where it joins State Highway 92, thence northeasterly along State Highway 92 and Arthur Younger Freeway until the interchange where Ralston Avenue joins State Highway 92 from the east; thence easterly along Ralston Avenue to the center of the overpass at the junction of Federal Highway 101; thence from the center of the overpass due east in a straight line until it intersects the Alameda-San Mateo County line in the San Francisco Bay; thence southeasterly along the Alameda-San Mateo County line to the point of beginning. This includes all of the cities and settlements of Atherton, East Palo Alto, Ladera, Menlo Park, Portola Valley, Redwood City, San Carlos and Woodside and that portion of Belmont lying south of Ralston Avenue.

Mediterranean fruit fly hosts include all fruits, nuts, vegetables, or berries of the following agricultural, wild, or ornamental plants:

Capsicum frutescens	Peppers
Casimiroa edulis	White sapote
Citrus aurantiifolia	Lime
Citrus aurantium	Sour orange
Citrus grandis	Pummelo, Shaddock
Citrus limon	Lemon
Citrus medica	Citron
Citrus mitis	Calamondin orange
Citrus paradisi	Grapefruit
Citrus reticulata	Mandarin orange, tangerine
Citrus sinensis	Sweet orange
Cydonia oblonga	Quince
Diospyros kaki	Japanese persimmon
Eriobotrya japonica	Loquat
Eugenia brasiliensis	Spanish Cherry, Brazilian plum
Eugenia jambos	Rose-apple
Eugenia malaccensis	Mountain apple

Eugenia uniflora	Surinam cherry
Feijoa sellowiana	Feijoa, pineapple guava
Ficus carica	Fig
Fortunella japonica	Kumquat
Juglans spp (with or in husk)	Walnuts and butternuts
Lycopersicon esculentum	Tomato
Malus sylvestris	Apple
Murraya exotica	Mock orange
Olea europaea	Olive
Opuntia spp.	Pricklypear, Tuna prickly-pear, Indian-fig, and Opuntia
Persea americana	Avocado
Phoenix dactylifera	Date palm
Prunus americana	Native American plum
Prunus amygdalus	Almond
Prunus armeniaca	Apricot
Prunus avium	Sweet Cherry
Prunus cerasus	Sour cherry
Prunus domestica	Plum, prune
Prunus persica	Peach
Prunus persica nectarina	Nectarine
Prunus salicina	Japanese plum
Psidium cattleianum	Strawberry guava
Psidium guajava	Common guava
Psidium guajava pomiferum	Pomiform guajava
Psidium guajava pyriferum	Pyriferm guajava
Punica granatum	Pomegranate
Pyrus communis	Pear
Terminalia chebula	Natal plum
Thevetia peruviana	Yellow oleander, bestill
Vitis vinifera	Grape

No persons shall transport any Mediterranean fruit fly host out of the quarantine area except in accordance with regulations promulgated by the Director of Food and Agriculture (Mediterranean Fruit Fly Interior Quarantine).

All persons residing within the quarantine area shall remove all Mediterranean fruit fly hosts from trees and plants located on their property by 5:00 p.m. on Monday, July 13, 1981.

Residents who require assistance in the removal of hosts from trees and plants on their property shall receive such assistance from state agencies or designated civilian volunteers.

Mediterranean fruit fly hosts shall be placed in secure tied plastic bags and placed at the curb for pickup, or disposed of in accordance with an alternate method specified by the Director of Food and Agriculture.

Pickup and disposal of Mediterranean fruit fly hosts removed by residents within the quarantine area shall be the responsibility of state and local agencies.

The California Highway Patrol shall have responsibility to select highway quarantine checkpoints, and direct traffic in and about the checkpoint areas. Inspectors employed by

the Department of Food and Agriculture shall have responsibility to conduct inspections and take necessary enforcement action to prevent the removal of Mediterranean fruit fly hosts from the quarantine area.

Inspectors employed by the Department of Food and Agriculture may require all persons in possession of Mediterranean fruit fly hosts within the quarantine and adjacent areas to document the origin of the hosts. The inspector may confiscate the hosts if he or she determines that the host is being held in violation of law, may be transported out of the quarantine area in violation of law or presents a risk of being infested with Mediterranean fruit fly larvae.

Any person who refuses or willfully neglects to obey any provision of this order shall be guilty of a misdemeanor and, upon conviction thereof, shall be punished by a fine of not to exceed five hundred dollars ($500) or by imprisonment for not to exceed six months or by both such fines and imprisonment. (Government Code Section 8665)

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this ninth day of July, 1981.

Edmund G. Brown Jr.

GOVERNOR

ATTEST:

March Fong Eu

Secretary of State

By

by Rhea Dudeck

Deputy Secretary of State

California Agrarian Action Project

Central Coast Office:
P.O. Box 1220, Gilroy, CA 95020
(408) 842-1256

FOR IMMEDICATE RELEASE
July 14, 1981

BUREAUCRATS KEEP MALATHION HEALTH DATA SECRET

Although state agriculture officials say that no health hazard will be presented from use of malathion to combat the Mediterranean fruit fly, they are unwilling to allow the public to see health studies which should prove or disprove their claim. They are keeping secret information on the health effects of pesticides submitted by manufacturers. These include studies on the treatment of poisoning, toxic effects, and long-term effects such as cancer, birth defects, sterility and miscarriages.

Calif. Agrarian Action Project, a rural political organization, has asked the state to release data on 12 pesticides, including malathion. After 18 months, the Dept. of Food and Agriculture has succeeded in declassifying only a magazine article and the hand-typed, 1½ page summary of three studies.

A resolution of support for the declassification of this data will be considered by the Santa Clara County Board of Supervisors today at 10:30 a.m.

BEFORE THE BOARD OF SUPERVISORS
SANTA CLARA COUNTY

WHEREAS the California Department of Food and Agriculture has issued an emergency exemption for the registration of the pesticide malathion so it may be applied by air on urban areas of Santa Clara County for control of the mediterranean fruit fly; and

WHEREAS that Department plans to expose many thousands of people to the pesticide, claiming that no significant health hazard is to be expected; and

WHEREAS many respected medical authorities disagree with this assessment, and that the very young, the very aged, and the infirm are especially at risk; and

WHEREAS the California Department of Food and Agriculture refuses to make public information that it has in its registration files on the health effects of the pesticide malathion under any of its brand names; and

WHEREAS officials of the County of Santa Clara and of several municipalities have indicated their interest in participating in the vital government decision, and need all available information that would allow them to accept or refute the controversial claim of malathion's safety

BE IT RESOLVED THAT the health data submitted by chemical manufacturers when they register their products with the state Department of Food and Agriculture be opened to the public. Studies on the acute effects of pesticides, and their potential to cause long-term health problems such as tumors, cancer, miscarriages, birth defects and other reproductive disorders should be available to medical professionals, health officials, and the general public.

BUREAUCRATS KEEP HEALTH DATA SECRET

by California Agrarian Action Project

Each year California doctors treat some 14,000 victims of pesticide poisoning. While state law requires chemical manufacturers to prove their products are safe and to provide information on how to treat poisoned patients, our agricultural officials have classified these studies as secret. This information on the health effects of pesticides remain closed to the public, even doctors.

When the state adopted a new regulation to provide for declassification of this pesticide registration data in January, 1980, California Agrarian Action Project asked for the release of health and safety studies on eleven widely used pesticides. We made this request not because we want to ban any single pesticide, but because our membership includes small farmers, agricultural workers and other rural residents who are being exposed to pesticides in their workplace, in their drinking water, and in their communities.

The state's new regulations allows for disclosure only after the chemical manufacturer is twice asked if it has any objections. The California Department of Food and Agriculture has released two pesticide registration studies, but reversed an earlier ruling and decided to keep confidential two other studies evaluating whether the insecticide Di-Syston causes birth defects or mutations.

At the current rate it will be a thousand years before the state declassifies all pesticide health data. It has set up a cumbersome system to release the studies, sacrificing the public health interest to an overzealous concern that potential "trade secrets" of chemical manufacturers be protected.

The Di-Syston studies decribe the chemical's ability to cause mutations and birth defects in laboratory animals. Responding to pressure from Mobay Chemical Company, California Department of Food and Agriculture Counsel Jim Davis reversed an earlier ruling which would have released the information to the public. Davis says his agency fears a lawsuit from Mobay if it releases the data. Clark Ridpath of Mobay revealed that the two studies have been declared invalid by the Environmental Protection Agency, because the private lab that conducted the tests has no data to support their conclusions.

The Department has released two other studies among those requested by C. A. A. P., concerning the insecticide Carbaryl. The agency released a one and a half page summary of three studies, and a reprint of an article from a scientific journal. Though the article is freely available in most medical libraries,

it was classified as secret because the manufacturer, Union Carbide Co., had stamped "confidential" on its pages. The state sent two letters and waited a number of weeks to determine that Union Carbide had no objection to declassifying the article.

The state's pesticide registration program is a game where only the chemical companies and government officials can see the cards. Public health is the stakes, yet the public does not even know what the cards look like, let alone how many of them are in the deck.

The chemical industry argues its studies contain trade secrets, information on confidential ingredients or secret manufacturing processes. Many, if not most of the health studies do not contain this sort of industrial secret however. The manufacturers' greatest concern is that their health studies will be "stolen" by competitors trying to register their own brand of the same product. Patents protect against this sort of corporate theft, however. For products with expired patents and competing products, the secrecy of registration data means that every producer must provide its own battery of tests. This costly duplication of effort is especially ironic when one remembers that the pesticide manufacturers continually complain about the expense of complying with pesticide testing regulations.

Even if the companies could prove their studies contain "trade secrets" legal precedent says this concern should be overrruled when there is a compelling public interest at stake. The Department of Food and Agriculture has taken exactly the opposite course, zealously guarding registration data.

An audit of registration files conducted in 1977, and another conducted in 1980 revealed that the state does not have essential information on the long-term health effects of a large number of pesticides. Even so, the agricultural officials have ruled that they are safe to use.

The secrecy afforded registration data meant that health authorities could not look at studies which showed the pesticide DBCP can cause rats testicles to shrink. The public became aware of the hazard only after workers who mixed and canned the chemical became sterile. By then DBCP had seeped into the water table in areas where it was used to treat orchards and vineyards. Some 155,000 people were drinking water contaminated with what the state considers unsafe levels of the compound.

After a lapse of four and a half months, the Department of Food and Agriculture responded to C. A. A. P.'s request to see seven studies on how to treat the victims of pesticide poisoning. Department Legal Counsel Jerry Thomas reported that the studies could not be released because they have never been received by the state. A new state regulation requires that these studies be submitted.

The effort to release pesticide registration health data has been endorsed by the Sacramento County Board of Supervisors; Golden Empire Health Systems Agency; International Brotherhood of Electrical Workers; the State Board of Landscape Architects; Citizens for a Better Environment; Agricultural Workers' Health Center, Stockton; Watsonville Campesino Center; Farmworkers' Service Center, Woodland; the Monterey County Pesticide Coalition, and is supported by petitions signed by more than 7,000 people.

California Agrarian Action Project and other organizations will meet with the state's top agricultural official, Richard Rominger, to discuss the health data request, on Wednesday, July 29, at 4 p. m. in his office at 1220 N St., Sacramento. A press conference is scheduled for 3 p. m. that afternoon at the Westminster Church, 1320 N St.

STATE OF CALIFORNIA
EDMUND G. BROWN JR., Governor

DEPARTMENT OF FOOD AND AGRICULTURE
1220 N Street, Room A151
Sacramento 95814

February 7, 1980

Mr. Paul Barnett
California Agrarian
Action Project
P. O. Box 464
Davis, California 95616

Dear Mr. Barnett

I have been requested by the Department's Legal Counsel Herb Cohen to confirm his telephone conversation with you on February 6, 1980 that the cost of supplying you with the requested data on Carbaryl (1-Naphthyl methyl-carbamate) will be in excess of $10,000. This cost will accrue as a result of the time involved in the file search and copying of the material.

