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Before the
State of California
Department of Industrial Relations
DIVISION OF INDUSTRIAL SAFETY

Public Hearing For The Purpose Of Considering Proposals Prohibiting Or Limiting The Use Of Short-Handled Hoes By Agriculture Employees -- A Work Operation That May Be Involved in Back-Injury Problems.

TRANSCRIPT

of

PROCEEDINGS

In Imperial, California, Tuesday, May 1, 1973, at 10 a.m. in the Ben Hulse Auditorium, California Midwinter Fairgrounds.

M. Edward White, Chairman	Industrial Safety Board
R. K. Humphries	Industrial Safety Board
Dale Herr	Industrial Safety Board
Albert M. Turner	Industrial Safety Board
Leo R. Westwater	Industrial Safety Board
Richard Wilkins, Secretary	Division of Industrial Safety

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STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
DIVISION OF INDUSTRIAL SAFETY

Minutes of the public hearing for the purpose of considering proposals prohibiting or limiting the use of short-handled hoes by agriculture employees -- a work operation that may be involved in back-injury problems.

Present were:

Aurora A. Aviles	--	Niland
Maria Andryo	--	Brawley
Lupe Arzalelo	--	Niland
Don Barioni	International Harvester, Inc.	El Centro
Reynaldo Barraya	Desert Growers Association	Brawley
Steven R. Beckley	California Beet Growers Assoc.	Stockton
Espiridion Bermudez	--	Imperial
Larry Bratton	Pan American Underwriters	El Centro
Elvira Callo	Farm Laborer	Niland
Jose M. Carlos	E.O.C.	El Centro
Francisco Cristobal	--	Niland
Guadalupe M. Cuevas	--	El Centro
Angelina S. de la Farr	Farm Laborer	Heber
Hector E. de la Vega	Farming	Calexico
Nancy de Mers	Community Mental Health	San Diego
Quin Denvir	C.R.L.A.	Salinas
Robert Emanuelli	Farming	Brawley
Emma O. Feliz	Farm Laborer	Brawley
David F. Flanagan	Physician	Rancho Santa Fe
Juan Fonseca	Farm Laborer	Calexico
Jose Luis Garcia	--	Brawley
Joe Garcia	Desert Growers Association	Brawley
Martha Garcia	--	Brawley
Martha Garcia	Community Worker	Westmoreland
Patricia Garcia	C.R.L.A.	San Francisco
Abigail Garcio	Farm Laborer	Brawley
Luis V. Gaytain	Farm Laborer	Brawley
Otis J. Glendenning	Desert Growers Association	Brawley
Telerfaro Gomez	--	El Centro
Sara Gonzales	--	Brawley
Albina Goytare	Farm Laborer	Brawley
Mrs. Elias Guerrero	Economic Opportunity Commission	Brawley
Mary Guerrero	--	Brawley
Manuela Guzman	Farm Laborer	Brawley
Reynaldo Haros	--	Calipatria
Wallace J. Havens	Imperial Valley Vegetable Growers Association	El Centro
Lloyd Heger	Farming	El Centro
Eliseo L. Hernandez	--	Brawley
Maria Jesus Hernandez	Campesinds Vnidos, Inc.	Brawley
Edward Hewchea	Economic Opportunity Commission	El Centro
Jose Armando Holguin	--	Imperial
Ricardo Jimenez	D. Q. University	Brawley

1	Steven L. Jones	C.R.L.A.	El Centro
	David Kutzman	San Diego Union	El Centro
2	Candace McCarthy	--	Calexico
	Ramon Mason	--	Brawley
3	Leopoldo Mata	Farm Laborer	Calipatria
	J. Jesus Medina	Farm Laborer	Calexico
4	Maria O. Medina	Farm Laborer	Calexico
	Floylan Mendoza	--	Holtville
5	Mary J. Montes	Farm Laborer	Brawley
	Norma Montijano	Farm Laborer	Calexico
6	Willie Moreno	City Councilman	Calexico
	Robert W. Murphy	University of California	San Diego
7	Frank Nunes	Farm Laborer	Westmoreland
	Franisco Olivares	Farm Laborer	Calexico
8	J. V. Ordanza	Farm Laborer	Niland
	Julia Otero	Campesinos Unidos	Brawley
9	Isabel C. Pacheco	Campesinos Unidos	Brawley
	Celia Perez	Campesinos Unidos	Brawley
10	Olivia M. Perez	Farm Laborer	Calexico
	Leo Pinede	--	Brawley
11	Alex Rivena	--	Calexico
	Rebeca Ruiz	Farm Laborer	Brawley
12	Gene W. Rye	Imperial County Farm Bureau	El Centro
	Teresa Sandoval	Farm Laborer	El Centro
13	Eliseo Sierra	Farm Laborer	Calexico
	Carlos Sigmond	Farm Laborer	Calipatria
14	Jack Thornburg	Bruce Church, Inc.	Holtville
	Elizabeth Westen	--	El Centro
15	A. Zendejas	--	Calipatria
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1 MR. H. EDWARD WHITE: Good morning. The announced public hearing of the
2 Industrial Safety Board is now in session. I am Edward White, Director of the
3 Department of Industrial Relations and Chairman of the Industrial Safety
4 Board. Before proceeding further, let me first introduce members of the
5 Industrial Safety Board and others at the head table. On my immediate left
6 is Al Turner. On my immediate right is Dick Humphries and Dick Wilkins,
7 Chief of the Division of Industrial Safety and Secretary of the Board.
8 Please remember to enter your names and addresses on the attendance list.
9 This gives you assurance of receiving further information regarding any
10 future Board action on material under consideration at this public hearing.
11 This public hearing is somewhat unusual in that the Division of Industrial
12 Safety has no specific Safety Order to present for consideration. The proposal
13 before us to prohibit agricultural use of the short-handled hoe comes from a
14 group of farm workers represented by the California Rural Legal Assistance.
15 It is their position that use of the short-handled hoe is a cause of back
16 injuries among farm workers. The proposal has not been completely evaluated
17 by the Board and it is the purpose of this hearing to extend and assist
18 such evaluation.
19 The original proposal to prohibit the short-handled hoe was presented
20 to the Board at its quarterly meeting on March 6, 1973. The presentation
21 was detailed and thorough, making use of witnesses, doctors' presentations,
22 statistics and special studies. This presentation, thorough as it was,
23 could not be considered as a public hearing since it had not been advertised
24 in advance. A complete cross section of the industry was thus not present,
25 and the Board recognizing a need for data from a broad segment, has requested
26 these public hearings.
27 From the standpoint of the Board it is not necessary that the previous
28 presentation of the California Rural Legal Assistance be repeated. However,

1 it seems logical that a brief summary of that presentation should be re-
2 introduced at this time so that others in the audience will have an
3 opportunity to direct their comments more clearly to the problem before us.
4 I am, therefore, calling upon Mr. Martin Glick to present a summary of
5 their proposal on the prohibition of the short-handled hoe. After this
6 summary the hearing will proceed in normal fashion allowing interested parties
7 to speak in turn upon this subject when recognized by the Chairman. Anyone
8 wishing to speak should come forward, upon recognition, to the front
9 microphone. At that time give your name and organization, if any. Please
10 do this each time you come forward. All right, Mr. Glick, I think we're
11 all ready now.
12 MR. MARTIN GLICK: As you mentioned earlier, we are appearing on behalf
13 of the California farm workers who are seeking abolition of the short-handled
14 hoe as an unsafe hand tool. I will summarize the evidence that is already
15 before you, both in affadavits submitted to you, and in the testimony that
16 you heard in San Francisco.
17 Roughly speaking that evidence is divided into two parts. The first
18 part is the injuries caused by the use of the short-handled hoe. You have
19 heard live testimony at length from Dr. Flanagan at that hearing. In addition,
20 you have before you five affadavits from other doctors which were submitted
21 with a petition setting out the medical problems caused by use of the short-
22 handled hoe. In summary, these affadavits and that testimony, which is before
23 you states the following: One, that there is an inordinately high percentage
24 of low back problems among farm workers in the Imperial Valley and in the
25 Salinas Valley where the short-handled hoe is in use. Second, that there is
26 a repeated pattern of the injury in the low back area, degeneration. As Dr.
27 Flanagan testified, the back degenerates in every person over that person's
28 liftime, fortunately at a rate which, for most of us, causes the degeneration

1 and the aging process to go along parallel so that when we're seventy years
2 old we have a seventy-year old back. But what we find in the case of the
3 farm worker who has used the short-handled hoe is a repeated series of
4 injuries to the back from the posture maintained so that his degeneration
5 occurs much more rapidly in that person. By the time that person is thirty-
6 five or forty, depending on the use of the hoe, that back has degenerated to
7 the point where it can no longer take the stresses and strains, and may, in
8 fact, be a seventy-year old back in the body of a person who is thirty or
9 thirty-five. Therefore, the pattern of these injuries is not a sudden
10 traumatic impact where the back goes out, but rather, because of this long
11 period of weakening, finding then in the clinic later case after case after
12 case of back problems in farm workers.
13 In addition, they testified to the other things caused which are
14 arthritis, herniated discs or slipped discs, and fracture or spondylolysis.
15 They testified to the thousands of pounds that are exerted over the course
16 of an average day on the farm worker's back who uses the short-handled hoe
17 because of that posture that he must maintain as opposed to the far less
18 pressure, and the far less injuries or non-injuries, that would be the case
19 if the long-handled hoe were used instead.
20 And finally they testified that treatment for these back problems is
21 relatively ineffective, that operations while sometimes may help to alleviate
22 pain, or help the problem generally, aren't very effective, and that most of
23 the treatment is simply to try and alleviate some of the pain because there's
24 no way to go back and rebuild the degeneration that has already occurred.
25 Secondly, you have before you a survey conducted under the auspices of
26 the University of California at Santa Cruz in which two-hundred farm workers in
27 Orange Cove where the long-handled hoe is in use, and two-hundred farm workers
28 in Soledad where the short-handled hoe is in use, were interviewed in relation

1 to back injuries. As you remember, they said there was four times the
2 incidence of back injuries in the Soledad area where the short-handled hoe
3 is used than the injuries found in the Orange Cove area.
4 And finally, on the medical side you have before you the testimony of
5 several farm worker witnesses. And again, eight affedavits from farm workers
6 stating what injury they personally suffered, and what kind of pain they
7 personally had to endure. As you remember, the pains were of two kinds.
8 One is the terrific pain that the farm worker suffered while actually using
9 the hoe during the end of the day particularly. From the constant bending
10 over during the day the pain is in the back, the pain is in the lower legs,
11 and the pain is in the shoulders. And the second kind of pain they testified
12 to is the pain that the farm workers had when they became thirty-five or
13 forty and found themselves disabled, and having the problem of trying to get
14 to sleep, trying to get up, having trouble walking and having to lie down
15 again, and that kind of problem, I think as we all know, goes with back
16 problems.
17 And you also have before you some evidence of what this all means in
18 terms of cost. There's the cost to the State from ~~having disabled per~~sons
19 with medical treatment and workmens compensation, in terms of the loss of
20 work force-- (INAUDIBLE DUE TO UNKNOWN STATIC)
21 MR. WHITE: Now, maybe somebody else would like to appear at this time.
22 Yes, sir. Would you come forward and identify yourself.
23 MR. LLOYD HEGER: My name is Lloyd Heger. I live in El Centro at 1611
24 Aurora Drive. I've been a resident of the Imperial Valley for over twenty
25 years. I farmed sugar beets in the Imperial Valley for the last ten years.
26 I represent no organization, or no group. I've come here solely as an
27 individual expressing my own views.
28 I feel that in sugar beet production in California and in the Imperial

1 Valley that the use of the short-handled hoe is very necessary to achieve
2 the high yields and to achieve an economic profit from the crops. In other
3 parts of the country, in Idaho particularly, I am aware that they do use the
4 long-handled hoe, but in that area they have much lower land values, lower
5 taxes. What they have there is a lower yielding crop and they can come out
6 with a lower yielding crop because their costs are much lower. Here in the
7 Imperial Valley we have very high taxes and the costs of growing crops are
8 quite substantial. I feel that a proper job of thinning to grow high
9 yielding beets in the Imperial Valley a person has to have a well-thinned,
10 well-distributed plant population throughout your rows.
11 I'd like to introduce in evidence an example of two different beets
12 that I pulled out of my fields this morning. This field was actually hand-
13 hoed by a crew using the short-handled hoe. Like many jobs, it's never
14 perfect, but the people did a reasonable job, but in this area they skipped
15 a beet and I'd like to show you the difference in size involved with the
16 two beets that are left together as opposed to plants singularly and properly
17 spaced. This is a normal beet out of that field where the spacing is about
18 eight inches apart between beets. These are two beets here that were growing
19 close together. There's the same spacing down the row, but yet as far as
20 marketable beets, these will not make near the yield. And the way I've
21 been used to seeing a crew thin beets, generally the person is either left
22 or right-handed. They go around the row chopping with the short-handled hoe
23 and they use their other hand when they run into beets that are very close
24 like this that they cannot cut out with the short-handled hoe. It seems to
25 me, if they can't cut them out with the short-handled hoe, it would be very
26 difficult with the long-handled hoe. As I say, it seems kind of hard to
27 believe that if they can't always do it properly with the short-handled hoe,
28 with the long-handled hoe there would be more doubles and, therefore, more

1 plants that would not produce adequate yield.