Sincerely

George A. Reese, Chief
Pesticide Registration and
Agricultural Productivity
(916) 322-5130

CHEMICAL FIRM SEEKS HALT

2/11/81

Pesticide data block asked

A major chemical firm is trying to block pesticide licensing test results requested by a Davis organization, claiming the materials are trade secrets that would give competing firms an advantage in product research if made public.

Officials of Mobay Chemical Corp. of Kansas City, in a letter to James Davis, legal counsel of the pesticide enforcement division of the state Department of Food and Agriculture, have asked a halt to plans to release the information to the California Agrarian Action Project, it was reported Monday.

Mobay spokesman Clark A. Ridpath, in a letter to the state, said the material on the testing of effects of the chemical Di-Syston are confidential that are known even to corporate officials "only on a need to know basis" and contain information that could be used by competing chemical firms.

CAAP, which requested information on Di-Syston and 10 other commonly used pesticide products, has asked state officials to lift their ban on the public release of the documents.

State officials had indicated last month that the Mobay test results contained no test secrets and could be released, but action has been delayed by the Mobay letter.

In the document, Ridpath said his firm has already obtained court injunctions preventing the U.S. Environmental Protection Agency from releasing similar information to the public and asked the state agency to comply with the spirit of the court order.

Although maintaining the tests contain valuable information, Ridpath acknowledged the test results have been declared invalid by the EPA because of contentions that the testing laboratory invalidated its reports.

"We feel the studies should be released," CAAP spokesman Paul Barnett said in a prepared statement. "The public has a right to see studies that the state has accepted as proof of pesticide product safety."

While not advocating an end to pesticide use by farmers, the products used should be cleared of possible health hazards, he said.

"Farmers must have the tools they need to control crop pests, but these must be safe tools," he added. "The state Department of Food and Agriculture is keeping thousands of these studies secret, including studies on how to treat the victims of pesticide poisoning."

Davis Enterprise

The Sacramento Bee

Locally owned and operated for 123 years

JAMES McCLATCHY, *editor, 1857-1883*
C. K. McCLATCHY, *editor, president, 1883-1936*
WALTER P. JONES, *editor, 1936-1974*

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Editorials

The EPA's Secrets

The U.S. Environmental Protection Agency (EPA) is withholding reports used as a basis for the agency's approval of eight chemical pesticides potentially harmful to humans. Even though the reports have been called into question by a member of the EPA's own Science Advisory Board Study Group on Pesticide Tolerances, the EPA refuses to make them public because they are the "subject of an ongoing investigation." The reports, submitted by Industrial Biotest Laboratories, were first challenged as fraudulent in U.S. Senate hearings in 1976, and the EPA began its investigation soon afterward. Meanwhile, the EPA continues to allow the chemical to be used on food crops.

To find out why the EPA approved the chemicals in the first place and why it continues to approve them, lawyers from California Rural Legal Assistance have filed an appeal with the EPA under the Freedom of Information Act requesting the data submitted by Industrial Biotest Laboratories and the results of last year's joint study of the Biotest data made by EPA and the Environmental Protection Agency of Canada, which the EPA also refuses to make public.

The CRLA has every reason to see the documents. CRLA clients, many of them agricultural laborers, are still exposed to the pesticides registered on the basis of the Biotest data. One of the drugs, Captan, has caused cancer, birth defects and genetic mutations in laboratory animals, yet 1 million pounds of it were sprayed on 300,000 acres of crop lands in California last year. During the last four months of 1979, Captan was found on lettuce, grapes, spinach, cherries, peaches, strawberries and artichokes in wholesale food markets in Los Angeles and San Francisco.

There are, at times, good and sufficient reasons for withholding EPA test records: to protect chemical patents, to guard processing secrets and to prevent unfair competition among chemical companies. In this case, even the EPA doesn't make these claims. Moreover, precisely because the test data itself is under a cloud, it should be available for public scrutiny.

If the chemicals are safe for food crops, if the tolerances are properly worked out so the spray presents no significant health hazards, people should know. If, on the other hand, the EPA's approval of the pesticides is based on false, fraudulent or shoddy data, the people should know that, too. The only way the public can evaluate the EPA's decision not to ban the potentially dangerous chemicals is to have all the information. The EPA has the obligation to furnish it, and soon.

pearance. It was part of the movement that gave America automobiles with beautiful chromium fittings. The public began to demand white eggs, thinking they were "purer," and willingly paid a premium for them. Apples had to be large and perfect, without an insect bite or other disfiguring blemish. The citrus interests began to add color to oranges, and the dairy people put the cancer-causing butter yellow (now banned) into butter. Industry scandalously pandered to the consumer's taste for beauty and added eye appeal to all items of food regardless of how it damaged their nutritional values.

As the years went on, the problems in the orchards became more perplexing. The chemist mastered one insect and another appeared from nowhere. In one season chemical X destroyed insect Y, but the next year insect Y developed a tolerance to poison X. This led to the perfection of more and more powerful chemical compounds and the need for increasing the number of applications to about fifteen or sixteen a season, disturbing the balance of Nature to such an extent that even the bees that were needed by the orchardist to pollinate the apple blossoms disappeared, so that the farmer had to hire additional people to hand-pollinate his trees. And when this insecticidal bludgeoning with poison sprays got beyond the physical capability of the farmer to handle, he took to the air, and in 1951 the farmers of the United States used six thousand five hundred airplanes to shower upon the earth these expensive chemical poisons.

Entomologists' Attitude

The entomologists—those people who spend their lives trying to prove that man is superior to the insect—are having a tough time. They are frantically attempting to breed varieties of fruits and vegetables that are more resistant to disease and insects.

They are working feverishly to discover magic formulas that will stop the insect dead in its tracks. But for a long time they have had a dangerous idea in the back of their heads. Why not, they say, feed some kind of poison to the plant instead of to the insect, so that every cell and bit of tissue becomes saturated with it? Thus when an insect feeds upon the plant it will be done for. This would be science with a vengeance. They thought of it for so long that they actually did it.

Early in 1952 such a product was launched with powerful hullabaloo. Made from coal, it has the chemical name of Octamethyl Pyrophosphoramide and is either put on the soil around the roots or is sprayed onto the plant itself. In either case it forces itself into every cell of the entire plant. One can judge the potency of such a chemical which has the power of forcing itself so thoroughly and saturating every part of a plant.

Several years ago this idea was discussed in agricultural literature and it was announced that soon such a product would be placed on the market. When I was called as a witness, a few years ago, in a hearing in Washington conducted by the Pure Food and Drug Administration for the purpose of determining permissible residues of poison sprays on foods, I expressed alarm at the possibility that such a practice might be encouraged on food crops, that the public would be eating foods every cell of which was tainted by these systemic chemicals. Up jumped a representative of one of the insecticide companies and stated that it was not the intention that this product be used on food crops. It was only thought of for ornamental plants. But in my mind I harbored misgivings. It was a dangerous trend. I was sure that it was bound eventually to be used on edible crops, and that is exactly what is happening.

Professor R. W. Leiby, entomologist of Cornell University, in the June 1952 *Country Gentleman*, speaks of experiments with Systox on potatoes and apples, and states, "Much more

AFFIDAVIT OF ALLEN K. MC GRATH, JR., M.D., F.A.C.P.

My name is Allen K. McGrath, Jr., M.D. My address is 431 Monterey Avenue, Los Gatos, California 95030. Telephone: 408-354-8140.

My medical credentials are as follows: M.D. degree, University of California, San Francisco, September 1946.

1. Department of Public Health
   San Francisco Hospital Interne 1946-47
2. Public Health Service
   National Institutes of Health, Bethesda, MD.
   University of California Hospital 1948-50
   Research Associate
3. Veteran's Administration Hospital
   San Francisco 1950-52 Resident Medicine
4. New England Center Hospital
   Boston, Mass. 1952-53 Resident Medicine
5. U.S. Army Medical Corps
   1953-55 Internal Medicine
6. Private Practice Internal Medicine
   Los Gatos, California 1955-81

Certified by American Board of Internal Medicine
9-16-55

Elected Fellow of the American College of Physicians
11-12-66

I believe that the aerial spraying of malathion over heavily populated areas of Santa Clara County would have potentially catastrophic effects on the public health of the residents and visitors of the area.

Malathion is an organophosphate (OP) insecticide. The organophosphate family of compounds includes some of the most deadly poisons known to man. These include a military nerve gas, Sarin, and several other OP insecticides. The primary toxic action of all organophosphate insecticides is the same. They differ mainly in

regard to potency. According to the standard medical text, Clinical Toxicology of Commercial Products, malathion has a toxicity rating for humans of 4--very toxic--on a scale of 1 to 6.

The organophosphate molecule inactivates the enzyme cholinesterase, which regulates the transmission of nerve impulses. This causes dysfunction of the nervous system. Death usually results from cessation of respiration in exposed insects, animals, and man. It is possible but unlikely that human deaths from acute malathion poisoning would result from the aerial spray program, except certain high risk cases discussed below.

Scientific evidence overwhelmingly supports the proposition that exposure of hundreds of thousands of people to malathion would cause a large number of serious health problems in the exposed population. These may include among others: mental and nervous disorders; birth defects; mutations; cancer; allergic reactions; and so forth.

NEUROTOXICITY

Organophosphates, such as malathion, are nerve poisons and cause a wide variety of mental and nervous system problems, even at dose rates which do not cause symptoms of acute poisoning. Research on humans exposed to malathion has documented loss of sensation and/or partial paralysis; erratic and slowed functioning; slowness of thinking, calculation, and memory; sleep disturbances and drowsiness; and reduction of sensory conduction velocity. (1, 2, 3, 4)

Kurtz found impaired rat performance after malathion injections without significantly reduced cholinesterase activity. The result suggested that low doses of malathion may disrupt behavior without decreasing blood or brain cholinesterase. (5)

Exposure of rats to malathion affects the EEG (electroencephalogram, or brain wave record). Rats so exposed demonstrate abnormal EEG patterns for ninety days, at dose levels insufficient to produce any symptoms of acute OP poisoning. (4)

Disorders of affect, emotion, and memory lasting more than six months, were reported in one study in 38 percent of the victims of OP poisoning. (8) Rowntree suggested that OP exposure may exacerbate pre-existing psychiatric problems. (9)

Metcalfe and Holmes (6) suggested that OP exposures lead to long-term changes in human EEG's. They reported that workers who had been exposed to OP pesticides had EEG records indicating a high incidence of excessive slowing during periods of drowsiness and following hyperventilation, a high incidence of narcoleptic sleep records, and psychological dysfunctions including disturbed memory and difficulty in maintaining concentration and alertness.

Burchfiel et al. (10) found that a single application of the OP compounds Sarin and Dieldrin, or a series of exposures which produced no symptoms of acute poisoning did produce profound and long-term changes in the EEG of rhesus monkeys.

Duffy et al. (11) found that the exposure to the OP compound Sarin produced changes in the human EEG similar to those found in the study of rhesus monkeys. None of the human subjects (workers who had received occupational exposure to Sarin) had been exposed within one year of their study. The authors suggested that OP compounds produce long-term changes in the structure of nerve cells which persist even after the cholinesterase inhibition has ceased.