2 Also, I have at times in checking my crops done some stoop labor, bending
3 down thinning my beets, or seeing how hard the job is, and it is hard work.
4 There's no doubt about it. I fully sympathize with people at the end of the
5 day. They've put in a hard days work, but in the sugar beet industry we
6 are regulated in our wages by the United States Department of Agriculture.
7 My understanding is that the national average wage is $1.65 per hour. I know
8 of people who are working in the Imperial Valley, like the girl across the
9 street who works at McDonalds Hamburger stand, who are making $1.65 an hour
10 and they're not doing any stoop labor. It's a different type of job. Out in
11 the fields the wages have been established by the Department of Agriculture
12 at $2.15 per hour. I believe these higher wages are set. The job is more
13 strenuous. It is a harder job, therefore the people are being paid a somewhat
14 higher rate for performing this service. I'd like to leave this as evidence
15 to show the wage rates as set by the government, and this is based on the
16 factor that they are considering. I mean the standard wage for an average
17 job. The average job is not acceptable in this area where the standard of
18 work has been the short-handled hoe with the fingers picking out some of
19 these doubles. If you go to a longer-handled hoe, I do not believe that
20 your job would be as satisfactory and, therefore, it would seem to me that
21 the wages would have to be lessened. I would like to leave this publication
22 with the committee as evidence of the wage rates that have been established.

23 Many of these growers in the Imperial Valley and throughout California
24 have fought this factor of spacing over the years trying to get their plants
25 spaced out uniformly. Ten years ago in the beet business we used to plant
26 approximately seven pounds of seeds per acre. Now most growers, who want
27 well spaced beds, have reduced their seed rate to between two and three
28 pounds. So with these plants there are not as many doubles and it is easier

for the work force on the job. There is much plant breeding done establishing varieties of sugar beets where they have what they call monogerm seeds. With the old varieties that we used to plant, many times in each seed there will be two germinations, and you'd get two plants and they'd come right up together. Each plant would be more or less married to the other. They were very close. Plant breeders from the United States Department of Agriculture and the beet growers associations have put out considerable money and effort over the last few years and have developed varieties of sugar beets that have a very small percentage of those multigerm seeds. Right at this time we are planting mostly U. S. H-9 which does have less than a ten percent multiple germ in it. Many growers have gone to pelletized seed, which is a much greater expense, so they can adapt themselves to mechanical thinning and mechanical processing of their beets. These things have not worked quite as well as everybody wished, and basically you sometimes get trapped with weather, where rain will come, the wind will dry your field out, or a condition will develop where you cannot get your machine into the field at the proper time, and your only alternative is to either disk up a crop, or go in with a crew and clean it up. The crew are using the short-handled hoe because it's done the best job, and they are faced with high costs down here. We obtain high yield in our sugar beets but it's only when you can space your plants out properly. If you group them or clump them, you get practically nothing. These will go through the rinks of sugar factories and will be thrown out as trash.

I can speak with some feeling that I realize that at the end of a days work my back hurts too. I have arthritis under my left shoulder, and if I'm working hard and performing lifting or stooping, at the end of the day I have a back problem. It seems actually in the Imperial Valley that there aren't many farmers who are affected this way, and whether I can pinpoint and

say that my back is due to using the short-handled hoe, or other reasons, in my case it's definitely-- my doctor is Dr. John Hayward. Three years ago he told me that I needed to lose fifteen pounds weight. I need to get more sleep, more rest. I was driving a Datsun pickup at that time and he suggested I sell it and get into a pickup truck that was much more comfortable to ride. And I know of several other farmers that have back injuries and they're really related to agriculture, but they're not caused by the short-handled hoe. I know one gentleman in the cattle business, and he blames his bad back on an old horse that he had. There are many other conditions that could be this way. There's another gentleman by the name of Lee Larkin up in the Imperial area that one day in the hay baling business he rolled a bale of hay over on the border, and just the way he twisted his back made his back very weak for several years and he had to wear a brace to get over it.

I think in conclusion that all I can say is that I believe the short-handled hoe is necessary for high-yielding sugar beet production in this area the way the cost structure is. I believe that what these people are in essence saying is that if it can be conclusively proven that by bending over that you are going to injure your back, why then it is possibly best for you people to outlaw any stoop labor at all. I think that the short-handled hoe is part of it. I mean if you say that bending over is a type of labor that will injure a man, then I think you should stop the people from harvesting lettuce. I think you should stop them from harvesting asparagus. I mean there are all types of agriculture crops that involve stoop labor so that the people have to bend over. It isn't just the use of the hoe, it's the other types of work. It seems to me that these people are being paid a higher wage than what the other wages are being paid for other industries in the area. I realize it is a hard job, hard work, bending over all day long, pulling beets or pulling weeds, but they are being paid at a higher rate than

other people. Unfortunately if they do have back injuries or back problems, that could have been caused in their youth from other things such as a fall or an injury, then when they go into hoeing crops with a short-handled hoe, then I'm sure that their back will show up. It's an unfortunate situation. I don't know the solution, but I think these people should be aware that it's just not the short-handled hoe. This means that if you should outlaw it and say that that is a tool that injures a person's back, then I think you almost have to say that no person in agriculture can stoop over to perform any job. Thank you.

THE BOARD: What did you say your doctor's name was?

MR. HEGER: Dr. John Hayward, Desert Medical Group in El Centro.

MR. WHITE: We would like to have those. Can you leave those for us.

MR. HEGER: All right.

MR. WHITE: There may be another question here, Mr. Heger. Just a moment.

MR. RICHARD HUMPHRIES: Mr. Heger, is the primary purpose of the short-handled hoe thinning?

MR. HEGER: It's used in the Imperial Valley for thinning, but also when our beets get bigger. And this is another factor that I think it's hard for me to realize with my agricultural background as opposed to you people with your industrial background, we weed beets when they get big. Sometimes the tops will be two and three feet big, and this will be done in November, December, or January. We go through weeding beets at that time. I can't see with double row beets how a man could effectively use a long-handled hoe and do a very good job of weeding with the tops. Normally the man has to almost pull the tops away, the beet tops away, and see where the root is of the weed and chop at it that way to do an effective job. Otherwise he just prunes it off, the weed, and it comes right back up again.

THE BOARD: Do you spray for weeds?

MR. HEGER: Yes, I use herbicides. I do everything I can mechanically, culturally, to eliminate what weeds I can. I space plant. I use the best type of seed. The U. S. H-6 seed is a much better more vigorous seed for germination in our hot weather down here in September, but it's a multiple seed. So, therefore, I go to the U. S. H-9, which has a very small percentage of multiple germs in it, and it comes up more of an individual plant. I space my plants out to three or three and a half inches the best I can with a planter, but I think this is an example here that a mechanical planter sometimes drops two seeds here. And there is always a certain amount of error or malfunction in this machinery. And therefore you go back with a hand crew to try to get yourself as uniform and perfect a stand as possible.

MR. ALBERT TURNER: Mr. Heger, I'd like to ask you another question. This is Turner, Board member. You seem to feel that it's essential to use the short-handled hoe to get the proper thinning. You're right, I have an industrial background and no farming. Suppose that the length of the hoe handle was three feet. In your judgment would this extension of the hoe handle interfere seriously with thinning?

MR. HEGER: I do not have any experience with a hoe of that length. I really kind of think that if possible a somewhat longer handle could be of benefit. It certainly would be worth trying, and in some cases I think it's a worthwhile suggestion, but we still get down to the fact that where we have these multiples, that with proper thinning, if you'll excuse the way I do it, is you're chopping and behind it you're trying to pick out the doubles. With the short-handled hoe you can just cut so close. And that's why I say if you can't do it with a short-handled where you're right down there, using a longer-handled hoe in terms of what I'm thinking of about a four-foot long hoe, it would seem pretty hard to do an adequate job.

MR. TURNER: Of course, if you had a ten-foot hoe, it would break.

1 MR. HEGER: That is right.

2 MR. TURNER: It seems to me that there's a compromise.

3 MR. HEGER: I think that possibly a somewhat longer handle, eighteen
4 inches or something like that, might in many cases help out, make his job
5 easier, and it's a possibility. I think that probably an experiment should
6 be run along this line.

7 MR. WHITE: Any other questions? Thank you, Mr. Heger, very much. Is
8 there someone over here that would like to speak? The young lady here.
9 Would you tell us your name please.

10 MISS SARA GONZALES: Sara Gonzales. (INAUDIBLE DUE TO UNKNOWN STATIC)

11 MR. GLICK: I would like to put Dr. Murphy on now, I think he can
12 elaborate in this area.

13 MR. WHITE: There was a question down here. Let's take this gentleman
14 and then we'll have the doctor.

15 MR. NEOCHEA: (INAUDIBLE DUE TO UNKNOWN STATIC)

16 MR. TURNER: Are you suggesting that the people hurt their backs, but
17 they don't go to the doctor to get them fixed?

18 MR. HECOCHEA: (INAUDIBLE DUE TO UNKNOWN STATIC)

19 MR. WHITE: Thank you for coming up. Let's hear the doctor.

20 MR. GLICK: Let me introduce him. Dr. Murphy is a physician licensed to
21 practice medicine in California. We are fortunate to have him with us
22 because he is an expert in this area. He has three years of specialization
23 in orthopedic surgery in the Department of Orthopedic Surgery at UCC. His
24 particular interest and specialization is the spine and the low back regions,
25 and he has papers on the subject. I have a list of those papers and
26 appearances which I will submit. Briefly, they are guest lectures at the
27 San Diego Psychiatric Society; plus a graduate instructional course on pain
28 at UC San Diego on low back pain patients; the annual winter meeting of the

1 Los Angeles Chapter of the Western Orthopedic Association; a symposium on the
2 problem back in March of '72; participant in the NBC news special on pain
3 in March 28, 1972; a featured speaker at the annual meeting of Teachers of
4 Rehabilitation, USC Medical School on the subject of Physical and Psychological
5 Aspects of Pain and Their Application to Problems in the Low Back Area;
6 guest lecturer to the Workmens Compensation Carriers of California; and
7 instructional course on low back injuries. And the papers, Aspects of Low
8 Back Pains accepted for publication. Another paper, Low Back Pain of Post
9 Graduate Medicine. Traits of Pain Patients Low Back Pain Patients Psycho-
10 somatic, a submitted paper. And in a recent issue of the California Medical
11 Journal the article The Present Status of Anterior Interbody Fusion in the
12 Lumbar Spine.
13 DR. ROBERT W. MURPHY: (INAUDIBLE DUE TO UNKNOW STATIC)
14 MR. WHITE: Dr. Murphy, to get this in focus. We've heard from Dr.
15 Flanagan and other doctors this morning. Would you give us a short outline
16 of what you have in mind so we can keep our agenda under control, particularly
17 if it's a written presentation. We'd like a summary and then perhaps Mr.
18 White could pick up your written, enough so that the group here will under-
19 stand what you're talking about. As you know, we have a translator, but not
20 to go through a total formal presentation.
21 DR. MURPHY: Most of the things that I've had to say are in two parts.
22 One is, a lot of questions that have been raised are on the function of the
23 spine itself, and also I would like to discuss the effect of the low back
24 problem as an industrial injury, what its incidence is in the State of
25 California and how much it costs people.
26 I'd like first to discuss a little bit about the spine itself and say
27 that the spine has two main functions. One is it has to be strong, it has
28 to be rigid enough to support the body, but it has to be at the same time

1 flexible enough to allow the body to move in any position. Nature has solved
2 this problem by creating the spine of alternating structures composed of
3 rigid bones, which provide the rigidity and strength to the spine, and in
4 between each of the bones is this structure called the intervertebral discs,
5 which is soft tissue that allows the spine to move in a different position.
6 It also functions as a shock absorber for the spine.
7 In talking about industrial injuries to the back, there are a lot of
8 things that can happen in the way of fractures and spondylolisthesis, but
9 far and away the most important problem by far is the implication of the
10 intervertebral disc. And so I'd just like, in a very simple way, to describe
11 a little bit about the mechanics of the intervertebral discs, how it works,
12 and why it gets injured. The intervertebral disc is composed essentially
13 of two parts. This is looking down on the top. This is the central portion
14 which, for the sake of discussion, an analogy would be like a balloon filled
15 with water. If the balloon is compressed from the top, it will expand to
16 the side. That would be from the lateral view, say here. This is the
17 structure that bears all the weight of the spine. Now, surrounding this
18 central fluid-like structure is very dense fiberous tissue called the
19 anulus fibrosus. The function of this outside structure is to prevent the
20 nucleus from expanding, and in this way if you add a weight to the spine,
21 say a man standing puts a weight on his shoulders or his head, what happens
22 is the weight is absorbed by these intervertebral disc structures, which
23 flatten out imperceptibly and transmit the force out to the sides to this
24 very tough intervertebral anulus fibrosus. It is this structure then that
25 absorbs the wear and tear to the spine over the years. So in other words,
26 a weight applied to the top is distributed in the form of horizontal stresses
27 at many levels up and down the spine. So in the erect posture the human
28 spine is very efficiently dissipating limited forces. But there is a certain

1 limit which it can stand, and you heard various figures of several tons applied
2 to the spine and these are theoretical calculations. Dr. Nachemson has done
3 actual direct measurements of spines to find what the actual pressures
4 exerted in these disc structures are, and on the spine to find out what is
5 their breaking point. And it has been found that if you load a spine directly
6 from the top, the disc structure will disintegrate at approximately 600
7 pounds-- excuse me, 1,200 pounds, 600 kilograms. When you reach a figure--
8 MR. TURNER: Pardon me, Doctor. You're talking about putting the
9 weight on top of the guy's head?
10 DR. MURPHY: Yes, sir. If you put a 1,200 pound weight on an average
11 150 pound man, his discs will blow out. Now, when you get to weights about
12 2,000 pounds, the vertebral bodies themselves will just crumble. So this
13 is the magnitude of pressures that are available to the spine under ideal
14 circumstances, that is in a vertical position. Now you would think that
15 would be an ample amount of pressure leeway for a man weighing 150 pounds.
16 Nobody puts 1,200 pounds on his shoulders at any one time and so this isn't
17 the whole story.
18 We have to implicate what effect the muscles have on reducing pressure
19 to the spine, and that's why I'm getting into the idea of what happens when
20 you use the hoe. Now, the muscles of the spine attach, like I say, to the
21 vertebral bodies and there are two main routes. The muscles along the back
22 that keep the back erect. In the front you have the abdominal muscles which
23 counteract the back muscles when you're standing in an erect posture. Now,
24 just standing normally without bending over at all, the pressure on the discs,
25 considering the muscles that have to keep the spine up, pull at about two
26 times the body weight. So for a 150 pound man consider a pressure of about
27 300 pounds. So still he has plenty of leeway to work and not get into any
28 trouble. When you bend over, then a phenomenon occurs and it has to do with

1 the very simple lever system. You're all familiar that if you put a person
2 on a teeter-totter and he weighs fifty pounds, and you put the fulcrum in
3 the center, and you put somebody else weighing fifty pounds on the other side,
4 it balances out. But if you move your fulcrum of your teeter-totter over
5 here, then the weight necessary to balance this fifty pounds is considerably
6 greater. In fact, it's fifty pounds multiplied by that distance to the
7 fulcrum. Now, the same problem happens in the spine. If you have the spine
8 here, and the muscles that are holding the spine up are back here, they pull
9 through a very short fulcrum. The worker bends over in the case of the short
10 hoe over ninety degrees. So any work that he does out here is going to be
11 magnified and estimated at between five and twenty fold the actual weight or
12 the actual stress that he's performing while in that position. Now, Dr.
13 Nachemson has done actual measurements of people bending at various points.
14 MR. TURNER: Pardon me, Doctor. Are you giving us a copy of that study?
15 DR. MURHPY: Yes, right. I have a copy of the study for you. Now, in
16 this study he measured people bending only twenty degrees, and that had to
17 do with his equipment. When you start bending over farther, you bend his
18 needle. So for the sake of technical problems you can only bend twenty
19 degrees. Well, he finds out that for each degree you bend, the weight
20 exerted on the lumbar disc is proportional to a constant factor that has to
21 do with the worker's body weight plus three times the body weight times the
22 sine of the angle through which the man is bending. (INAUDIBLE DUE TO
23 UNKNOWN STATIC) Now, the worker who is bending through an arc greater than
24 ninety degrees, as many of these workers do, are going to have weights,
25 pressures, on the spine approaching the maximal tolerable level of the
26 intervertebral discs. Certain workers, particularly young people, can
27 tolerate that pressure for a variable period of time, but unfortunately
28 there's a natural aging process that occurs in the intervertebral disc

1 structure such that beginning early in childhood the anulus fibrosus and the
2 disc material itself begins to degenerate in a natural curve like this as you
3 get older. We're talking about a person who doesn't work with a hoe, just
4 a man who is a regular white collar worker. Now, the effect of the aging
5 process is that it makes the fluid component of the disc less able to transmit
6 pressure evenly in all areas of this anulus fibrosus. The result is that
7 when stresses are applied, they tend to concentrate on specific spots on the
8 anulus and they cause little tears to occur in this structure. This is a
9 natural process of aging. As you bend forward, what happens is this. Since
10 the vertebral bodies themselves don't bend, it's only the intervertebral discs
11 that bends and permits the worker to bend over and use the hoe. That means
12 that the anterior part of the disc narrows, the posterior part widens, and
13 the pressures are all concentrated on the back of the disc. And pressure
14 has been measured of six to seven times the load on the posterior part of
15 the disc that would occur if the person were in a standing position.
16 MR. TURNER: Pardon me, Doctor. Is it all right if I interrupt you to
17 ask questions?
18 DR. MURPHY: Of course.
19 MR. TURNER: If I don't, I'll forget. Your illustration there indicates
20 that when a person bends over, the disc itself compresses in front and
21 actually expands in the back. Is that what you're saying?
22 DR. MURHPY: That's correct. And the forces applied are being concent-
23 rated also on the back. All right, you understand that.
24 Now, just a very minor point about the anatomy of the spine. The spinal
25 cord and its nerve roots pass directly behind the posterior part. So what
26 I'm saying is that in the natural process of aging these little breaks and
27 fissures in concentrations of forces to the posterior part of the anulus
28 cause it to degenerate. Somebody maintaining a bent position concentrates

these forces posterially, and not only are the forces concentrated posterially, but they're concentrated in direct magnitude to the degree forward that he bends, and the magnitude is about three times his body weight. If using the short hoe required this amount of work, which we'll arbitrarily say is this, that the average person, the young man, can do this work for a period of time while his disc mechanics are normal and before the normal degeneration, and the aggravation of the normal degeneration from his work create so much degeneration in the disc that it protrudes out the back causing pressure on the nerves that can resolve in back pain or even paralysis as we call the so-called slipped disc.

There comes a point in time when the normal aging process catchs up with a person until he can no longer meet the demands necessary for the job. In the case of a person using the short hoe, his ability to continue this job depends not only upon his age and the amount of normal degeneration that occurs, but the amount of additional degeneration that occurs from assuming a bent over position. So his curve may be something like this. Whereas he may be able to use a short hoe for a period of time, he reachs a point sooner where his back is no longer able to keep up with the work, and he's out of work now years ahead of what he would be if he did not have to assume a bent position. These are years of aging on the spine that are irretrievable by any form of treatment. They are just lost to that person's life. He may have sixty or seventy-year old back and be only thirty years of age.

Just to summarize what I've said, maintaining the body in a bent position as is necessary when using the short hoe places great stresses on the intervertebral discs of the spine which accelerates the development of degenerative diseases of the disc structures and promotes the development of degenerative arthritis of the spine which occurs secondary to the disc degeneration. As the disc degenerates, they can no longer tolerate this stress

1 The stress is transmitted to the bones and to the other joints which is the
2 disease that we call arthritis. The degeneration occurs in the joints and
3 the bones as well as in the intervertebral discs. Performance of even simple
4 activities while in the bent position adds further stress, which are
5 magnified many times over what they would be in an erect position. The
6 result of this is a worker whose spine ages more rapidly than the rest of
7 his body until a point is reached where he is no longer able to work because
8 of low back pain.

9 One final point about the mechanics of the back and that is this. The
10 disc adapts to the pressure in two ways, and this is a question that one of
11 you asked be cleared. If you apply a load to the spine, let's say we add
12 600 pounds to the back, the disc structure-- the nucleus will compress and the
13 anulus will take up the weight and it will adapt slowly to a particular point.
14 But in addition to that, the disc itself will oscillate very rapidly on the
15 rampant changes in activity. For example, a man is out here hoeing with a
16 short hoe. He is performing activities that cause changing levels of force
17 to be applied to the spine at a rate that is faster than the muscles can
18 adapt and the disc is able to change. So that these forces are transmitted
19 directly to the disc and cause further tearing and fissuring of the inter-
20 vertebral disc structures, and not only does this occur, but it's magnified
21 between five and twenty fold because of the fact that he's performing these
22 movements at a position so far from the center of gravity.