All OP compounds share similar chemical structures and pharmacological actions. They differ mainly in regard to potency and use. (Casida and Baron 1976) (11). It appears, therefore, that there is need for further intensive study because of the unknowns we now recognize and because of the possibility that long-term exposure to OP compounds can induce irreversible or only slowly reversible brain dysfuntion. (Metcalf and Holmes) (6)

TERATOGENICITY

Malathion causes birth defects. Studies have found these effects in a number of different types of experimental animals. Developing chickens and chick embryos have been exposed to malathion in a number of different studies. (12, 13, 14, 15, 16, 17, 18, 19, and 20) Malathion causes a wide variety of birth defects in chickens: changes in pancreas cells with interference with glycogen metabolism and abnormal increases in insulin production, malformation in the limbs, sparse plumage, micromelia (short legs), beak defects, growth retardation, weakened cartilage, pancreatic damage, hypoglycemia, bleached feathers, and reduced nicotinamide adenine dinucleotide (NAD) levels.

Tuchmann-Duplessis (21) discusses the affinity of the OP parathion for the germinal system, altering and sometimes completely destroying the germinal cells. The OP insecticides, demethon and fenthion, cause abortions in mice and a small number of malformations. Dobbins (22) found mild genitourinary and skeletal abnormalities of rat fetuses after administering malathion and diazinon. He cited J.P. Marliac et al. who showed toxicity to the chicken embryo of several pesticides, including malathion, to correlate well with rat data. Rat offspring were found more susceptible to ring-tail disease after the mother ingested large daily doses of malathion. (23) Malathion caused relatively slight damage to spermatogenic tissue in juvenile Wistar rats exposed to varying doses of malathion. (24) Malathion also causes birth defects in fish: defects in heart morphology and rhythms and blood clots and oscillating blood in the heart. (25)

MUTAGENICITY

Griffin (26) showed four of eleven OP pesticides (including malathion) to induce breaks in DNA molecules at rates significantly greater than controls. (In vitro testing using E. Coli) Nicholas et al. used cultured human cells to study non-toxic concentrations of malathion on sister chromatids exchanges. They found increases

in SCE exchanges and cumulative effects. Nicholas et al. believe that malathion should be considered a potential mutagen and should be further evaluated. (27) Chromosome studies after malathion intoxications showed direct mutagenic effects (chromatid breaks and stable chromosome-type aberrations). (28)

CARCINOGENICITY

Malathion carcinogenicity has been studied at the National Cancer Institute. Female rats showed increased follicular cell carcinoma over controls. Male mice showed increased liver neoplasms over control mice. The NCI did not conclude that malathion was definitely carcinogenic from this data. (29)

This NCI data was reanalyzed by Dr. Melvin Reuber, the head of the NCI experimental pathology laboratory, and his findings were definite as to the carcinogenicity of malathion. In the Osborne-Mendel rat, an increased incidence of cancer of the endocrine organs, brains, and liver appeared in malathion-treated rats over controls. In Fisher-344 rats, malathion increased the incidence of cancer in the adrenal medulla, organs with squamous cells, lung, and hemopoetic system. In B6C3F male mice, malathion increased the incidence of certain neoplasms of the liver. In all the above series, the increased incidences of neoplasms were noted in both high and low doses of malathion. (29)

The finding that a substance is teratogenic, mutagenic, or carcinogenic in animals is a strong indication that the substance may cause the same effect in humans.

MALATHION'S IMPURITIES AND BREAKDOWN PRODUCTS

Commercial-grade malathion, which will be used in the aerial spray program, is always contaminated with several impurities and breakdown products including isomalathion and malaoxin. Malaoxin is carcinogenic in mice and rats. (29) Isomalathion has higher acute toxicity than malathion itself and it is thought to be one of the causes of an epidemic of pesticide poisoning cases in Pakistan. (30, (36) Malathion impurities apparently can appear spontaneously

in stored malathion solution. The toxicity of malathion, therefore, increases as the product is stored. (31)

Evidence is presented of the potentiating effects exhibited by some OP impurities which are normally present in technical OP pesticides on the toxicity of the active ingredients to warm blooded animals. The varying and significant potentiating effects of oral toxicity to the rat were experimentally demonstrated for malathion. (32) Impurities were found to substantially increase toxicity in rats but not target insects. (32) Malathion hydrolysis in the presence of its contaminants has a synergistic effect resulting in higher toxicity. (33)

Commercial formulation of malathion insecticide contains several OP impurities that may adversely affect the safety of the products. (34) (35) Talcott suggests, also, that isomalathion would be expected to diminish the capacity of the human liver for the detoxification of malathion. (36)

CHILDREN AND IMMATURE ANIMALS

Health damage from the malathion aerial spray program may be particularly pronounced in children, as children and immature animals generally have a higher susceptibility to malathion poisoning. (37) Studies have been done in rats which confirm this proposition: In the rat, malathion is less quickly detoxified by the liver in newborn and juvenile animals than in a mature animal given a comparable dose. (38) One-day-old rats were found to be nine times as susceptible to malathion poisoning than were 17-day-old rats given a comparable dose. (39)

CONTACT SENSITIVITIES

Exposure to environmental toxins such as malathion can cause contact sensitivities and allergic-type reactions. This effect has already been demonstrated with malathion. (40) Individuals who were contacted with malathion (as will happen as the chemical rains down on exposed individuals in the aerial spray program) developed dermatitis in some cases, and were further

contact sensitized, i.e., subsequent exposures were far more likely to cause irritation and caused more serious irritations than the initial exposure. We may, therefore, expect a similar phenomenon to occur as exposed individuals are sprayed and re-sprayed during the proposed aerial spray program.

Exposure to organophosphates in thirty-five cases of poisoning showed irritation to the upper respiratory system and derangement in the functioning of the inner ear. (41)

Marc Lappe, Ph.D., former chief of the Hazard Evaluation System, California Department of Health Services, stated in a February 11, 1981 letter to the editor of the Daily Californian: "I for one believe that the risks of provoked respiratory distress from the protein coat of the spray might very well cause a few persons extreme distress." (42)

COMPROMISED POPULATIONS

Health damage from malathion will be particularly severe among that part of the population which has an absent or an abnormally low level of cholinesterase (the enzyme deactivated by malathion). Since these individuals have a deficient supply of cholinesterase to begin with, any reduction in cholinesterase level by OP exposures is likely to be particularly severe.

Many diseases are associated with cholinesterase deficiencies: liver disease, obstructive jaundice, malnutrition (as in many chronic, debilitating, and malignant diseases), low serum albumin, anemia, and late pregnancies. Patients on certain drugs (as cytotoxic agents, procaine, phospholine eye drops used in

glaucoma, physostigmine, etc.) which interfere with cholinesterase metabolism are at increased risk due to OP exposure. (43, 44, 45, 46)

Subclinical intoxications and chronic poisonings from malathion may occur: cholinesterase inhibition sometimes persists for 2 to 6 weeks. Thus an exposure which would not produce symptoms in a person not previously exposed might produce severe symptoms in that person previously exposed to smaller amounts. (47) Thus, repeated exposures, as from aerial spraying of malathion, would be particularly hazardous to compromised populations.

Finally, a large group of persons would probably suffer health damage from aerial spraying of malathion: patients with severe respiratory diseases (as emphysema, asthma) and emotionally ill and mentally ill patients (neurotics, hysterics, and psychotics).

The conclusions of numerous investigations support my opinion that the aerial spraying of malathion on heavily populated areas of Santa Clara County could be a public health disaster. We cannot identify in advance those individuals who will be affected, except perhaps those with cholinestinase deficiencies. Screening to identify cholinesterase deficient individuals should certainly be completed before the spraying begins. Allergies and respiratory problems may be concentrated in the very old, the very young, and the sick. Birth defects will be concentrated in the offspring of mothers who are sprayed. Mental disturbances, EEG changes, mutations, cancer, and other possible health damage will be unpreventable by any selective evacuation.

To the best of my knowledge and belief, the statements in this affidavit are true, and I would so testify.

M.D.

Allen K. McGrath, Jr., M.D.

STATE OF CALIFORNIA
COUNTY OF SANTA CLARA } ss.

On this 24th day of MARCH in the year one thousand nine hundred and 1981 before me, SANDRA N. RAINS, a Notary Public, State of California, duly commissioned and sworn, personally appeared ALLEN K. McGRATH, Jr. M.D.

known to me to be the person ..... whose name ..... subscribed to the within instrument and acknowledged to me that .....he..... executed the same.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my official seal in the CALIF. County of SANTA CLARA the day and year in this certificate first above written.

SANDRA N. RAINS
NOTARY PUBLIC — CALIFORNIA
PRINCIPAL OFFICE IN
SANTA CLARA COUNTY
My Commission Expires Jan. 19, 1984

Sandra N. Rains
Notary Public, State of California

My commission expires 1/19/84

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AFFIDAVIT OF ROBERT GINSBURG, Ph.D.

I, Robert Ginsburg, Ph.D., am presently employed as Staff Chemist and Toxicologist with Citizens for a Better Environment. I received my B.A. from the University of Rochester, and my Ph.D. in chemistry from the University of Wisconsin in 1978. I was previously employed by the University of Illinois School of Public Health as a Research Associate, and by the United States Occupational Safety and Health Administration, Region V, as a Technical Consultant. I have worked with eminent experts in the field of environmental toxicology, such as Dr. Samuel S. Epstein, Professor of Occupational and Environmental Medicine, University of Illinois School of Public Health. I have performed laboratory toxicology studies with pesticides, including malathion. Attached is a true and accurate copy of my resume.

//

In addition to my own research on the effects of malathion and other similar pesticides, I have performed an extensive literature review of the malathion research and reports of other scientific experts. I have also reviewed the California Department of Health Services report on the public health risks posed by aerial malathion spraying in Santa Clara County.

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Aerial pesticide applications to control the Mediterranean Fruit Fly (Medfly) would expose approximately a million people in Santa Clara County to the toxic insecticide malathion. When a population of this size is exposed, there is a high probability that a significant number of people will be seriously affected. This was illustrated by the consequences of the swine flu vaccine program. The public was assured that the vaccine was safe and that it had been tested on 5000 volunteers. Yet, when a large population was inoculated, a significant number of people were seriously harmed. The several hundred victims who contracted Guillan-Barre paralysis after receiving swine flu vaccinations now consider those assurances of safety meaningless. I would hope

that we can learn from our past mistakes. The public health consequences of an error in this case could be enormous.

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In the few cases in which urban aerial malathion applications were implemented for Medfly eradication (Florida, 1956 and 1963, and Texas, 1966), no controlled epidemiological studies were performed. The public and health care officials apparently were not informed of what the health problems might be, nor were they directed to report such effects. Also, at that time our knowledge of the adverse health effects from pesticide exposure was much less extensive than it is today. Therefore, it is not possible to draw any scientifically valid conclusions as to the presence or absence of human health effects as a result of those sprayings. However, a growing body of data demonstrates that there are serious health effects that can occur as a result of exposure to organophosphate insecticides in general, and malathion in particular.

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Organophosphate (OP) pesticides like malathion produce their principal toxic effects by interfering with an enzyme (cholinesterase) which controls the passage of nerve impulses. There are two general categories of toxic effects: acute (immediate) poisonings, and chronic effects (which may appear days, weeks, or even years later). Blood tests for cholinesterase activity are normally used to assess acute exposure, even though they may not always detect immediate poisoning symptoms. Acute malathion symptoms usually develop within 12 hours of exposure and include extreme weakness, muscle twitching, slow heartbeat, tremor, and influenza-like symptoms such as nausea, vomiting, and headache. There have been numerous cases of acute human illness, and even death, from exposure to malathion.

//

Low doses of malathion may produce chronic or long-term effects such as nerve

system damage, mutations, birth defects, and cancer. Chronic effects are the most difficult to confirm due to the time interval between exposure and illness and the likelihood of multiple exposures to a variety of toxic agents. Blood tests may not show any detectable changes at exposure levels which may cause these chronic effects. However, there are a variety of neurological tests available to help detect damage induced by low exposure levels. Psychological, psychophysiological, and neurological tests like electroencephalography (EEG) and electromyography (EMG) have been employed on numerous occasions to evaluate OP exposure in animals and humans.