23 Now, this issue of the industrially injured back is of particular interest
24 to me because as I alluded to earlier I've had the occasion to do a study in
25 which we took over one-hundred patients who had already injured their backs
26 and were unable to work, and we examined these people for many different
27 criteria, which included X-ray exams, chemical laboratory studies, psychologica
28 testing, and even psychiatric interviews, and I think a few points about this

1 study might be pertinent to bring out some of the points that happened with
2 the short hoe.
3 In 1970 in the State of California there were 23,322 financial decisions
4 made in favor of patients who had job related back injuries. A conservative
5 estimate of the compensation paid for these injuries is well over $100,000,000
6 for the year 1970. The national cost during any given year would easily be
7 a billion dollars. This figure does not include the compensation payments made
8 to people already on the compensation rolls for previous years. This is just
9 an estimate of added cost each year. The reason I say approximate cost is
10 because these figures were from Dr. Osterlow, the head of the California
11 Workmens Compensation Appeals Board, who was using the figures from the
12 workmens compensation fund. That group is of many different groups. Now, in
13 the State of California low back injuries are the most common industrial injury
14 and account for approximately forty percent of all industrial claims filed and
15 money paid in compensation for injury while on the job.
16 To compound the problem further, the result of rehabilitation of a back
17 injury patient has been very disappointing in our hands. Not only us, but
18 everywhere. Percentages dealing with surgical results in the treatment of
19 back injured patients regarding ability to return to work vary from study
20 to study. But typical statistics are about as follows. If a person injures
21 his back while working on the job, about thirty percent will be able to return
22 to full or nearly full work. These are not people using the hoe now, these
23 are people in general industry in the State of California. An additional
24 twenty percent will be able to perform only light work, but will be able to
25 hold down a job. But fifty percent or more will never return to work. We
26 also know from our own studies, and from the studies of other people, that if
27 a worker fails to return to work for six months following his injury, the
28 chances of him ever returning to work are less than fifty-fifty. If he doesn't

1 return to work within a year, which is very common in back injuries, the
2 chances of him ever returning to work, no matter what treatment you use, are
3 less than five percent. Now, I would expect that a study of farm workers
4 using the short hoe would be even more dismal than this because of the
5 tremendous demands placed on the back by using this tool.
6 Now, to me by far the most despressing aspect of low back problems is
7 the tremendous human waste that results from this fifty percent of patients
8 who are never able to work again. Most of the people are of low intelligence
9 many times, and they are poorly suited because of their educational background
10 for vocational rehabilitation. And certainly no one is interested in hiring
11 a laborer who has a bad back, certainly in the short hoe industry. The net
12 result ultimately is that these people become the responsibility of the
13 taxpayer in one form or another. Everyone loses when a worker injures his
14 back. The employer loses a worker, and he may lose financially in the form
15 of financial compensation. The worker loses a tremendous amount. He loses
16 his livelihood. He never gets compensation that's equal to what he can make
17 by working. He loses his family status. He loses his re-employability
18 because these people do not get rehired. And from our studies at the
19 University of California, I can tell you that the incidence of psychiatric
20 disease in patients who have had chronic low back pains following injuries
21 is tremendous. And society loses a productive citizen.
22 Summarizing everything now, the low back injury, contrary to what you've
23 heard from the insurance carriers here, in the State of California at least
24 is the most common, and the most costly, and the most difficult to treat
25 problem in the field of industrial medicine today. The results of present
26 day treatment in whatever form are so poor that every effort should be taken
27 towards prevention of these injuries. There's no doubt that the use of the
28 short-handled hoe not only produces the development of these injuries, not

only predisposes to their development, but it actually produces these injuries although it takes a period of time to do so. It is my opinion that the short-handled hoe should be eliminated as an industrial tool, or modified in such a way that the worker can maintain a more erect posture.

In closing I'd like to comment on a couple of points that have been brought up before. One of the other people mentioned that he felt that a hoe of intermediate length perhaps would be acceptable. I don't. I can't talk to the issue of how fast a worker can work using this hoe, but whenever you lean over through a number of degrees, you are putting a force on your back that is of a magnitude of three fold the body weight times other factors. So I think a medium-sized hoe is begging the question. If you want to get the most out of your employees from a safety standpoint so that everyone will be a winner in the long run, you have to devise a hoe that can be used while the person is erect. They may have to work a little slower using that hoe, but I can assure you in looking at the cost of compensation in this State in other industries it would be far cheaper to accept the slower rate of work than it would to accept the rising costs of compensation payments. Now, somebody mentioned that his company didn't pay any workmens compensation claims for back injuries on the job since 1970. I'm not contesting that that's not true, but I can say that there's no question the short hoe causes these injuries. But it's the type of injury that is an aggravation of the normal aging process and it is not any one single event that's going to cause a laborer to develop a back disorder. So I don't know how he justifies payment of these claims. Like one of the workers pointed out, it may be the workers don't know they have this compensation. But I'm sure the problem is there.

MR. WHITE: Thank you, Doctor. One point. You're using the term the cost of compensation as compared with the perhaps slower productivity if they

1 use a longer hoe, or a longer instrument, or did not stoop. Will your
2 statistics show some kind of a percentage of costs of compensation claims
3 due to the stooping, or due to the short hoe, due to the prolonged stooping?
4 DR. MURPHY: There have been no studies that show that a specific worker
5 using the short hoe have a higher incidence of back injuries. Now, theoret-
6 ically there would be no question about it. There is no job industry that I
7 know of that requires a person to bend through angles that a person using a
8 short hoe would. Now, these people that are costing the State of California
9 $100,000,000 additional each year are people who aren't bending through
10 nearly the angles that people are that are using the short hoe. I'm sure
11 you can buy a lot of beets for $100,000,000. I don't know what you mean by
12 the cost of decreasing productivity, but it wouldn't even approach the cost
13 the workmens compensation for back injuries.
14 MR. WHITE: Are there any costs of stooping disease in that cost you
15 mentioned?
16 DR. MURHPY: These are including all people. It's a well recognized
17 fact in industry that stooping predisposes back injuries. Most corporations
18 have signs and so on in their plants instructing their workers to pick up
19 objects by using the legs, but keeping the back straight at all times. I've
20 been through many plants where people are actually shown photographs and
21 explanations instructing specifically how to lift heavy objects on the job
22 and cautioning them not to bend at the waist.
23 MR. TURNER: Doctor, it seems to me that the thrust of what you're saying
24 in its entirety is that the position that one has to assume to use the short
25 hoe accelerates the wear and tear that would otherwise take place, and
26 eventually results in pain or structural damage to the back because of
27 accumulated stress. Is that the thrust of what you're saying?
28 DR. MURHPY: Yes. The thrust of what I'm saying is that the back tends

1 to degenerate anyway in everybody, and anybody who's a farm laborer, even if
2 they use a hoe standing straight up, will have a certain degree of progressive
3 changes in his back which is normal. But what I'm saying is that the short
4 hoe tremendously increases this rate so that the patient loses many years of
5 productivity that he would otherwise not have to lose if he could use a hoe
6 while standing up.
7 MR. TURNER: You're saying then that perhaps that the thirty-years old
8 guy that's in this kind of work is the sixty-years old back.
9 DR. MURHPHY: That's correct.
10 MR. WHITE: Any other questions? All right, Doctor, thank you very much.
11 Now in your printed presentation is this math and physics that you went
12 through, is that included in there?
13 MR. TURNER: You're going to give us these studies?
14 DR. MURPHY: I can leave you these studies, if you want. I'd prefer to
15 xerox them--
16 MR. TURNER: As long as we get them.
17 MR. WHITE: Mr. White will give you his card where you can send them.
18 Thank you again, Doctor. All right, sir.
19 MR. OTIS J. GLENDENNING: My name is Otis J. Glendenning. I live in
20 Brawley, California. I am presently manager of Desert Growers Association.
21 I have been manager for three years which is a cooperative labor association
22 formed in 1935. Before that time I was president of the board of directors--
23 (inaudible). I've lived half of my life in the Imperial Valley, the other
24 half of my life in North Dakota. There are two things that I would like to
25 bring out. (INAUDIBLE DUE TO UNKOWN STATIC)
26 The reason the Imperial Valley uses the short-handled hoe, where some
27 other areas do not, is because here agriculture is much more intensive. For
28 instance, in the Redwood Valley in North Dakota they have a yield of twelve

1 or fourteen tons of sugar beets per acre. The land costs are less, everything
2 is less. The average I can't remember, but the last two years we've been
3 getting yields of thirty or forty tons per acre. This is the way that the
4 farmer can maintain this $2.00 and $3.00 an hour labor. If his yield shrinks
5 down to half of that figure, which it used to be at one time, he will be out
6 of the business of growing beets, or he will go broke, one or the other.
7 He won't be able to pay it.
8 There's one other factor that can be checked on in this study on workmens
9 compensation. When the braceros were here from Mexico in 1943 to 1955-- no,
10 I can't give you those years they left, maybe 1965. But anyway, during that
11 period Pan American Underwriters wrote the compensation insurance on almost
12 all of those braceros during those years. That was a long period of years.
13 I'm sure their records are still available. These could be checked on to
14 see the incidence of back injury of any kind and back injury related to the
15 short-handled hoe. They were not only well aware of the fact that they had
16 insurance, but the Mexican Counsel came around, he or a representative,
17 came around once a week, I believe, and asked them if anybody had a complaint.
18 They were very well taken care of. They weren't ignorant of this fact.
19 I think most of these things can be brought out by statistics rather than
20 by just listening to words.
21 MR. WHITE: One question. You mentioned, and I didn't hear what your
22 conclusion was, during the time the braceros were here, and during the time
23 Pan American handled the workmens comp program for most of the activity, the
24 incidence of injuries to backs--
25 MR. GLENDENNING: It would be a matter of record.
26 MR. WHITE: But we don't know if they were high or low?
27 MR. GLENDENNING: This can be ascertained.
28 MR. WHITE: All right. Thank you.

MR. TURNER: I would like to put your mind at rest on that score. We have intended from the beginning to search the records for back injuries to agricultural people. We have a record available within the State Department of Labor Statistics, and we have from the beginning intended to have a look at it.

MR. WHITE: Any other questions?

THE BOARD: Mr. Glendenning, what percentage of the total acreage is sugar beets?

MR. GLENDENNING: Approximately twenty or twenty-five percent. It's a major crop in this Valley. I think that one thing that is overlooked here possibly, there's no doubt in the world that if a person didn't have to stoop over and do anything, if I didn't have to work, I'd live longer. I have an implanted pacemaker right now, and if I would retire from the job I have so I don't have to argue with farmers and workers both, I'd live longer. If this goes to the long-handled hoe rather than the short-handled hoe, it will eliminate those jobs. I'd add one more thing here. I've had some experience with the long-handled hoe in the Imperial Valley. The farmers here were caught rather short. There were not enough local people here to do the work and there were not as many minority workers as there are now. The farmers had quite a difficult time for awhile. One farmer remembered that they used to use these long-handled hoes in Arkansas. So he asked the association to buy and equip a crew with long-handled hoes and put them in the fields. They wouldn't work with the short handle so they tried it with the long handle. We bought thirty long-handled hoes, and they worked one day and it did not work out. Sometime later another of our members thought he could get cheaper work done with the long-handled hoe. (INAUDIBLE DUE TO UNKOWN STATIC)

MR. TURNER: Mr. Glendenning, could I ask you another question. You said in the beginning that your Desert Growers Association, did you say

1 cooperative labor association. What did you mean by that?

2 MR. GLENDENNING: I mean that it is-- was formed by (INAUDIBLE DUE TO

3 UNKOWN STATIC)

4 MR. TURNER: Does this mean you hire your own labor rather than having a

5 contractor? I don't understand.

6 MR. GLENDENNING: Yes, we hire our own labor rather than having a

7 contractor, however since the braceros left, we do have a labor contractor's

8 license. We can and do-- (INAUDIBLE DUE TO UNKOWN STATIC)

9 MR. WHITE: --labor for how many other associations there are?

10 MR. GLENDENNING: We are the sole remaining association in the Imperial

11 Valley, perhaps in the State, an association formed originally to handle the

12 braceros. After the braceros left, the need for them disappeared. Our

13 group has more or less remained together in order to handle our own work.

14 They felt they had more control rather than handing it over to a private

15 labor contractor. I think there was a statement made recently by one of the

16 ladies testifying that Pan American Underwriters were speaking about packing

17 shed workers. I happen to know most of the labor contractors in the Imperial

18 Valley who use all field-- they are engaged in thinning weeds only, and I

19 would say that ninety percent of them carry their insurance with Pan American.

20 MR. WHITE: One other point on the size of your association. Perhaps

21 either the number of laborers or employees your members utilize, or perhaps

22 relating it to acreage which is handled by your group.

23 MR. GLENDENNING: This will go from three months during the busy season

24 when we have three-hundred working everyday. This will shrink to thirty or

25 forty workers averaging something like one-hundred workers.