//

Several animal studies have shown that low doses of malathion (less than 75 mg/kg of body weight) cause neurological abnormalities such as changes in brain function and inhibition and disruption of learning and memory. A study involving two carbamate pesticides, whose mode of toxicity is similar to malathion, produced permanent learning disabilities in young rats exposed to as little as 10-20 mg/kg bw. Because all animals, particularly mammals, share common biological systems, most scientists consider laboratory animal studies to be a good indicator of potential human health effects. Similar results have been noted by other researchers studying workers exposed to malathion and other OP pesticides.

//

Laboratory animal experiments have demonstrated that OP pesticides can interfere with the immune system and produce allergic reactions. One human skin sensitization study showed that malathion irritates the skin and that further or subsequent exposure at doses far less than the original exposure can produce the same response. Repeated aerial spraying is likely to elicit allergic reactions ranging from a mild itchy rash to severe asthma-like respiratory disruption. Furthermore, some OP pesticides have been shown to enhance the

effects of viruses. This property has been correlated with the incidence of Reye's syndrome, which is an often fatal disease.

//

Many pesticides, including malathion, have been shown to have synergistic effects (increased toxicity) when exposure is combined with exposure to other pesticides or chemicals. Exposure to more than one chemical is common in our industrial society. This increases the risk of toxic effects from exposure to low levels of malathion.

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Malathion is clearly teratogenic (causes birth defects) in chickens. In light of evidence that malathion can cross the placental barrier (i.e., it can move between the mother and the unborn child), even low maternal exposure levels could produce toxic effects.

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There is evidence that malathion can produce mutagenic effects. In humans, large doses have produced high levels of chromosomal aberrations. Significant rates of DNA breakage in exposed cells has been noted with doses up to 100mg/l. Very low doses of malathion (2.5 ppm) produced chromosomal abnormalities as determined by sister-chromatid exchange (SCE).

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Several studies provide evidence that malathion is carcinogenic. A standard National Cancer Institute (NCI) bioassay of malathion carcinogenicity showed that, in female rats, follicular cell carcinoma of the thyroid glands had a significantly positive dose-related trend when compared to the pooled controls. In male mice, increases in liver neoplasms (neoplastic nodules and hepatocellular carcinoma) showed a significant dose-related trend increase when compared to either the matched or the pooled controls. For those dose groups where a significant increase in tumors was not detected, NCI concluded that

there was a possibility of the induction of tumors by the malathion which could not be detected under the conditions of those tests. Reanalysis of these studies led one NCI pathologist to conclude that malathion was definitely carcinogenic in both mice and rats.

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My own preliminary research supports the conclusions that malathion is mutagenic and carcinogenic. These studies involved injecting (intra-peritoneal) rats with malathion (2 or 4 mg/kg bw) and examining the DNA and/or RNA from various organs to determine binding or possible alkylation by malathion. Our studies detected binding and possible alkylation of DNA by pesticide fragments. Changes in DNA, RNA, and/or cellular protein are considered primary steps in the induction of cancer, mutations, and certain teratogenic effects.

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Given this information on the toxicity of malathion, even at low doses, I would conclude that the exposure of hundreds of thousands of people, as in the proposed aerial spraying, is likely to result in a significant number of serious human health reactions to malathion, and/or to the protein bait and solvent with which it will be combined. Because it is not possible to predict with certainty which of those individuals exposed to the spraying will exhibit serious health effects, the proposed aerial spraying represents a serious threat to the health of the hundreds of thousands of South Bay residents who will be exposed.

//

I declare under penalty of perjury that the foregoing is true and correct and that if sworn to in court I could testify to ~~this~~ and that this declaration was in Chicago, Illinois, on 19 March 1981.

Robert Ginsburg

Robert Ginsburg, Ph.D.

Mark Wright

Notary Public

19 March, 1981 / Cook County, Illinois

My Commission Expires Dec. 13, 1983

RESUME

Robert E. Ginsburg

PRESENT ADDRESS:	3328 N. Marshfield, 1st floor Chicago, Illinois 60613
PERSONAL:	Born February 18, 1952 in Brooklyn, New York U.S. citizen. Single, no children. Height: 5'7½" Weight: 160 lbs. Health: Excellent
PROFESSIONAL EXPERIENCE:	
January 1981-	Instructor, Special Programs - Biology, Illinois Institute of Technology, Chicago, Illinois
January 1980-	Staff Chemist/Toxicologist, Citizens for a Better Environment, Chicago, Illinois
August 1978-	Medical Committee - Chicago Area Committee on Occupational Safety and Health (CACOSH). Foundry Worker Education Project of CACOSH. The latter develops and presents educational programs to foundry workers on foundry hazards and their remedies. pro bono consultant/instructor
1979-80	Technical Consultant, OSHA Region V
1978-79	Research Associate, School of Public Health, Division of Occupational and Environmental Medicine, University of Illinois - Medical Center. Responsibilities included: - Research in Environmental Toxicology - Course Coordinator/lecturer for Toxicology course.
June 1976 - August 1978	Research Assistant, University of Wisconsin, Madison
1973-1976	Teaching Assistant, University of Wisconsin, Madison. Taught several first year chemistry courses including a one semester course for non-science majors.
EDUCATION:	
August 1978	University of Wisconsin, Madison, Wisconsin. Received Ph.D. in Inorganic Chemistry under Prof. L.F. Dahl. Minor was in Organic and Analytical Chemistry Thesis: Synthesis, Chemical and Structural Characterization of Several Cobalt and Iron Carbonyl Clusters.
1975	Master of Science, Inorganic Chemistry University of Wisconsin, Madison

1972-73	University of Sussex, Brighton, England No degree received
1969-72	B.A. (with honors) in Chemistry and Philosophy University of Rochester, Rochester, New York Degree received June 1973
PROFESSIONAL SOCIETIES:	American Chemical Society American Association for the Advancement of Science Sigma Xi
PUBLICATIONS:	1) Ginsburg, R., Independent, Worker Oriented Health and Safety Groups in the United States: The case of the Chicago Area Committee on Occupational Safety and Health, Hazards Bulletin (Britain), in press. 2) Ginsburg, R., Cancer as a Social Disease. A review of the "Politics of Cancer" by S.S. Epstein. Science for the People, May/June 1980, p. 25. 3) Ginsburg, R., The Spraying of McHenry, CBE Environmental Review, June/July 1980, p. 6. 4) Ginsburg, R., How Do We Know It Is Toxic, CBE Environmental Review, June/July 1980, p. 8. 5) Ginsburg, R., Rothrock, R., Finke, R.G. Collman, J., Dahl, L.F., J. Am. Chem. Soc., 101, 6550 (1979). 6) Ginsburg, R., Berg, J., Rothrock, R., Collman, J., Dahl, L.F. J. Am. Chem. Soc., 101, 7218 (1979). 7) Ginsburg, R., Cirjak, L., Dahl, L.F., Chem. Comm., 1979, 468. 8) Cirjak, L., Ginsburg, R.E., Dahl, L.F., Chem. Comm., 1979, 470.

The Letters Page /Views of Mercury News Readers

The people vs. aerial spraying of malathion

OK, where did this medfly come from? Why isn't there an epidemic in Los Angeles or Santa Cruz? Why were thousands of sterile flies released at a time when everything was dormant? Why were bait and poison sprayed repeatedly at a time when the fruit fly couldn't fly?

Now we citizens are going to be assaulted by repeat aerial spraying with a dangerous chemical which is now and has in the past been used in experiments for chemical warfare.

It is happening again: Our tax money is being grossly squandered and We-The-People are being used!

— L. Ceseski
San Jose

□

"Harmful if swallowed. Do not breathe vapor or spray mist. Avoid contact with skin; wash skin and hands thoroughly after using. Avoid contamination of feed or foodstuffs . . . Keep children and animals away from treated areas until these areas are dry . . . This product will kill fish. Keep out of any body of water . . . This product is highly toxic to bees exposed to direct treatment or residues on crops." Scare words from an environmentalist? No, the quotations are from the label of a bottle of Ortho malathion for the home gardener.

— Allan Coleman
Palo Alto

□

Has California agribusiness persuaded our "representatives" to allow danger to our health, lives and property by the aerial spraying of malathion? Where are our biologists, chemical consultants and other "experts;" our medical technologists of whom we are so proud, our city government, particularly that of Santa Clara which has so far remained silent? Don't they know that malathion is toxic? What effects will it have on unborn infants? Have adequate plans been made for the evacuation and medical care of asthmatics, emphysema victims and sufferers from other respiratory diseases?

It seems to me that it is time for the people of Santa Clara County to stand up in protest and demand protection from this insanity.

— Norman W. Hassinger
Santa Clara

□

Although state agriculture officials say that no health hazard will be presented from use of malathion to combat the Mediterranean fruit fly, they are unwilling to allow the public to see health studies which should prove or disprove their claim.

File photo

They are keeping secret information on the health effects of pesticides submitted by chemical manufacturers. These are studies on the treatment of poisoning, toxic effects, and long-term effects such as cancer, birth defects, sterility, and miscarriages.

California Agrarian Action Project, a rural political organization, has asked the state to release data on 12 pesticides, including malathion. After 18 months, the Department of Food and Agriculture has succeeded in declassifying only a magazine article and the hand-typed summary of a study. At this pace, it will take 10,000 years for the information to be declassified.

— Paul Barnett
California Agrarian Action Project
Gilroy

□

Your Sunday article "Public disagrees about medfly spraying" indicates that all those who fear the program plan to leave town. Not so. We plan to work on a requirement that those who initiated and approved the program are required to expose their own families while we are being sprayed. When they agree to that, they'll get a lot of support. Until then, we will continue to fight the program.

— Bob Moore
Los Altos

□

I really don't know who they are trying to kill — the people or the fly.

I have asthmatic bronchitis, high blood pressure, heart and liver disease. The Medfly Project office has been kind enough to call me when they are going to spray my next door neighbors' yards and said they would skip mine. We would leave town for a day and night.

It comes down to: Do they really know what they are doing? And who is more important — the people or the fly? And who is going to pay for some safe place for us to go while they aerial spray?

— Betty Dophna
San Jose

—

The federal government has a questionable track record as far as correctly notifying the general public about the consequences that could occur as a result of governmental testing.

1. They sprayed Agent Orange on the foliage in Vietnam. Our soldiers were told that this was perfectly safe and no harm would come to them. Today, we are reading about the horrible effects that did occur as a direct result of being exposed to the spraying of this chemical.

2. The insecticide DDT had been widely used in the past until tests were completed and it was found to be harmful. It was found to be retained in the fatty tissues of animals and passed on to their offspring. Mother's milk was found to be contaminated with the DDT that had entered their bodies and was unknowingly passed on to their infants through breast feeding.

3. The federal government in the 1950s did atomic testing in Nevada with military men in foxholes, within a one-mile radius of the explosions. The soldiers were told that this would not harm them. Now, they're finding many cases of radiation poisoning, cancer, etc.

4. The federal government tested LSD on our military to find out what effects it would have. We have all heard the many frightening stories of what has happened to these people.

The federal government has no qualms about using soldiers, sailors, and the general public as guinea pigs.

— Mary Jo Brower
Sunnyvale

□

Yes, malathion is one of the safest organophosphates known to man. Early organophosphates, a class of 50,000 chemicals, were developed by I.G. Farben Industries as part of the Nazi war machine's quest for lethal nerve gases. How potent one of the particular agents is depends only on how fast your body can break out that phosphorous from each molecules core. The quicker the safer. And for malathion, it's much quicker than for nerve gas. Of course if you have a bad liver, or you're a newborn, or very old, you might be in more trouble.

The acute effects of a good dose of these agents are well known and are quite frightening. But we don't have to worry about high doses unless a helicopter crashes in downtown Mountain View or the spraying jets foul and break open, or there's a sudden bad wind drift or a major error in measurements. But that won't happen.

What we can worry about are the unknown effects of small chronic doses. Some animal experiments suggest increased cancer incidence; some organophosphates have caused many cases of a "peculiar syndrome of neuronal (nerve) degeneration . . . often succeeded by spastic paralysis and marked muscle wasting" lasting up to two years, according to "The Pharmacological Basics of Therapeutics."

And more important are the effects on the tousands of chronically ill persons in the valley. These effects are unknown and can not now be predicted and will not be measured afterward. If a patient with prior heart failure should die, no one will ever prove it was from malathion even though malathion decreases heart rate and cardiac output. Thus, aerial spraying is a Pandora's box for all of us, but especially the ill.

Do you find this whole matter somewhat macabre: that the anti-big-government government of this democracy would overrule the localities and spray up to 1 million of its citizens with a chemical cousin of Nazi nerve gas whose chronic long-term effects are not well understood? If so, I suspect you're in good company.

But then again perhaps macabre is too strong. We do have a man charged with preserving our nation's national splendor (parks, forests and seashores) who hates beaches and wilderness, so maybe malathion is consistency. Moreover, we do have serious national planners working out how they will carry out and survive a first-strike nuclear attack, so perhaps malathion is even benign.

And the medfly? What is its crime? California agriculture is largely owned by giant corporations like Tenneco, Union Oil, etc. And medflies may not ruin farms or damage staple crops (like locusts), but they are pesky pests that eat profits. Isn't that crime enough?

Well, they used to say "Tell it to the judge." Today that's changing. We're pre-empted by new forms: search and destroy . . . everything. And you thought Vietnam had become just a recurring nightmare.

— Marc Sapir, M.D.
San Jose

Let them spray

The merits of 'comparable worth'

Coalition for Truth about
Malathion Spraying
Roy Jimenez, Director of Alviso
Family Health Foundation: 262-7944
Henry Dominguez: 947-0470

July 14, 1981

FOR IMMEDIATE RELEASE:

A group of concerned citizens and health professionals met yesterday with Executive Director of Valley Medical Center, Bob Sillin, and a representative of the Santa Clara County Health Department. Roy Jimenez, Director of the Alviso Family Health Foundation, stated:

> "We are dismayed that the Santa Clara County Health Department has failed to adequately warn citizens of Santa Clara County about precautionary measures which the California Department of Health Services has developed." regarding the spraying of malathion."

The residents of area to be sprayed are receiving a statement which says there is no significant health risk involved in this spraying. Because of the considerable controversy over this medical effects of the spraying, we strongly urge the Board of Supervisors to instruct the Health Department to offer residents precautionary measures which they may take, particularly concerning pregnant women, small children, people with heart, breathing, asthma, or allergic problems..

The Health Departments' Dr. Bernice Giansiracusa refused to distribute the San Jose Mercury article "Precautions for residents of areas to be sprayed." These instructions were based on information developed by the California Department of Health Services, and have been given to residents calling in to the MedFly hotlines for health information. However, the hotlines have been jammed with calls - everyone cannot get through. Furthermore, the information dessiminated by the Health Department has only been for the English speaking residents of the County.

A los miembros de la Junta de Supervisores del Condado de Santa Clara. Lo siguiente es una cita del Dr. Bonny Parke, especialista en en psicologia de la niñez y otros desordenes.

Malathion no es uno de los pesticidas más mortales, hay otras peores, pero los estudios had indicado que el malathion es un componente químico mutagénico (que altera la estructura de las cromosomas) en humanos, es teratogénico (que causa deformidades en los fetos) en experimentos de laboratorios en animales como ratas y pollos; se ha probado que el Malathion afecta a los niños proporcionalmente más que a los adultos, por ejemplo: una dósis letal de Malathion para los adultos es de 1,000.00 kilogramos por peso (1000 mg/kg) aplicados externalmente. Niños que está por nacer son más vulnerables a este pesticida. Los efectos extremadamente tóxicos de este pesticida en los niños es equivalente a esos pesticidas de características más letales, por ejemplo: Parathion. Si el malathion fuera aplicado sobre ciudades, los adultos en nuestra población sería expuesta a este pesticida tan tóxico; nuestros niños serían dispuestos a un veneno más tóxico que el parathion. Este hecho es no comunmente conocido y no ha sido considerado en la decisión para fumigar sobre areas sumamente pobladas donde la gente vive y trabaja. Los datos relacionados con los efectos toxicos del Malathion en los niños y los síntomas de envenenamiento pueden ser encontrados en el siguiente artículo:

Fósforo organico (insecticidas y el envenenamiento de ninos) Journal of School Health, Vol. 39 (1969) P. 607, by J. Silverio.

Yo recomiendo que se haga una investigación en cuanto a los efectos tóxicos del Malathion y las alternatives a aplicarse en cuanto a la fumigación de áreas densamente pobladas.

SUW 7:00 p.m

FAMILY HEALTH FOUNDATION OF ALVISO, INC.

DECLARACION DE POLIZAS RELACIONADAS CON EL TRATAMIENTO AEREO CON "M A L A T H I O N"

1. La Fundación FHFA ha urgido al Gobernador Brown que tome cualquiera y todas las medidas necesarias para prevenir el tratamiento aéreo de "Malathion" sobre las áreas pobladas.

2. Urgimos a todos los pacientes que reduzcan el exponerse al "Malathion" manteniéndose dentro de su casa durante el tratamiento aéreo y por o más de 24 HORAS DESPUES DEL MISMO.

3. Los siguientes pacientes constituyen o forman grupos de alto riesgo y se les aconseja tomar medidas para reducir el contacto con el mismo líquido tóxico permaneciendo dentro de su casa durante el tratamiento aéreo y por 72 HORAS DESPUES, o si es posible, salirse del área afectada:

*Las mujeres que sospechen o que sepan que están embarazadas y que estén durante el primer trimestre de embarazo y niños pequeños.

*Los pacientes que padezcan enfermedades cardio-respiratorias. (heart and lungs)

*Los pacientes que padezan alta sensitividad organofosfática.

*Pacientes con deficiencias de inmunidad a las enfermedades

4. Por la primera semana del mes de julio 12 hasta el 19 del mismo, la sesión de las mañanas en las clínicas de la Fundación a partir de las 9 de la mañana hasta la una de la tarde del día siguiente a cada uno de los tratamientos aéreos se RESERVARAN SOLAMENTE PARA EMERGENCIAS. A los pacientes electivos se les darán otras fechas para sus citas, TODOS LOS EMPLEADOS DEBEN CONSULTAR CON SUS SUPERVISORES EN LA MAÑANA DESPUES DE CADA TRATAMIENTO AEREO PARA SABER DE LAS HORAS DE TRABAJO.

5. La Fundación intenta coordinarse con las agencias de salud pública y los grupos comunitarios en esfuerzos combinados para prevenir la aplicación aérea del "Malathion" o cuando menos aminorar la exposición al mismo.

POR FAVOR TOME NOTA DE LAS PRECAUCIONES ADICIONALES ADJUNTAS

Sylvester Quevedo, M.D., M.P.H.
Medical Director

Roy Jiménez
Executive Director

La Donna Bray
Chairman of the Board

JR/mbm -July 13, 1981

ARE THERE ANY SPECIAL PRECAUTIONS THAT HOMEOWNERS SHOULD TAKE DURING THE ACTUAL TREATMENTS?

Yes, here are a few:

You may want to stay indoors during the actual treatment time to reduce the possibility for exposure.

You may want to reduce exposure. Malathion is known to be highly toxic for insects, but not to mammals, so pets will not be affected except fish in outdoor ponds, which should be covered.

Malathion may cause paint pitting on General Motors cars, Datsuns, Toyotas and some custom spray finishes unless it is washed off soon after contact. Cars or bees that could be affected should be covered, moved from the area or washed immediately.

WON'T MALATHION HARM BENEFICIAL INSECTS AND BEES?

Yes. Malathion is highly toxic for all insects, including beneficial insects and bees. However, the treatment area is relatively small and beneficial insects will move rapidly back into the area after the treatments are completed. Also, the large droplet size to be used in the Medfly program -- rather than using a fine mist -- is specifically attractive to the Medfly and will more specifically affect that pest.

Bees are unquestionably affected by Malathion, but bee flight is already at a low point at this time of the year because of the lack of flowers. Notification will be made to all registered beekeepers two weeks in advance of any treatments so that hives can be moved out of the treatment area. Other bee hobbyists will be notified through the media concerning the treatment schedule.

TABLE 23-4. SPECIFIC POISONS: SYMPTOMS AND TREATMENT (Cont'd)

Poison	Symptoms	Treatment
Paint solvents: see Mineral spirits (under Petroleum distillates) and Turpentine		
Paints: see Lead		
Paradichlorobenzene Insecticide Moth repellent Toilet bowl deodorant	Abdominal pain, nausea, vomiting, diarrhea, seizures, and tetany	Ipecac emesis, gastric lavage; fluid replacement; diazepam for seizure control
Paraldehyde	Paraldehyde odor on breath, incoherent, pupils contracted, respirations depressed, coma	Ingestion: Ipecac emesis, gastric lavage; support respiration, O_2
Parathion Chlorothion Demeton Diazinon Dipterex (trichlorfon) HETP (hexaethyl tetraphosphate) Malathion Nerve gas agents OMPA (octamethyl pyrophosphoramide) Systox TEPP (tetraethyl pyrophosphate)	Nausea, vomiting, abdominal cramping, excessive salivation; headache, rhinorrhea, blurred vision, miosis; slurred speech, mental confusion; breathing difficulty, frothing at mouth, coma. Absorbed through skin	Remove clothing, flush & wash skin. Empty stomach; atropine: adults 2 mg, children 1–2 mg, IV or IM q 15–60 min if no signs of atropine toxicity; pralidoxime chloride (PAM): adults 1–2 Gm, children 0.25 Gm, IV over 5–10 min, repeat in 12 h if needed; O_2; support respiration; correct dehydration. *Do not use morphine or aminophylline*
Paris green: see Arsenic & antimony		
Pentobarbital: see Barbiturates		
Permanent wave neutralizers (bromates): see Chlorates		
Pesticides: see Arsenic & antimony, Barium compounds, DDT, Dinitro-o-cresol, Fluorides, Paradichlorobenzene, Parathion, Phosphorus, Pyrethrum, Thallium salts, Warfarin		
Petroleum distillates (see also HYDROCARBON POISONING in §10, Ch. 4) Asphalt Benzine (benzin) Fuel oil Gasoline Kerosene Lubricating oils Mineral spirits Model airplane glue Naphtha Petroleum ether Tar	Vapor inhalation: Euphoria; burning in chest; headache, nausea, weakness; CNS depression, confusion; dyspnea, tachypnea, rales Ingestion: Burning throat & stomach, vomiting, diarrhea; pneumonia; late pulmonary changes Aspiration: Early acute pulmonary changes	All exposures should be seen. *Do not give emetics.* Gastric lavage only with rapid-onset depression from large amounts ingested; arterial blood gas levels to monitor care; supportive care for pulmonary edema; O_2, respiratory support
Petroleum ether: see Petroleum distillates		
Phalloidine: see NONBACTERIAL FOOD POISONING in §7, Ch. 12		