26 MR. WHITE: What kind of acreage are we talking about?

27 MR. GLENDENNING: Acreagewise our growers are not produce growers. They

28 grow sugar beets, cotton, alfalfa, wheat, barley and alfalfa. As to the

number of acres, it would be quite large in relation to other groups possibly because they do not grow produce. They would have 20,000, 30,000 acres, something like that.

MR. WHITE: Any other questions?

MR. GLENDENNING: Do you mind if I do it before lunch at least?

MR. WHITE: We're hoping to work right through lunch.

MR GLENDENNING: This should only take a few minutes. Mr. Barragan is very hard of hearing. He understands english and spanish, but he would work better through an interpreter if you have one.

MR. WHITE: Do we have interpreter who could translate from spanish into english?

MR. GLENDENNING: We have one.

MR. WHITE: See how it goes.

MR. GLENDENNING: He understands english, it's just that he's hard of hearing.

MR. WHITE: All right. What's his name again, Mr. Glendenning?

MR. GLENDENNING: Barragan. First is Reynaldo.

MR. WHITE: Is Mr. Barragan here?

MR._____: I don't believe he's here.

MR. WHITE: All right, thank you, Mr. Glendenning. Just to give the group a flavor here of what we're doing, we all came down from different parts of the State-- is this Mr. Barragan now? We are not going to break for lunch, so we just figure we'll hear it all out. All right, Mr. Barragan.

MR. REYNALDO BARRAGAN: I am Reynaldo Barragan. I work for Desert Growers Association.

MR. WHITE: Do we have any questions for the foreman? Listen, Mr. Glendenning, I'm not sure the foreman would be able to add--

MR. GLENDENNING: I wished him to tell you whether or not the workers in

1 the field are cognizant of the fact that they had workmans comp insurance.

2 MR. WHITE: Actually, as Mr. Turner points out, it really doesn't make

3 any difference. If there is coverage, they go to a doctor, the doctor files

4 a report, it's found out. But if he wants to make a statement--

5 MR. GLENDENNING: (INAUDIBLE DUE TO UNKOWN STATIC)

6 MR. WHITE: What will his answer be?

7 MR. GLENDENNING: He said yes.

8 MR. WHITE: All right, they do know. All right, thank you. Doctor, sir,

9 do you realize that we've heard from three other doctors, and I won't say

10 we've become experts, but you doctors, your time is very important and we

11 would urge that you not go over the ground that the other doctors have

12 covered.

13 DR. ROBERT THOMPSON: My name is Robert Thompson and I am a physician

14 specializing in internal medicine. I work in Brawley. My experience, or

15 what I hope to be able to tell you, is what I see on a day to day basis, and

16 see the patients that I come in contact with. I'd like to tell you a little

17 bit about where I came from.

18 MR. WHITE: Well, just to get this in focus, Dr. Flanagan and so on,

19 they gave us theory, but they also gave us practice. These people have

20 actually been associated with the injuries, or problems, as they've come

21 to them.

22 DR. THOMPSON: This will take probably about five minutes.

23 MR. WHITE: All right.

24 DR. THOMPSON: I finished my internship in 1961 and spent three years

25 in the Air Force doing basically general practice with a population of about

26 five-thousand people. I am going to refer back to that because it was in

27 that context that I saw a number of people with back problems that I would

28 like to compare with my present experience here in Brawley. After my time in

1 the Air Force, I then returned to my residency which took three years in
2 Los Angeles, and six months in a private practice in Merced, California
3 doing internal medicine. Then I went to South America for two years and
4 taught at a medical school working with Project Hope. And since that time,
5 since June 1970, or almost three years, I've been here in Brawley working as
6 an employee at the clinic, but also seeing patients on a consulting basis at
7 Langers Hospital, and it's only interns who regularly see patients at that
8 hospital.

9 I think that by far the most common significant complaint that I see in
10 my patient population there at the clinic at Brawley is that of backache, or
11 chronic back strain, or back pain. I say significant because it's the one
12 that really does contribute to many forms of disability, which has already
13 been emphasized. I just wanted to relate to you some of the comments that I
14 frequently encounter in seeing patients. For example, my patients frequently
15 do not specifically complain about pain when they come to see me, but if I
16 ask them does their back hurt, my impression is that almost all of them tell
17 me, yes it hurts sometime maybe not right now, but it has hurt in the past
18 and has bothered me. I have the feeling that they sort of expect this, that
19 this is their way of life to have backaches, so they don't really come to
20 the doctor complaining about it. Another common comment that they make is,
21 no, my back doesn't bother me unless I work stooped over. And the most
22 common reason that they do work stooped over is to use the short-handled hoe
23 that they call el cortito. Another comment that I have heard at least on
24 several occasions is that they would rather do any sort of work in the field
25 other than use the short-handled hoe.

26 Now, it's been emphasized the theoretical aspects of the problems of
27 the back, and both Dr. Murphy and Flanagan have at least alluded to the fact
28 that treatment is a problem and that it's a much better idea to prevent these

1 things from happening in the first place. What I'd like to convince you of
2 is the frustration that I face as a physician in seeing these patients
3 everyday, in trying to have some significant role in the problem that's
4 bothering them. In this case, it's specifically backaches. I do feel that
5 my hands are rather tied. All I can tell the patient to do is go home and
6 go to bed, and lie down and get off of his back, and if it keeps bothering
7 him to see a specialist who has other possible treatment.
8 MR. TURNER: Pardon me, Doctor. Do you see these people as private
9 patients or workmens compensation patients?
10 DR. THOMPSON: I'm going to refer to that in just a second. Okay, now
11 I'm going to compare the Air Force experience with this. (INAUDIBLE DUE
12 TO UNKNOWN STATIC). --separate out how many are farm workers and their
13 families, but I would guess it would be somewhere between seven and ten-
14 thousand of the patients that we are currently following at this clinic.
15 These are by and large people who just come in with everyday complaints of
16 things that are bothering them. I was seeing in the Air Force maybe one-
17 hundred patients a week, whereas here at the clinic I've seen a few more.
18 It's a little more seasonal here. In the wintertime I may see one-hundred
19 forty, one-hundred fifty patients a week, whereas in the summertime it's
20 about the same number. My general impression is that I'm seeing about three
21 or four times as many significant back complaints, that is back complaints
22 that require that I tell the person specifically to go home and go to bed,
23 and probably not to work.
24 Now insofar as the issue of workmens compensation, I think this is, at
25 least from my own experience, an extremely misleading thing. First I'd like
26 to say that I don't think most of my patients know much about State disability
27 insurance or workmens compensation. They know something about welfare. That's
28 a relatively simple word and one which is very commonly used in spanish being

1 they use the same word, but they don't know about these other programs, and
2 I think, in large part, because they don't exist in Mexico. They come up
3 here and sometimes it takes them several years before they acquire the
4 sophistication that goes along with industrial programs. So my impression is
5 that they frequently do not know about it. But also I fill out workmens
6 compensation forms, and there are a couple of reasons for this. One is that
7 the patient I typically see is a man who comes in complaining of an acute
8 onset of back pain which occurred while he was lifting an irrigation ditch,
9 or jumping over the edge, or lifting a piece of pipe, or something like that.
10 And I know that man has worked off and on for a number of years using the
11 short-handled hoe stooped over in a bent position. What I fill out on this
12 form that we get from Pan American Underwriters is that he has acutely
13 injured his back, for example, while lifting an irrigation ditch. Now, if he
14 doesn't tell me that, if I don't have something specific that I can tie that
15 to, I don't bother to fill out the workmens compensation form. What I do is
16 I fill out a State disability insurance form, and frequently send the man
17 down to the Welfare Department because I know that he's going to get paid
18 much more rapidly than he will if it's a question of workmens compensation.
19 Not only that, but my impression is, and I don't have any statistics to back
20 this up, but my impression is that with my patient population when I fill
21 out that form it does not in any way guarantee that my patient is going to be
22 paid. And I have seen some of these people for whom I filled out those pink
23 forms, the workmens compensation forms, months later and I ask them if they
24 ever got paid for the form I had taken the time to fill out, and their response
25 is frequently no, I did not get paid. I have sent some of these people down
26 to see the CRA lawyers with this in mind, investigating what happened not
27 being reimbursed for this.
28 I was trying to quantify in my mind as I've been sitting here listening

1 to these comments about the workmens compensation cases, and I would guess
2 that I fill out workmens compensation forms about three or four times a
3 month, and about half of those are for simple things like lacerations,
4 lacerations of the hands would be the most common thing, and then I don't
5 know what percentage, maybe twenty or forty percent are acute back strain.
6 However, again, I can just guess at it figuring a couple of patients a week
7 that I fill out the State disability forms for, that comes to about five or
8 six-hundred patients that I filled out the State disability insurance forms
9 on, and a good percentage of those, I guess maybe sixty percent of those,
10 are what I consider to be chronic back injuries, but I don't have anything
11 that I can say triggered that injury. (Inaudible) --start filling out
12 those workmens compensation forms anticipating that maybe my patient's going
13 to get paid, but it's probably going to take some period of time. In the
14 meantime what I have to do because of his acute needs right now, not having
15 any money in the bank, and having his wife and family to take care of, is I
16 have to do something that is going to get him money on a much more rapid basis
17 which means the State disability insurance, which pays quite a bit faster.
18 THE BOARD: Can I ask one question. In your correlation of your
19 experience with your present patients with the Air Force, what was the average
20 age of the Air Force?
21 DR. THOMPSON: Okay, that's another way that they really are comparable
22 in that they are a healthy, young working population with many children, and
23 that's basically what I have been treating here until just recen . The
24 clinic has become more accessible to people on welfare with medi problems.
25 The first couple of years we saw only people who worked in agriculture, not
26 the older people who come in.
27 MR. TURNER: In your mind they were comparable populations?
28 DR. THOMPSON: Yes.

MR. WHITE: Any other questions? Thank you, Doctor, very much. Yes, sir.

MR. ESPIRIDION BERMUDEZ: My name is Espiridion Bermudez. (INAUDIBLE DUE TO UNKNOWN STATIC)

MR. WHITE: I'm having a little trouble understanding. Mr. Glick, I want to be sure we hear from these individuals. I'm not real sure we understood what Mr. Bermudez--

MR. HECTOR DE LA ROSA: First of all, my name is Hector de la Rosa.

MR. WHITE: And his name is?

MR. DE LA ROSA: Bermudez. (INAUDIBLE DUE TO UNKNOWN STATIC)

MR. TURNER: Is he speaking for himself as an individual worker, or is he speaking for a group of people? Would you ask him that, please.

MR. DE LA ROSA: He's a foreman for the company. I've been working for the company for twenty years and up North they use the long hoe. If it's flat, you can use it like up North. If the ground is flat.

THE BOARD: Would you ask him who tells him to use that short hoe.

MR. DE LA ROSA: Everybody uses the short hoe.

MR. TURNER: What he's saying, if I understand it, is that you can use the long hoe and do the job, but you may have to plant differently. Is that what he's saying?

MR. WHITE: Let me follow through on that. Also, when the plant is small, you can use the long hoe, but when the plant gets large, like sugar beets, then you have to work with the short hoe.

THE BOARD: If they plant differently, does it reduce the yield?

MR. DE LA ROSA: They will not.

THE BOARD: If they plant what crop plant? There's quite a difference.

MR. DE LA ROSA: Melon and lettuce.

MR. TURNER: Ask him if this would apply also to sugar beets, or does he know.

MR. DE LA ROSA: The beets and the cotton are different crops. They do use the long hoe up North for the beets.

MR. WHITE: Thank you very much, Mr. Bermudez, and thank you for coming up, Mr. La Rosa. Yes, sir.

MR. HECTOR DE LA VEGA: My name is Hector de la Vega from Calexico, California. I am a grower primarily and have been related to agriculture since 1938 at which time I was in school, and everybody in school in those days to get through school did farm labor. I now am a grower and my primary crop is lettuce. Now, this hearing is primarily for outlawing the use of the short-handled hoe, and speaking for the lettuce that I grow, if the short-handled hoe was outlawed, it would be almost impossible to come up with a crop.