TABLE [illegible]IFIC POISONS: SYMPTOMS AND TREATMENT *(Cont'd)*

Poison	*Symptoms*	*Treatment*
Phenacetin: see Acetanilid		
Phenmetrazine: see Amphetamines		
Phenobarbital: see Barbiturates		
Phenols Carbolic acid Creosote Cresols Guaiacol Naphthols	Corrosive. Mucous membrane burns; pallor, weakness, shock; convulsions in children; pulmonary edema; smoky urine; respiratory, cardiac, & circulatory failure	Remove clothing, wash external burns. Lavage with water, activated charcoal. *Do not use alcohol or mineral oil.* Demulcents; pain relief; O_2; support respiration; correct fluid balance; watch for esophageal stricture (rare)
Phenothiazine Chlorpromazine Prochlorperazine Promazine Trifluoperazine (etc.)	Extrapyramidal tract symptoms (ataxia, muscular & carpopedal spasms, torticollis), dry mouth, drowsiness, coma, hypothermia, respiratory collapse. Leukopenia, jaundice, coagulation defect, skin rashes	Ipecac emesis, gastric lavage; diphenhydramine 2–3 mg/kg IV or IM for extrapyramidal symptoms; diazepam for convulsions; warm patient. Avoid levarterenol & epinephrine
Phosgene gas: see Carbonyl chloride		
Phosphine: see Hydrogen sulfide		
Phosphoric acid: see Acids & alkalis		
Phosphorus (Yellow or white) Rat poisons Roach powders (NOTE: Red phosphorus is unabsorbable & nontoxic)	3 Stages of symptoms: 1st—Garlicky taste; garlic odor on breath; local irritation, skin burns, throat burns; nausea, vomiting, diarrhea 2nd—Symptom-free 8 h to several days 3rd—Nausea, vomiting, diarrhea; liver enlargement, jaundice; hemorrhages; renal damage; convulsions, coma Toxicity enhanced by alcohol, fats, digestible oils	Protect patient & attendant from vomitus, gastric washing, feces. If phosphorus is imbedded in skin, keep patient's body submerged in water. Gastric lavage copiously—preferably with potassium permanganate (1:5000) or cupric sulfate (250 mg in 250 ml water); mineral oil 100 ml (to prevent absorption) & repeat in 2 h; combat shock; vit. K_1 IV; transfusion with fresh blood. *No fat or oil in diet until after quiescent period*
Physostigmine Eserine Neostigmine (Prostigmin) Pilocarpine Pilocarpus	Dizziness, weakness, vomiting, cramping pain; pupils dilated, then contracted	Atropine sulfate 0.6 to 1 mg s.c. or IV; emesis (*no apomorphine*)

Stopping the Pesticide Treadmill

Written and Photographed by Paul Barnett

California Agrarian Action Project
433 Russell Blvd., Davis, CA. 95616
P.O.Box 464, Davis, CA. 95617
Phone: (916) 756-8518

2 Dead in Pakistan

Insecticide Fatal to Sprayers

Washington

At least three persons in Pakistan have been killed and many others poisoned by an insecticide used in a $1 billion malaria eradication effort supported in part by the U.S. government, a Senate report said yesterday.

The report said the Agency for International Development has poured $90 million into the Pakistani plan to wipe out the disease — said to have reached epidemic proportions there. It is the third such effort by the United States in the last quarter century.

Yet the report by the staff of a Senate Foreign Relations subcommittee found the drug Malathion, described as "apparently the only cheap, effective insecticide now available for malaria control programs . . . has caused at least three deaths among sprayers in Pakistan."

It said about 50 per cent of the Pakistanis who sprayed the insecticide became ill from it.

A special team from the Center for Disease Control in Atlanta went to Pakistan last August and "found that during July, 20 to 60 per cent of the sprayers had experienced at least one illness with symptoms compatible with malathion poisoning.

"The doctors were able to confirm at least three deaths from malathion poisoning and others are suspected to be related," the report said.

It said the two earlier U.S.-backed efforts to eradicate malaria, costing U.S. taxpayers $27 million, failed because Pakistan didn't continue spraying once U.S. financing stopped. "It appears this same fate could befall the new program," the study said.

"If Pakistan is not willing to follow through on this program, the history of previous efforts indicated the United States will waste another $60 million," it added.

But the question of Malathion's toxicity "is potentially more serious because of its implications for worldwide efforts to eradicate malaria," the report said. Because malaria-spreading mosquitoes have developed a resistance to DDT, Pakistan's problem could soon be the world's.

AID put some of the blame on Malathion's Italian manufacturer and noted the incidence of illness among workers using the Italian Malathion was much higher than among those using the American-made brand.

Improper drug inspection by Pakistan also may be part of the problem.

United Press

More than 1,000 people attended this August, 1979 rally at the state Capitol in Sacramento to lobby for better pesticide regulations. The event was organized by a coalition that included the Coordinating Committee on Pesticides and the California Agrarian Action Project.

C.A.A.P. members have met with local agricultural officials, seeking better enforcement of pesticide laws. They filed suit against the University of California, seeking to break the influence that gifts from private industry have over farm research. They wrote letters to their state legislators to help defeat a bill that would have exempted pesticides from the Environmental Quality Act, and circulated petitions to make registration data on the health effects of pesticides open to the public.

In the Salinas Valley, the Monterey County Pesticide Coalition is educating workers and pressing for reforms. Workers like Richard Trujillo are now standing up in government hearings and asking to be heard.

A coalition of labor unions, consumer groups, health organizations and rural people has also been formed. Called the Coordinating Committee on Pesticides, this coalition has been active in the state capitol, and in educating urban residents about pesticides.

These groups are a part of a larger movement of farmers, workers, pest control specialists, rural residents and consumers. They are working together to stop the pesticide treadmill.

NOTES

1) Pimentel, David, *et al.*; "Pesticides, Insects in Foods, and Cosmetic Standards" *BioScience* Vol 27, No. 3 March 1977 Pages 178-185.
2) Luck, Robert F., *et al.;* "Chemical Insect Control—A Troubled Pest Management Strategy" *BioScience* Vol. 27, No. 9, September, 1977 pages 606-611.
3) Metcalf, R.L.; "Insecticides in Pest Management" *Introduction to Insect Pest Management*, R.L. Metcalf & W.L. Luckman; New York, Wiley & Sons 1975
4) Luck, R.F. *et al, op. cit.*
5) California Department of Food and Agriculture; Environmental Assessment Team "Report on Environment Assessment of Pesticide Regulatory Programs" Draft Report, September, 1978. Sacramento, CA page 2.3-3.
6) California Crop & Livestock Reporting Service; "Bees and Honey" 1979 Annual Summary, Sacramento, CA.
7) Atkins, *et al.;* "Protecting Honey Bees from Pesticides" University of California, Division of Agricultural Sciences, *Leaflet 2883*. September, 1977.
8) California Department of Food & Agriculture; 33rd Annual Report,"Bulletin" 41; 325 (1952).
9) Maddy, K.T.,*et al.;* "The Impact of Pesticide Exposures on Community Health Services in California", ACF-59-549. California Department of Food & Agriculture, Worker Health & Safety Unit, October 13, 1978. Sacramento, CA.
10) California Department of Food & Agriculture; Environmental Assessment Team, *op.cit.* page 3.3-34.
11) California Department of Public Health; "California Community Studies on Pesticides: Morbidity and mortality of poisonings" Report to Office of Pesticides, Bureau of State Services (EH), USPHS, January 15, 1970.
12) Kahn, Ephraim; "Pesticide Related Illness in California Farm Workers" *Journal of Occupational Medicine* Vol. 18, No. 10. October 1976. pages 693-696.
13) Howitt, R.E.; "Pesticide externality policy, an optimal control approach" Doctoral dissertation, University of California at Davis, 1975.
14) Wharton, Donald,*et al.;* "Testicular function in DBCP Exposed Pesticide Workers" *Journal of Occupational Medicine,* Vol. 21:3 March 1979. pages 161-166.
15) Redlin, Gunter A.; "Community supplies with one or more wells contaminated with DBCP at or above the 1 ppb level" California Department of Helath Services. 1979.
16) U.S. House of Representatives. Committee on Interstate and Foreign Commerce. Sub-Committee on Oversight and Investigations; "Cancer Causing Chemicals in Food" 95th Congress, 2nd Session, *Committee Print* No. 95, Washington, D.C., December, 1978.
17) California Joint Legislative Audit Committee, Office of the Auditor General; "Review of the California Department of Food and Agriculture's Pesticide Regulatory Program" *Report to the California Legislature, P-934,* August, 1980, Sacramento, CA.
18) California Secretary of State, Political Reform Division; "Form 650 Report of Lobbyist

practices have been slow to change. IPM systems have been developed for relatively few crops. Even where the technology has been developed, growers do not get all the information they need. A recent survey found that most farmers receive their pest control advice from chemical companies (22). The farmers surveyed received an average of 38 visits a year from chemical company representatives, and only one contact a year from the University farm advisor.

Many chemical salesmen are professional entomologists, and give unbiased advice. But many others are recommending overuse of pesticides. A five-year study of pest control advice was prepared by agricultural economist Darwin Hall at the University of California. Hall found that growers who use independent pest control advisors use less pesticides than those who rely on chemical salespeople, demonstrating "that salesmen have a conflict of interest between profit maximization and the social goal of reduced pesticide use" (23).

The Office of Technology Assessment of the U.S. Congress reported that a number of other obstacles

Many pesticide salesmen are recommending overuse of pesticides.

stand in the way of IPM, including a lack of research and poor information distribution. Even so, the report estimates that a national commitment to IPM could "reduce pesticide use up to 75%, reduce preharvest pest caused losses by 50%, and reduce total pest control costs by a significant amount" (24).

Such optimistic projections are reflected in a boom in the industries that offer pest control alterna-

John Dach raises 200 acres of fruits and vegetables without using any synthetic chemical pesticides. He relies on alternative pest control methods and improved soil fertility to protect crops from pests.

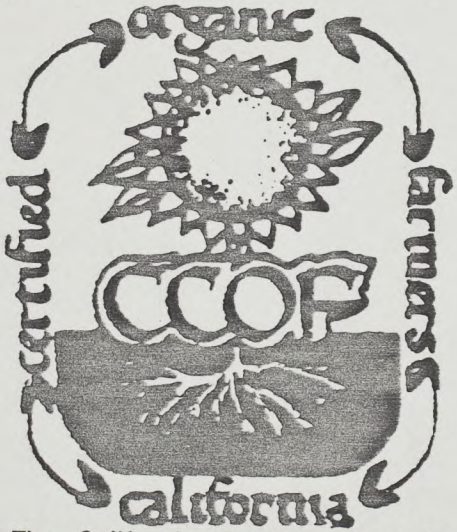
tives. An insectary in Merced is raising beneficial insects including lacewings, Trichogramma wasps, fly parasites, and alfalfa leafcutter bees. Called California Green Lacewing, the firm ships insects all over the U.S. and to foreign countries as well, where they protect cotton, tomatoes and walnuts, and help to reduce the fly menace in dairies and cattle feedlots.

Some farmers have stopped using synthetic chemical pesticides altogether. One of them is John Dach, who grows 200 acres of apples, grapes, and mixed vegetables for the commercial market. "When we talk with people about alternatives, we always get swayed into talking about the good and bad

bugs," says Dach. "Really our whole push here is soil fertility," he says. "A healthy soil is absolutely imperative to have a healthy plant." Healthy plants are less susceptible to pest attack, Dach feels. He builds the soil by adding compost and manure.

The U.S. Department of Agriculture recently released a report that found that the net returns to the organic farmer are comparable to those of conventional farmers. While organic farms are generally smaller in scale, some are as big as 1,500 acres (25). The report found that 30% of these farmers sell their products as "organic" to consumers who wish to buy food grown without synthetic chemicals. The rest sell to conventional markets.

To provide consumers with a guarantee that the produce they buy as "organic" has not been grown with synthetic pesticides, growers like John Dach have joined



The California Certified Organic Farmers' logo assures consumers that the product they are purchasing has been grown without the use of synthetic pesticides.

an association called California Certified Organic Farmers. The association's strict standards make its "Certified Organic" label the consumer's best assurance that produce is free of synthetic chemical residues. The California legislature recently passed a law requiring that all produce advertised as "Organic" be grown without synthetic chemicals.

Consumers concerned about chemical residues in food have discovered that they can buy produce grown with fewer pesticides. The Koenigshofer's and over five hundred other Sacramento families shop at the Sacramento Natural Foods Co-op, a consumer owned and operated grocery store. "I just live around the corner from the Co-op," says Diane Koenigshofer. "I can go in there any time of the year and buy any type of organic vegetable that I like, organically grown grains, even eggs produced without chemicals," she explains. "There are alternatives, we don't have to just sit back and say 'let big brother take care of us,' we can start taking care of ourselves."

Alternatives such as IPM, organic farming, biological control and organic food distribution are being supported by educational and political efforts. The California Agrarian Action Project is conducting community forums and seminars on the hazards of pesticides and the availability of alternatives in pest control. Based in Davis, in the Sacramento Valley, this political organization includes farmers, beekeepers, farmworkers and other rural residents directly affected by the pesticide problem. They are building a grassroots campaign to balance the influence that the chemical industry has over government and farm institutions.

This ruling is one example of the influence of the chemical industry on pesticide regulatory programs. This influence is exerted by paid lobbyists and gifts to government decision makers. The industry contributed about $2 million to the 1978 and 1980 U.S. Congressional campaigns. In California, Dow Chemical Co. alone spent $200,000 in the last year lobbying state officials and contributing to election campaigns (18).

California state senator Jim Nielsen (R-Woodland), who has opposed the disclosure of pesticide registration studies, works as a paid consultant to the Roy Riegels Chemical Company. He receives more than $10,000 a year from Riegels, and has accepted campaign contributions from at least four other pesticide companies.

Registration studies on the health effects of pesticides remain closed to the public, even to doctors.

This pattern of financial ties between the chemical industry and decision makers is repeated in tax supported farm institutions. University farm advisors and professors are seen by growers as a neutral source of information. Though most research expenses are paid by the taxpayer, scientists go outside the University for additional support. The chemical industry gave some 420 grants worth $689,000 in 1979 to these scientists at the University of California (19). Since the gifts come with specifications on how they may be used, they influence the way in which many millions of dollars worth of tax funded research is conducted. The chemical industry also provides University scientists with travel expenses, paid vacations, and free liquor.

Critics ask if scientists stay neutral when they receive so much from chemical companies. A group of sterile chemical workers filed a million dollar lawsuit against University of California professor Charles Hine. Hine tested DBCP in the late 1950's, and found that the chemical causes rats' testicles to shrink. He reported his findings to the Shell Chemical Company—on a confidential basis.

The study was not publicized until the chemical workers discovered that DBCP had made them sterile. Charles Hine has received $400,000 in grants from Shell, which manufactured the chemical. He also is employed by Shell as a private consultant (20).

IV. Alternatives in Pest Control

Kate Burroughs makes her living advising Sonoma County farmers on how to manage their pests in vineyards and orchards. She travels a circuit, from farm to farm, using the tools of her trade—a sweep net, a magnifying glass, insect hormone scented sticky traps, and other devices designed to help her monitor insects, weeds and disease.

"I follow the season, and the life cycle of the pests," says Burroughs. "In grape vineyards we're worried about cutworms at the beginning of the year, then thrips. Later in the season grape leafhoppers are the big problem."

She meets with her farmer clients, and recommends pest control tactics. "A lot of it is just keeping an eye on the insects and plant disease, and telling the farmer he doesn't need to spray; that there is not any high level of pest that's going to cause economic damage and he can skip spraying until next week," she says. She recommends that grape growers plant blackberry bushes near their vineyards, because they provide a refuge for the natural enemy of the grape leafhopper, a beneficial insect called **Anagros epos**.

Integrated Pest Management has helped some farmers cut pesticide use and do a better job of controlling crop pests.

Burroughs is a proponent of Integrated Pest Management (IPM), a system of pest control that combines regular monitoring of pest populations with a broad variety of pest control tactics. A key concept of IPM is the "control action threshhold"—a scientifically set level of pest infestation that is injurious enough to require pesticide treatment. By spraying only when this threshold is reached, the farmer can cut costs and preserve beneficial insects.

Integrated Pest Management utilizes many tactics that control pests without chemicals. Some of these methods have been used by farmers for decades, such as careful cultivation and field sanitation to control weeds. Destruction of field trash eliminates a refuge of diseases and insects. Crop rotation and adjustments in planting, irrigation and harvest schedules are other pest control tools.

Certain varieties of crops resist pest attack. Introduction of resistant types of wheat in the 1940's successfully eliminated the Hessian fly as a pest. Special root stocks are preventing soil borne disease and nematodes from attacking thousands of acres of vineyards and orchards.

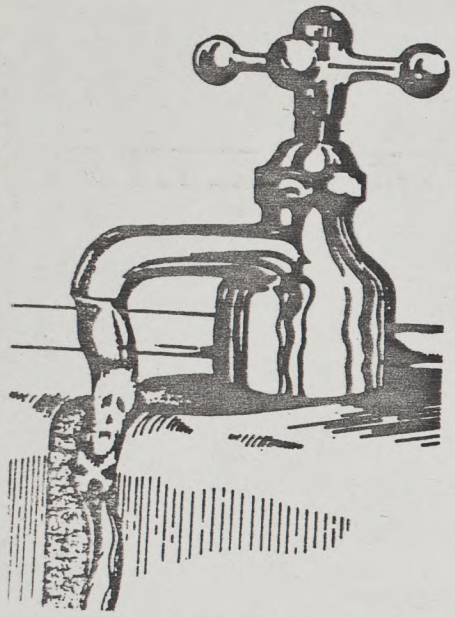
Non-chemical "selective" pesticides are another alternative to toxic sprays. The microbe Bacillus thuringiensis is sprayed on some 2½ million acres of California vegetables, grapes, oranges, cotton, walnuts and other crops. These bacteria kill caterpillars without harm to people and beneficial insects.

The science of Integrated Pest Management uses all available pest control tactics, including chemicals. It differs from the more conventional pest control program in its understanding that the population of pests is connected to other plants and animals in a complex web of natural relationships, a web easily disrupted by pesticide overuse.

In grape vineyards and cotton fields, IPM protects the crops. Growers who use IPM in California pear orchards have cut pesticide use an average of 30%, with cost savings of up to $49 an acre (21).

An important facet of IPM is the use of a trained entomologist, like Kate Burroughs, who operates independently of a chemical sales company. More than 100 of these independent consultants advise the growers of 45 different California crops. The advisor charges a fee for every acre of crop monitored and evaluated. Most growers who use the advisor save enough money on pesticides that it more than compensates for this per acre fee.

Despite the success of IPM, farm



III. Pesticides in Food

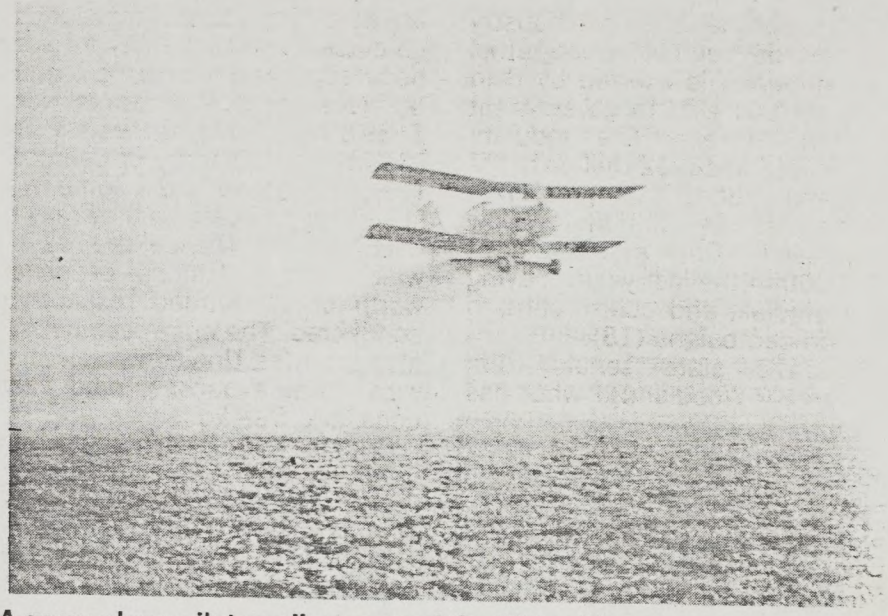
We are all exposed to extremely small amounts of pesticide residue found in our food. Many of these chemicals are known to cause cancer, birth defects, and other health problems. Government standards have been set to limit the amount of pesticides in food. Congressional investigations and two government audits have supported the criticisms of consumers who claim that the standards are in error, and that they are poorly enforced.

California's Department of Food and Agriculture says that it does a good job of protecting the public from pesticides in food. "We take about 7,800 fruit and vegetable samples a year and test them for pesticides," says Richard De Vol, Chief of the Pesticide Enforcement Unit. The samples are checked to see that they do not contain more pesticide residue than is allowed under the standards set by the U.S Environmental Protection Agency. These limits, called tolerances, are set at 1% of the level of pesticide shown to be safe in animal feeding studies. When illegal residues are discovered, the Department can order produce destroyed, as it did with 200,000 pounds of San Diego County tomatoes in October, 1979.

But does this program really work? Diane Koenigshofer asked this question when she was pregnant with her second child. "I was trying to be careful about what I eat," she says. "I was worried about food additives." She read a report on cancer-causing chemicals in food, prepared by a Congressional oversight committee chaired by John Moss (D-Sacramento). The report, she says, made her realize that the pesticides in food are a more serious question than food additives.

The Moss committee conducted an extensive 10 month investigation (16). It discovered that pesticide tolerance levels are based on incorrect assumptions about the American diet, that no studies have been done on the safety of many widely used pesticides, and that government agencies have no way of detecting many toxic substances known to occur in food.

Diane Koenigshofer's concerns are mirrored in a lawsuit two state legislators and a coalition of consumer and health groups filed against the state Department of Food and Agriculture. "The Department is conducting a giant experiment with our health by allowing our food to contain pesticides which may cause cancer, mutations, birth defects, and reproductive disorders," says Maria Arevalo, one of the attorneys who filed the suit. The



A spray plane pilot applies some of the 250 million pounds of pesticide used each year on California farm land.

plaintiffs want tougher standards that lower the amount of pesticides permitted in food.

At the center of the dispute is the yet unresolved scientific question of whether or not long-term exposure to low doses of pesticides is hazardous to human health. Chemical manufacturers are required to register their pesticides with state and federal authorities. They must submit proof that their products are safe. This proof consists of experiments where animals are fed pesticides in their food, and the effects on health noted. The health impacts that are evaluated include both short-term (acute) sickness and long-term effects such as development of tumors, cancer, birth defects and reproductive disorders.

Audits of these registration studies by the U.S. General Accounting Office and the California Auditor General found that complete safety studies have not been submitted for many pesticides (17). An investigation by the Senate Sub-Committee on Administrative Practice, chaired by Ted Kennedy (D-Massachusetts), concluded, "The pesticide registration program is in a state of chaos, and the American people cannot be reasonably assured that the Federal Government is protecting them from pesticides that pose a serious threat to their health."

Even when safety studies are submitted, the public has not been allowed to look at them. The chemical industry argues that their registration studies are protected as "trade secrets." Despite laws that classify the studies as public records, government officials have ruled in favor of the chemical industry, and the studies remain closed, even to doctors.

California doctors receive 14,000 requests a year to treat victims of pesticide poisoning. Photo by Calif. Dept. of Industrial Relations.

II. Pesticide Hazards

California doctors receive some 14,000 requests a year to treat pesticide poisoning (9). Most involve people exposed to pesticides in the home or garden. Many are young children.