I have to talk a little bit about in relation to growing. There are approximately 450,000 to 500,000 seeds per pound in lettuce. On our early plantings we have to go as high as two pounds to the acre. So, what's involved here is after the plant has emerged, you have to thin it out, of course, and hopefully try to end up with a uniform crop somewhere in the neighborhood of 900 plants to the acre, conceivably 1,000. It is absolutely impossible to thin lettuce that's planted in raw seed with a long-handled hoe. There's no way in the world as far as the weeding goes, and even after thinning everybody will agree that there's percentage of doubles made left in the field. Now, we're talking about a plant that's about eighty percent water, so you can imagine if you have a plant that size, it can't even be compared with beets or cotton. The beet is a root, and cotton, of course, is a tree. If you damage the plant that you leave, you won't have a uniform stand and if it survives, it will not uniformly grow. Consequently you don't have a crop. Now, the industry has gone far ahead in precision seeding and things of that nature, but it hasn't completely been perfected, and especially in the Imperial Valley where it's absolutely impossible to get a

1 stand in our extreme temperatures even if we did go to precision planting.
2 So therefore it's my personal opinion that it's impossible to outlaw the
3 short-handled hoe. Conceivably in the weeding stage you can use the long-
4 handled hoe, but if you do have doubles, there's no way to get the doubles
5 out. And if you do leave a double, then you have two heads that won't
6 survive and be a product which you can put in a carton.
7 There are approximately somewhere in the neighborhood of forty to fifty-
8 thousand acres of lettuce planted in the Imperial Valley, and I would venture
9 to say that at least half of it is raw seed planting. This is a calculated
10 guess because we do some precision planting. But in spite of the fact if you
11 did use precision planting, it would be impossible with the herbicides that
12 we use to get a complete weed control. So, therefore, you would have to go
13 in and weed anyway, and if you have a plant growth like this, and you have
14 weeds underneath, it's impossible for that plant to grow uniformly and be
15 harvested. And we're talking about a perishable item and it's impossible.
16 There's no way it can be done. You can't cut a head now and come back a
17 month later. There's no way. I would venture to say that you would almost
18 absolutely do away with the industry if the short-handled hoe was outlawed
19 completely. I will agree that in certain instances, cotton, in some instances,
20 beets, determined on the stand or what have you, and there are mechanical
21 thinners, that there might be a happy medium someplace, but as far as the
22 lettuce in the Imperial Valley, absolutely if you outlawed it, I don't know
23 what would happen to it. I would think that eventually it would just fade
24 away because we're talking about a crop that costs in the neighborhood of
25 $500 an acre. We had extreme conditions this year where we had already
26 thinned and went in to weed fields, and it ran as high as weeding and
27 thinning over one-hundred acres, $100 an acre. So you can see what the
28 lettuce industry is facing if the short hoe is outlawed. Again I will repeat

that perhaps there could be a happy medium someplace, but definitely if it's outlawed, I don't know what would happen because there is no way that it can be thinned or weeded with a long-handled hoe under our average conditions. Occasionally I would say yes, but the case would be very rare.

I've been here at the meeting and heard some of the references made as to insurance. All of these things are governed by the State, workmens compensation, and not knowing that you have insurance that's a fallacy because State law provides that you have to post that you are covered. I don't have any employees that do this type work. The small grower has to depend on the labor force provided by farm labor contractors, which we pay whatever the rate is. Conceivably if the rate is $2.30, we can be up to $3.00 an hour. Whatever the situation is, the lettuce industry has to meet the prevailing wage, which is almost set by the Federal Government. The beets have a subsidy, so therefore there is a wage and it's at the same time of the year that the lettuce is. The cost is a factor that we have to live with. I think that about summarizes what I think about completely outlawing the short-handled hoe.

MR. WHITE: I've heard it mentioned before that there is a type of machinery and so on that could be used with other crops. Is there anything like that in the lettuce crop?

MR. DE LA VEGA: Yes, there is. There are precision planters for planting which eliminates supposedly the doubles, but then you have an occasional double. If you don't have a weed problem, you could conceivably use the long hoe, but if you're familiar with desert regions as we are here, there's no such thing as not having a weed problem. Now, the mechanical thinners don't eliminate that problem because they just don't work here. They've been tried. I personally have been on the coast and there are some mechanical thinners that work in the lettuce industry, but when the weeding

time comes, there you have the same perpetuated circumstances of being unable to get it done.

MR. WHITE: Any other questions? Thank you, Mr. de la Vega, very much. We don't want this to be too rough on your chairs, but how many others want to be heard?

MR._____: There are about two or three.

MR._____: We have four.

MR. WHITE: And you have two more.

MR._____: We have about four more.

MR. WHITE: No more doctors.

MR._____: No more doctors.

MR. WHITE: I'm not against doctors, but I think they're beginning to be repetitious. Well, let me suggest this, let's adjourn for about twenty minutes because I gather you can't go far away. We'll get a sandwich somewhere and come back at say 1:15.

Mr. Glick has two or three people, and we're going to urge that you tell us your story and let us ask you a few questions so that we won't take up too much of your time. Mr. Glick, there's a councilman here now?

MR. WILLIE MORENO: Mr. Chairman and members of the commission, my name is Willie Moreno. I am a city councilman in the city of Calexico, and I have served in the past as Mayor of Calexico, as well as being involved for many years in civic organizations. I have been a resident of Imperial Valley for over forty years, and during this period of time I have on many occasions, it has been brought to my attention, and I have observed the suffering of many people, the brunt being taken by the poor, the children, and I am convinced this has been occasioned by the use of the short hoe, which in most cases when the workers are unable to work, and their backs are ruined, are not compensated in any way or manner. In talking to the great majority of my

1 constituency I feel strongly that the use of the short hoe should be
2 eliminated to prevent suffering and hardship to thousands of families in the
3 State of California. I feel that this committee should give due consideration
4 to the human element, and to the interest of the majority, instead of the
5 interest of a few. And that is all. Thank you very much.
6 MR. WHITE: Thank you, Mr. Moreno. All right, sir, behind Mr. Glick.
7 MR. FRED REYES: My name is Fred Reyes. (Inaudible)
8 MR. TURNER: I have difficulty understanding.
9 TRANSLATOR: I have worked for many years with the short hoe in this
10 Valley, and can feel and express more clearly what it is as us workers can
11 testify. Here so far are foreman and farmers, and they don't know and face
12 the sickness that we receive. The doctors have already explained to you in
13 detail. The boss has always told us that we need the short hoe in this
14 Valley. Do we need it or don't we need it. The farmers have said that we
15 do not need the long hoe because they want to work fast and they want for us
16 to hurry more, and they don't want to pay the salary that we're entitled to.
17 The man that talked about the beets awhile back that we can not weed it with
18 long-handled hoe and that's why it's legal. They want more work out of us,
19 and they just want to hurry us up with the short hoe.
20 I have been here in the Imperial Valley since 1937 and I know everybody.
21 It has affected my back and my eyesight from high blood pressure and even
22 my hands. We work eight or nine hours in a stooped position on the wet
23 ground and that's why our nerves are affected. About six or eight years ago
24 the farmers preferred the small beets because they contained more sugar, and
25 now they bring in here today to show you that we can't do the work. We can
26 do the work with the long hoe. The only reason we use the short hoe is
27 because they want us to do the work quicker. They have always said that, and
28 they bring their foremans and one who doesn't work fast then the next day he's

1 out. The foreman bring some soda pop into the field and if the workers don't
2 buy them, then he's fired. As far as insurance, it is true that we are
3 insured. Because of our necessity of life we have to suffer the pain and work
4 these things. If we refuse, then we won't work. They claim that the short
5 hoe is not bad, well I want them to come a month with me and go out and work
6 in the fields and see at the end of the month what they have to say. Only
7 the one who has worked can explain to you the kind of work and the sicknesses
8 we receive. They come here and explain to you that everything is all right,
9 and there's nothing wrong with the short hoe because they have tried to kill
10 us with that hoe. They have never paid the price rightfully for this kind
11 of a job, now they claim they pay $2.50 to $3.00 an hour.
12 MR. WHITE: Mr. Glick, would you keep this on target now. We're not
13 getting into working conditions.
14 MR. GLICK: I have nothing to do with this.
15 MR. WHITE: Oh, you don't. Well, would you tell him we're interested in
16 the injury and the effect of the short hoe on the working, but not when it
17 gets into other areas, working conditions, soda pop, this sort of thing.
18 It really isn't part of this hearing.
19 MR. REYES: The body, everybody is sick.
20 MR. WHITE: We appreciate that you're speaking for the farm workers.
21 Mr. Reyes, thank you very much.
22 C.R.L.A.: We have another one because of his experiences. I believe it
23 will be possible for him to testify in english. I think it will be a little
24 easier if I can ask him some questions.
25 Will you come forward, Mr. Sierra. What is your name?
26 MR. ELISEO SIERRA: My name is Eliseo Sierra.
27 C.R.L.A.: How old are you now?
28 MR. SIERRA: Fifty-years old.

1 C.R.L.A.: Where are you from originally?

2 MR. SIERRA: From Mexico in 1945.

3 C.R.L.A.: You first came to the United States in 1945?

4 MR. SIERRA: Yes, I came here in 1945 to the Imperial Valley to Calexico.

5 C.R.L.A.: Have you supported yourself by doing farm labor ever since then?

6 MR. SIERRA: Well, I work as farm labor with the short-handled hoe.

7 C.R.L.A.: Have you used both the short and the long hoe?

8 MR. SIERRA: That's right.

9 C.R.L.A.: Have you ever used the short-handled hoe to thin lettuce?

10 MR. SIERRA: That's right.

11 C.R.L.A.: Have you ever used the long-handled hoe to thin lettuce?

12 MR. SIERRA: That's right.

13 C.R.L.A.: Have you used the short-handled hoe to weed lettuce?

14 MR. SIERRA: That's right.

15 C.R.L.A.: Have you ever used the long-handled hoe?

16 MR. SIERRA: That's right.

17 C.R.L.A: Where did you use the short hoe when you weeded lettuce?

18 MR. SIERRA: Well, I used it in the Imperial Valley and Salinas.

19 C.R.L.A.: And where did you use the long hoe to weed lettuce?

20 MR. SIERRA: Los Banos.

21 C.R.L.A.: Los Banos, California. Anywhere else?

22 MR. SIERRA: No.

23 C.R.L.A.: Have you ever thinned cantalopes with a short hoe?

24 MR. SIERRA: That's right.

25 C.R.L.A.: Have you ever thinned cantaloupes with a long hoe?

26 MR. SIERRA: That's right.

27 C.R.L.A.: Where was that?

28 MR. SIERRA: In Los Banos and Bakersfield.

1 C.R.L.A.: Anywhere else?

2 MR. SIERRA: Stockton. Fresno.

3 C.R.L.A.: Have you ever weeded cantalopes?

4 MR. SIERRA: That's right.

5 C.R.L.A.: With a short-handled hoe?

6 MR. SIERRA: Yes.

7 C.R.L.A.: Where was that?

8 MR. SIERRA: Right here in the Imperial Valley.

9 C.R.L.A.: Have you ever done it with a long hoe?

10 MR. SIERRA: That's right, but not here in the Valley. In Stockton,

11 Fresno and Bakersfield.

12 C.R.L.A.: Have you ever thinned sugar beets?

13 MR. SIERRA: Yeah.

14 C.R.L.A.: Have you done it with a short hoe?

15 MR. SIERRA: Short hoe.

16 C.R.L.A.: And where was that?

17 MR. SIERRA: Right here in the Valley.

18 C.R.L.A.: Have you done sugar beets with a long hoe?

19 MR. SIERRA: Yeah.

20 C.R.L.A.: Where was that?

21 MR. SIERRA: Los Banos.

22 C.R.L.A.: Los Banos, California. Anywhere else?

23 MR. SIERRA: (Inaudible)

24 C.R.L.A.: Have you ever weeded in sugar beets with the short hoe?

25 MR. SIERRA: Yeah.

26 C.R.L.A.: Here in the Valley?

27 MR. SIERRA: Right here in the Valley.

28 C.R.L.A.: Have you ever weeded sugar beets with a long hoe?

1 MR. SIERRA: Yeah.

2 C.R.L.A.: Where was that?

3 MR. SIERRA: Los Banos. I've been weeding up there in Los Banos.

4 C.R.L.A.: Have you ever thinned celery with a short hoe?

5 MR. SIERRA: Yeah.

6 C.R.L.A.: Here in the Valley?

7 MR. SIERRA: No. In Salinas.

8 C.R.L.A.: And have you ever thinned celery with a long hoe?

9 MR. SIERRA: Long hoe, no.

10 C.R.L.A.: Have you ever worked cotton with a short hoe?

11 MR. SIERRA: Yeah.

12 C.R.L.A.: Where was that?

13 MR. SIERRA: Right here in the Valley.

14 C.R.L.A.: And have you ever worked cotton with a long hoe?

15 MR. SIERRA: That's right.

16 C.R.L.A.: Where was that?

17 MR. SIERRA: In Bakersfield.

18 C.R.L.A.: And have you ever weeded cotton with a long hoe?

19 MR. SIERRA: Yeah. In Bakersfield.

20 C.R.L.A.: And have you ever weeded it with a short hoe?

21 MR. SIERRA: Yeah. In the Valley.

22 C.R.L.A.: Can you explain very quickly how you use the short hoe and

23 how it's done.