People who live and work in farm communities are also frequent victims of pesticide poisoning. Exposure to pesticides makes farm work one of California's most hazardous occupations. Agriculture has a higher rate of injury due to toxic chemicals than any other industry, accounting for 75% of the more than 1,000 occupational poisonings reported each year (10). Those who mix and apply pesticides are the most frequently poisoned.

Richard Trujillo sprayed pesticides in the vegetable fields of the Salinas Valley. "When you're driving a spray-rig, sometimes the drift catches up to you," says Trujillo. The constant exposure led to his first poisoning. "I was in a continual sweat, my eyes were twitching, I had stomach cramps, and I kept vomiting," he says. Defective spray equipment and lack of protective clothing made his job dangerous.

Field workers are occasionally made sick by drifting pesticides, or by entering fields or orchards too soon after they have been treated. Though waiting periods for entering sprayed areas have been established, they are not always enforced. Every season there are dramatic episodes of entire work crews being poisoned. In the summer of 1980, 54 workers were poisoned in a vineyard near Dinuba, and 20 cauliflower harvest workers were poisoned in Salinas.

Richard Trujillo was poisoned when he drove a pesticide spray rig in Salinas Valley vegetable fields.

State health officials believe that very few field worker poisonings are ever reported (11). "Officially we hear of only a small fraction, possibly as little as one percent, of the pesticide illnesses in field workers," says Dr. Ephraim Kahn of the Calif. Dept. of Health Services (12). One reason is that poisonings are reported when workers file for benefits under workers' compensation insurance. A survey found that 90% of farm workers are unaware that they are covered by the insurance program, which pays doctor bills and gives benefits to workers made sick by their job (13).

Pesticide poisoning is not limited to agricultural workers. Firefighters and police must deal with chemicals in emergency situations. When a tanker containing 1200 gallons of a soil fumigant overturned on a highway in Sutter County in October, 1975, five highway patrolmen and three firemen called to the accident were poisoned and sent to the hospital. The firefighters had recurring respiratory problems and headaches for months after the accident.

Pesticide poisoning is a serious health problem in rural California.

That same year in the Imperial Valley a fire broke out in a building where pesticides were stored, causing the midnight evacuation of 1200 people from the town of Calipatria. Eighty-seven people were treated at the hospital for exposure to chemical fumes.

Workers exposed to low concentrations of certain chemicals over a long period of time have also had health problems. In August, 1977, men employed at the Occidental Chemical plant in Lathrop, near Stockton, discovered that they were not having children. A medical study showed that the men had been sterilized by exposure to minute amounts of the pesticide DBCP in the air inside the factory (14). Neighbors of the Occidental plant had their drinking water tested, and found that discharges from the factory had contaminated their well with DBCP.

Alerted to the hazard, state health officials began testing wells in areas where DBCP had been used to fumigate soil. They discovered the drinking water of 155,000 people was contaminated with unsafe levels of the chemical (15). Though more than 40 polluted wells have been shut down, some valley communities have no alternate water supplies. The towns of Parlier, Kingsburg, and Dinuba have sent notices to residents advising them to drink bottled water.

says entomologist Carl Huffaker. More chemicals must be used to control the pests that are no longer kept in check by insect predators and parasites. The farmer is caught on a treadmill of escalating pesticide use.

Pest resistance to chemicals, and the loss of beneficial insects are problems that have kept insecticides from winning the battle against insect pests. Nowhere is this more evident than in the growing of cotton. After World War II, growers found DDT a cheap and effective way to kill pests like the boll weevil, the scourge of cotton fields in the American South. But after 10 years, a few hardy insects became resistant—they survived treatments and produced offspring not susceptible to the spray. Cotton farmers switched to new types of pesticides, but in time, these too were on longer effective.

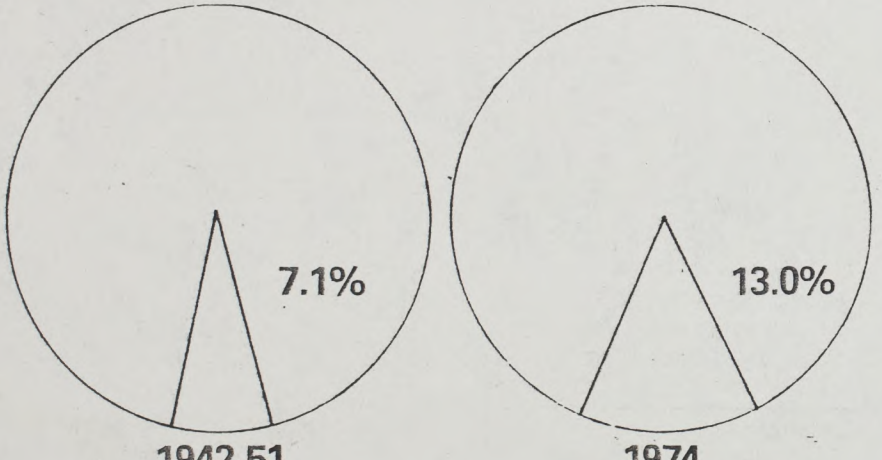
In the Rio Grande Valley of northeastern Mexico, the pests could not be controlled. The desperate farmers tried new chemicals, at higher dosages, with as many as 15 to 18 applications per season, but the cotton industry was finally wiped out. An economic depression resulted (3). Heavy dependence on insecticides has caused pest control failures in other places where cotton is grown—in Peru, Central America, Australia, and in California, where cotton is the crop treated with more insecticide than any other. Today, all of the major cotton pests in the U.S. are resistant to one or more insecticides.

"Superbug"

After repeated sprays, insects can develop resistance to chemicals. Some crops are now plagued by "superbugs," pests resistant to a variety of pesticides.

Since 1945 the portion of U.S. crop production lost to insects has doubled, even though insecticide use has increased 10 times.

U.S. Crops Losses to Insects



Source: U.S.D.A.

Pest resistance can spread rapidly. Resistant types of corn rootworm, once confined to Nebraska, have now spread to 18 states. In California, most of the state's major insect pests are resistant to one or more chemicals (4). Plant diseases are also developing resistance to pesticides. The pests are in a race with chemical technology. With our newfound dependence on chemicals, humankind may be facing a pest control failure that could threaten the world food supply.

Modern chemical methods have not conquered crop pests, and farmers are caught on a treadmill of increasing pesticide use.

California's pesticide treadmill is turning faster. California farmers apply some 250 million pounds of pesticides a year, more than twice the amount they used 10 years ago (5). Farmers' pest control costs are increasing, as are their crop losses. But beyond these problems, there are additional side effects.

Pesticide damage is the most serious problem facing the state's beekeepers. Each year they lose 1 hive in 10 to pesticides (6). This is a serious concern for farmers, too, because honeybee pollination is essential to the production of California seed, nut, fruit, and vegetable crops with an annual value of more than $600 million (7).

The Man With The Golden Arm

Pesticide use has been likened to drug addiction because one chemical treatment must often be followed by many more. When insecticides wipe out beneficial insects, the farmer must apply additional doses to control pests no longer kept in check by their natural insect enemies.

Drifting herbicides applied in neighboring fields is another on-farm problem. Weedkillers applied in rice fields have harmed prune trees and sugar beet fields. The chemical 2,4-D, needed by grain farmers to kill weeds, can harm grape vineyards. State officials have found cases where this herbicide has damaged vineyards 15 miles down wind from where it was applied (8).

The pesticide treadmill's biggest side effect, however, is the impact on human health. Pesticide poisoning is a serious problem in California's farm communities. The health questions raised by our intensive use of chemicals reach from the chemical factory to the fields, and ultimately into the supermarket shopping cart.

"Nothing in my opinion would contribute more to the welfare of these States, than the proper management of our Lands; and nothing, in this State particularly, seems to be less understood.

The present mode of cropping practised among us is destructive to landed property; and must, if persisted in much longer, ultimately ruin the holders of it."

George Washington
March 25, 1785
Mt. Vernon

Grateful thanks for the assistance of:
Hunger Fund, United Presbyterian Church of the U.S.A.
Coalition for Human Needs, Episcopal Church
Pacific Southwest Synod, Lutheran Church in America
United Methodist Church, Board of Higher Education and Ministry

I. The Pesticide Treadmill

Jack Grimmer farms a broad tract of land on the west side of the Sacramento Valley. He raises field corn, rice, beans and sugar beets. Synthetic chemical pesticides have become as much a part of his farming operation as fertilizer, seed, water, or the land itself. "It's got to the point where we can't farm without them," says Grimmer. "Cut my pesticides off and I'd be dead next year. Kind of like a dope addict we're hooked, hooked on pesticides."

Jack Grimmer is a field crop farmer from the Sacramento Valley who is concerned about agriculture's growing dependence on pesticides.

Cover photo—
Independent pest management consultant Kate Burroughs checks an insect trap for coddling moth, a serious pest in apples.

"I need to spray pesticides because pests can wipe out a crop in a short period of time," he says. "It's a matter of economics." Over the 27 years he has been farming, Grimmer says he has seen the amount of pesticides used to produce crops keep on increasing. He has also seen the effectiveness of chemicals decline. "Pesticides we used in the past no longer work. We are breeding a 'superbug' that is getting harder to control," he reports.

When synthetic chemical pesticides were introduced just 35 years ago, farmers thought they had been given a miracle cure. Insects, weeds and disease have not been conquered, however. They still destroy 33% of U.S. crop production. In fact, the portion of the crop lost to insects has doubled since 1945, even though the use of chemicals designed to kill insects has increased to 10 times the 1945 level (1).

Agricultural scientists were puzzled by this increase in crop loss. They discovered that insecticides kill not only insect pests, but beneficial insects as well. Some insects are considered "beneficial" by humankind because they survive by eating or parasitizing crop pests. University of California scientists claim that 24 of the state's 25 most serious insect pests have become more serious pests because pesticides have harmed these natural enemies of pests (2).

"When you wipe out the beneficial insects, you inherit their work."

Employer, Report of Person Spending $2,500 or More to Influence Legislation or Administrative Action." Reports of Dow Chemical Co. for July, August, September and 4th Quarter 1979, 1st and 2nd Quarter 1980.

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23) Hall, Darwin C.; "The Profitability of Integrated Pest Management: Case Studies for Cotton and Citrus in the San Joaquin Valley" *ESA Bulletin* Vol. 23, No. 4 1977. pages 267-274.

U.S. Congress, Office of Technology Assessment; "Pest Management Strategies in Crop Protection—Volume I," Washington, D.C., 1979. page 6.

25) U.S. Department of Agriculture "Report and Recommendations on Organic Farming." July 1980.

Stopping the Pesticide Treadmill

To help stop the pesticide treadmill, contact one of the following organizations:

California Agrarian Action Project
433 Russell Blvd., Davis, CA 95616
Box 464 Davis, CA 95617 (916) 756-8518

Coordinating Committee on Pesticides
1057 Solano Ave, Room 106 Albany, CA 94706 (415) 526-7141

Monterey County Pesticide Coalition
P.O. Box 1145 Salinas, CA 93902 (408) 757-5221

California Certified Organic Farmers
Central Coast Chapter: P.O. Box 1143 Freedom CA 95019 (408) 724-2994
North Coast Chapter: 407 Furlong Rd. Sebastopol, CA 95472 (707) 823-0650

Californians for Alternatives to Toxic Sprays
P.O. Box 117 Goodyears Bar, CA 95944

Group for Organic Alternatives to Toxic Sprays
1091 H St. Arcata, CA 95521
Citizen organizations opposing the aerial spraying of herbicides in their communities.

John Muir Institute for Environmental Studies, Inc.
1010 Grayson St. Berkeley, CA 94710 (415) 524-8404
Publishes a monthly newsletter on IPM, and provides information on alternatives to pesticides.

University of California Division of Biological Control
1050 San Pablo Ave. Albany, CA 94706 (415) 642-7191
Conducts research on biological control as a method of pest control.