24 MR. SIERRA: Yeah. The short-handled hoe you got to bend down all day

25 like this. All day. Eight hours. That's how the long-handled hoe like this.

26 C.R.L.A.: That's how you use the long-handled hoe. Can you tell me

27 what it feels like for your body to use the short hoe.

28 MR. SIERRA: It's terrible. After you use a short-handled hoe, in two

1 hours it's terrible. Your body is awful tired. The first time you start
2 working the short-handled hoe, you can't make it in a whole day. You work
3 a half day and quit. You come back the next day and maybe you can make
4 another two or three hours.
5 C.R.L.A.: But you miss the rest of the time?
6 MR. SIERRA: Well, that's what I did myself. I don't know about anybody
7 else. But when I started first time to work, I quit work about ten o'clock.
8 Can't make it a whole day because you're tired. My back hurt me. All my body.
9 C.R.L.A.: Then you didn't have labor-- you didn't get paid for the rest
10 of the day?
11 MR. SIERRA: No. You don't get paid. You get paid whatever you work,
12 two hours, three hours. That's all you get paid.
13 C.R.L.A.: How did it feel after you worked with a long-handled hoe?
14 MR. SIERRA: Well, you feel tired. It's not really too much. You're
15 tired. It's not really too awful.
16 C.R.L.A.: Could you work all day with a long hoe?
17 MR. SIERRA: Oh, yeah.
18 C.R.L.A.: And the next day too? How many years did you use the short
19 hoe altogether?
20 MR. SIERRA: I use a short-handled hoe about fifteen years.
21 C.R.L.A.: So you have lots of experience.
22 MR. SIERRA: Yeah, I have lots of experience.
23 C.R.L.A.: Why did you stop using the short hoe?
24 MR. SIERRA: Because I just can't do it. I tried it in 1969. I mean
25 that's the last time I was working with it because of tired, you know. Last
26 September I was up there two days and tried it and I just can't do it. My
27 boss told me you're too old. You can't do it no more. So I quit.
28 C.R.L.A.: Your boss told you you're too old?

1 MR. SIERRA: Yeah.

2 C.R.L.A.: And you're fifty now. Is that right?

3 MR. SIERRA: Yeah.

4 C.R.L.A.: Why did you do this work if it was so hard?

5 MR. SIERRA: Because my back hurt me.

6 C.R.L.A.: But why did you do it if it was so hard?

7 MR. SIERRA: Why? Because I had to.

8 C.R.L.A.: Are you having back problems now?

9 MR. SIERRA: Yeah, I have it now.

10 C.R.L.A.: What are your problems?

11 MR. SIERRA: My back, my legs. I don't know what happened to them.

12 C.R.L.A.: Can you bend over now easily?

13 MR. SIERRA: Yeah, I can bend over all right, but that's all. Bend over

14 and that's it. I can't work.

15 C.R.L.A.: Do you have pains? Do you have pains at night ever?

16 MR. SIERRA: At night, yeah. At night in my legs.

17 C.R.L.A.: You've had experience in almost all the crops using the short

18 and the long hoe. Which do you feel is the faster?

19 MR. SIERRA: Faster? It is to me the same.

20 C.R.L.A.: Why's that?

21 MR. SIERRA: Because you got the shorter-handled hoe, you bend over a

22 little while and then you've got to stand up and rest a little bit. With a

23 long handled hoe you can keep going.

24 C.R.L.A.: Do you think you can get just as much done in a day with the

25 long hoe as with the short?

26 MR. SIERRA: (Inaudible).

27 C.R.L.A.: In your own experience. And is that true in lettuce?

28 MR. SIERRA: That's true.

C.R.L.A.: Cantalope?

MR. SIERRA: Cantalopes.

C.R.L.A.: Sugar beets?

MR. SIERRA: Sugar beets.

C.R.L.A.: Celery?

MR. SIERRA: That's right.

C.R.L.A.: There's been testimony this morning that you can't thin lettuce, for example, with a long hoe.

MR. SIERRA: Yes, you can. Yes, you can. If the farmers want to do it, you can do it. You never see all those farms right here that use a long-handled hoe. You never see those in this Valley, but you go up North and you see a lot of long-handled hoes.

C.R.L.A.: And you did thin lettuce with a long-handled hoe?

MR. SIERRA: Right.

C.R.L.A.: Did you have any problem in getting a double?

MR. SIERRA: No, no problem.

C.R.L.A.: Why not?

MR. SIERRA: Because it's the same problem as with the short-handled hoe. Just the same. I mean to me it's the same.

C.R.L.A.: You can reach down and get the double?

MR. SIERRA: That's right.

C.R.L.A.: When you use the long-handled hoe, do you bend over once in awhile?

MR. SIERRA: Once in awhile, yeah.

C.R.L.A.: How often?

MR. SIERRA: It's not too often you know what I mean. Because that farm I've been working, you don't plant too much lettuce. Just about ten long-handled hoes, see.

C.R.L.A.: And can you get doubles in sugar beets with the long-handled hoe?

MR. SIERRA: Why not. Sure.

C.R.L.A.: Okay, then. I think that's all we have. We do have one or two other people.

MR. WHITE: Any questions? Thank you.

C.R.L.A.: Hernandez contacted our office. We didn't contact him, but we thought his story would be interesting to you, and I think he can tell you in just a few minutes.

How old are you now, Mr. Hernandez?

MR. HERNANDEZ: I'm sixty-five years old.

C.R.L.A.: How did you make your living when you were younger?

MR. HERNANDEZ: I was an amateur boxer. I boxed amateur for quite a few years up to 1928. And I used to carry the golf links on the side to make money

C.R.L.A.: And after 1928 what happened?

MR. HERNANDEZ: I turned professional and I fought five years professional after 1933. Then I quit the ring because of my age and there wasn't enough money in the game for me.

C.R.L.A.: How come there was less money in boxing then?

MR. HERNANDEZ: Well, we had the Depression. We were just coming out of the Depression.

C.R.L.A.: How much boxing did you do between 1929 and 1933 as a professional?

MR. HERNANDEZ: I figure I boxed about seventy-five fights, professional fights.

C.R.L.A.: Did you have amateur fights too?

MR. HERNANDEZ: I had about eight-two, eight-three amateur fights.

C.R.L.A.: So you were in shape during that period.

1 MR. HERNANDEZ: I was in good shape until (Inaudible).

2 C.R.L.A.: When you stopped doing boxing, what did you do for work?

3 MR. HERNANDEZ: I went up North looking for work, and I went to Salinas,
4 and a man picked me up with another fellow. And he was a contractor. We
5 contacted him. He needed help. He took us near Monterey to thin beets.
6 There was no place to sleep, no cots, no beds, nothing.

7 C.R.L.A.: Can you tell me what it was like when you were thinning beets.
8 What it felt like to you.

9 MR. HERNANDEZ: The first two days my body got pretty sore, and I
10 thought my sores would go away because I had not been active for quite a few
11 days, but instead they began to get worse. At the end of a week my body was
12 pretty sore, especially my lower back. In the second week it was harder on
13 me. I could hardly stand my lower back and my legs. On the third week it
14 was just a plain torture. It was very painful to keep on working. The man
15 wanted to keep me on working and I said no. And I quit. And I swore and I
16 vowed if I ever heard in the future a chance to hit that short hoe, I would
17 hit it as hard as I possibly could. And I have waited thirty-nine years for
18 a hearing on this short hoe. And I called this lawyer's office and I told
19 him I would like to testify, and I am testifying on that account because I
20 saw it was torture for me. It might not affect some other persons, but it
21 affected me. After I quit thinning, I got paid and went into town. It was
22 three weeks after that before I could straighten up without feeling no pain
23 in my back, before I could really straighten up without feeling no pain in
24 my back. It was months and months before my pains completely disappeared
25 from my back. After that I have done all kinds of work. I even went back
26 to thinning. I used to thin lettuce. I thinned five days and I quit. I
27 didn't want to get rid of myself completely. My back began to hurt and I quit.
28 I go back later on and in three days I quit.

C.R.L.A.: Mr. Hernandez, you stated earlier when I talked to you that you had done other physical labor after the short hoe that was hard.

MR. HERNANDEZ: Oh, yes.

C.R.L.A.: Can you tell us very briefly about that.

MR. HERNANDEZ: After that I got a job with Spreckels Sugar Company in the warehouse, and I used to lift sacks over my head, one-hundred pound bags over my head, to load them in the boxcar. That's the way we used to load them. One man to each sack.

C.R.L.A.: And how many would you lift in a day?

MR. HERNANDEZ: Oh, gee, we used to load car after car. No way of telling how many sugar sacks I handled. But I have unloaded here in the Valley about seventeen years ago, I'm sixty-five, about seventeen years ago, I unload eight-hundred bags off a boxcar all by myself in one day.

C.R.L.A.: And how much did the bags weigh each?

MR. HERNANDEZ: One-hundred pounds.

C.R.L.A.: So that's eighty-thousand pounds in one day?

MR. HERNANDEZ: In one day.

C.R.L.A.: But you couldn't do the short hoe?

MR. HERNANDEZ: No, I wouldn't work with the short hoe, no way.

C.R.L.A.: Do you think it should be outlawed in California?

MR. HERNANDEZ: I think it should. I surely do. I certainly do. I think the long hoe will do just as good a job.

C.R.L.A.: Thank you very much for coming up.

MR. WHITE: Thank you, Mr. Hernandez.

C.R.L.A.: We thought we'd tell you we do have two more.

MR. WHITE: All right. Go ahead.

MR. FRANCISCO OLIVARES: My name is Francisco Olivares. (SPOKEN IN SPANISH. TRANSLATION FOLLOWS)

1 TRANSLATOR: I've been working in the fields since 1944 in all works
2 relating to agriculture. Thinning, picking melons, and topping beets, I
3 used to do at one time. A majority of us Mexicans that live here either
4 weren't here, or migrated to work here in the agriculture. We have always
5 tried to fight for our rights, mainly our health, which is our only asset
6 that we have. When we're young the work is easy because our body can resist.
7 As time goes by, as the years go by, the work will eventually get us down,
8 and they have insurance but their insurance is-- (Inaudible). Then we report
9 this to our foreman that this has happened and they say no, you can't work,
10 you just better quit working. Then what are we going to do. We don't know
11 any other work except agriculture. In the best years of our lives we don't--
12 (Inaudible). Referring to the short hoe, that we cannot do the work with the
13 long hoe, it can be done. The only difference is it might be a little slower
14 because you're bending over, you have to cross your legs and just keep on
15 going. The main thing that we feel it affect most using the short hoe is
16 the back and the arm. Referring to the testimony of the foreman that it
17 can't be done because they don't know-- (Inaudible). So, we can give more
18 effective testimony because we have worked for years. They want to keep you
19 bending over so when you get up they shout at you, okay bend over, bend over.
20 Even though we feel pain, we all have to work because we have to eat
21 especially if there are children in the family. So whether it's a short or
22 long, we just have to-- (Inaudible). That's all I have to say. I guess you
23 understand.
24 MR. WHITE: We understand very nicely. Thank you, Mr. Olivares.
25 C.R.L.A.: We have one other person that we met that has something
26 interesting to tell you. Mr. Ruiz, would you step forward. While he's coming
27 forward, we have a tape which has been sitting here this afternoon that will
28 give you some idea, even though it's short, of what's it's like to use the

1 short hoe. I think it's about twenty or thirty seconds. There's some good
2 typical shots of the use of the short-handled hoe. I think you'll see that
3 the individual goes to the ground and there's quite a strain on the back,
4 and that it's not precise work at all and could be done with either hoe.
5 MR. TURNER: I don't think we've had anyone so far say that this is
6 easy or pleasant work.
7 C.R.L.A.: That film was shot by Channel 28 in Los Angeles and they gave
8 us permission to use the film. It was right off their half-hour show.
9 MR. TURNER: That was lettuce?
10 C.R.L.A.: That was lettuce. That was the thinning of lettuce in which
11 they are taking out all the little lettuce plants between the singles.
12 Mr. Ruiz, would you state your name, please.
13 MR. MANUEL RUIZ: My name is Manuel Ruiz.
14 C.R.L.A.: And how old are you?
15 MR. RUIZ: Sixty-five.
16 C.R.L.A.: How old is your wife?
17 MR. RUIZ: She's sixty.
18 C.R.L.A.: Now, it's my understanding that both you and your wife have
19 used the short hoe quite a bit.
20 MR. RUIZ: That's true.
21 C.R.L.A.: And she planned to come here today. Is that correct?
22 MR. RUIZ: Yes, it is.
23 C.R.L.A.: And why is she not here?
24 MR. RUIZ: She was unable to get up. Her back hurt so often and so bad
25 that she just couldn't get out of bed.
26 C.R.L.A.: When did your wife first start using the short-handled hoe?
27 MR. RUIZ: She was only ten-years old.
28 C.R.L.A.: Ten-years old. And then did she use it steadily?

1 MR. RUIZ: For at least ten or twelve years.

2 C.R.L.A.: And what happened then?

3 MR. RUIZ: She began to feel sick. She tried to get some other kind of
4 work. She never had an idea it was her back. I mean her spine.

5 C.R.L.A.: I might interject at this point that the X-rays of Mrs. Ruiz's
6 were one of the sets of X-rays that Dr. Flanagan presented to you in San
7 Francisco. You have seen them. Did you know your wife when she was that
8 young?

9 MR. RUIZ: I knew her when she was fourteen years.

10 C.R.L.A.: And when did her back begin to wear out?

11 MR. RUIZ: Probably when she was around twenty-years old.

12 C.R.L.A.: So at twenty she started having problems with her back. How
13 did she feel when she was using the short-handled hoe? Do you remember?

14 MR. RUIZ: I know how she felt because every statement that I've heard
15 here is quite correct. The longer you work with those things, the strain is
16 something terrible. Especially we worked in the State of Idaho, Montana,
17 and at that time we used to thin beets and we weren't allowed to have over
18 two or three percent doubles. So that makes quite a difference.

19 C.R.L.A.: What kind of problems did your wife have when she was doing
20 the work? Did she get sick? Did it bother her at all?

21 MR. RUIZ: It surely did. Sometimes before we got married, her father
22 used to take the children. She used to bend on the ground there and toss and
23 cry and do everything.

24 C.R.L.A.: She'd lie down in the fields?

25 MR. RUIZ: She did. She had to.

26 C.R.L.A.: And why was that?

27 MR. RUIZ: She was so tired. She knew something was wrong, but she had
28 to keep on working.

C.R.L.A.: And how old was she then?

MR. RUIZ: Around sixteen. She was married at sixteen. We were married at Idaho Falls when she was sixteen and she had to keep on working. We just couldn't make the money. We had no choice. Being Mexican, all the odds were against us. You couldn't get a job. You had to be in the field.

C.R.L.A.: And it is true that your wife wanted to come and tell her story herself, but was unable to because of her back?

MR. RUIZ: That's true. And she told me if anybody doubts, go right to her home and see the state she is in now. She just couldn't stand up.

C.R.L.A.: Thank you very much for coming, Mr. Ruiz. At your request, I will be willing to summarize the rest of our testimony because I understand you need to leave in five minutes. Before I do that, if there is anybody else here who wanted to say something, I'd certainly give them that opportunity.

MR. WHITE: Is there anyone else? You, sir.

MR. RICHARD HUBBARD: My name is Richard B. Hubbard, owner and operator of Hubbard Farms here in El Centro. I'm also insured by Pan American Underwriters. I have no workers who work in the shed. They are all tractor drivers, irrigators, or field workers.

As a point of information, I have a ruptured disc. A herniated nucleus Level L-4 and L-5. I spent five weeks in a hospital bed. The Assistant Chief of Neurosurgery at Wilfred Hall Hospital, which is the largest Air Force hospital, told me that I had an eighty-five/fifteen percent chance of having an operation. I decided that I would prefer not to have the operation and would do everything within my power to avoid that. I did the recommended exercises, was able to leave the bed, and I'm now able to function almost normally. I shovel. I lift various weights around the field. I drive tractor. A fairly normal life.

Some figures that may be relevant. In the years 1969 and 1970, land rent

here in the Imperial Valley was approximately $75.00 to $85.00 per acre per year. Now land is renting for $140.00 to $150.00 per acre per year. In 1969 and '70, lettuce cost to grow approximately $375.00 per acre. The cost this past year is approximating $500.00 to $525.00 per acre. In the past we used what we call a planet junior planter, which is simply a hole in the bottom of a can which dribbles seed out at a rate of one to two pounds per acre. Recently we've been going to a precision planter. By precision they mean that you plant one seed the way you want one plant. To do this they have to coat the seed to make it large enough so that you can handle it, so you can single out one seed. As Mr. De La Vega testified, lettuce seed comes in lots that are approximately 285,000 seeds per pound up to 550,000 seeds per pound. Each one will make one plant. Now we try to plant the base of the plants from one to four inches apart. This makes it, number one, cheaper; number two, easier to thin. By being easier to thin, it is less expensive. If the precision planter can plant with a seed rate which produces one to five percent doubles, then when the thinning crew comes by and is leaving perhaps five percent doubles, we have five percent of five percent, or a much smaller rate of doubles in the over all field. As Mr. De La Vega also testified, we would like from 900 to 1,000 cartons per acre yield here in the Valley, which means approximately 24,000 plants per acre. But if we are planting one pound of seed per acre, up to 500,000 seeds per acre, we have to thin out the vast majority of our plants. If in this procedure we injure the plant, it is no longer viable. We will not produce a crop. Lettuce has only one head unless there is a genetic off. This head not only has to conform to certain governmental standards as to size and weight, but it also has to have a good appearance. The customer, the housewife, in the store will not buy it if it's misshapen. You dribble out 500,000 seeds to the acre, and then try to thin it down to 24,000 to 25,000 per acre. And in so doing many times you injure the

1 plant.

2 A mechanical thinner obviously is a machine. It does not have the
3 precision that the human eye, mind, and hand has. For thinning with a
4 mechanical thinner you have to have a relatively dry field so that you can put
5 the tractor into the field that pulls the planter. If the ground is dry, it
6 tends to crack and chunk as the mechanical blade sweeps the plant off of the
7 bed. By thinning by hand, it allows you to go into the field when it's moist.
8 It's softer. You can thin closer to the plant without chunking the dirt
9 away from it, without damaging the plant, and produce a better product. The
10 seed bed height is approximately six to nine inches above the bottom of the
11 furrow. This leads to certain atomical differences in height, and I find
12 in watching the crews as they go across the fields, some people, if they
13 are right-handed, put their left hand behind their back and thin from this
14 position with the hoe in their right hand. However, the majority of the crew
15 goes along with the left hand usually touching the bed. The reason for this
16 is to counterbalance themselves, to reduce the pressure on their back and
17 also have their left hand available to lift out the few doubles that do
18 exist, to pick them out with their fingers because you can't get it with the
19 hoe.

20 Much has been said about the various pay rates f thinning cotton,
21 lettuce, sugar beets and what have you. This past y as in years previous,
22 the thinning rate for lettuce is established each mo g in Calexico. It is
23 the point of entry. From 2:30 a.m. to 5:00 a.m. the is an option of labor
24 along Main Street. In this particular instance, it' ext to the Bank of
25 America, or next to what they call the hole, which he natural river bottom
26 depression. The labor contractors, or the growers, out how much money
27 they will pay for what number of hours. The laborers, when the price reachs
28 the amount that they are willing to work for, they go join that particular

1 labor contractor, or get on the bus for that particular grower. This past
2 year prices at this auction reached as high as $20.00 to $21.00 for as low
3 as seven hours of labor, or an effective rate of $3.00 per hour. I personally
4 saw one crew, and I do not mean to imply that this is necessarily average,
5 this past year this crew on this one particular day in this one particular
6 field, a herbicide had been applied, it did not appear overly weedy, this
7 crew averaged three lines per man in this seven-hour day, which is one bed
8 and a half. Assuming the normal length of rows to be approximately one-quarter
9 mile, this would average out to be $120.00 and $140.00 per acre for thinning
10 alone. Payment is made either by the contractor, or by the grower, each day,
11 either in cash or by check. The workers prefer not to wait for their money,
12 and it is mostly in the grower's best interest because between fifty to
13 eighty percent of his crew will not be there tomorrow. They will be replaced
14 hopefully by other workers.
15 Our crop has only one shot. We have here a certain period of time in whic
16 we may plant in order to produce an economical crop. It begins approximately
17 the 15th of September, and the end of planting runs to about the 6th of
18 November. Some seed varieties can only be planted in a five-day period.
19 There are approximately four seed varieties which may be planted. If we
20 spend more time by means of a long-handled hoe, or by a mechanical thinner,
21 our prices go up and the price to the consumer is higher. Now you can spend
22 many days in testimony as to what the effect is, and what the procedure is.
23 I suggest that perhaps when you go to the hearing in Salinas, you stop by and
24 watch thinning. It is presently going on there. You can see both methods
25 of planting being thinned, both the solid line of lettuce and the precision
26 planted, and judge for yourselves the physical rigors, which are not slight,
27 but presently it is the best method we have. Most farmers are not altruistic,
28 and if it is cheaper for them to go to a mechanical thinner, if they can

1 obtain a better product by going to a long-handled hoe, we would have done
2 so long ago. But production means, labor rates, and other factors necessitate
3 at this time a short-handled hoe in this area. Thank you.
4 MR. WHITE: Thank you, Mr. Hubbard. That's very complete. Mr. Glick,
5 perhaps you can summarize and we'll call the meeting to a close.
6 MR. GLICK: Because of your time pressure, and because of the fact that
7 we will see you in Salinas, I'm not going to try and do any kind of a full
8 summary at this time.
9 MR. TURNER: Will you be at Salinas?
10 MR. GLICK: Yes, I will.
11 MR. TURNER: Okay, fine.
12 MR. GLICK: What I agreed I would point out, and I will point out in very
13 short order, is simply that, as you can tell, there are a number of other
14 witnesses who would have liked to testify. There are a number of farm workers
15 that feel very strongly about this. With the witnesses that we tried to
16 organize, we tried to give you a cross sample from among those, and tried
17 to organize their stories so they could just tell the relevant parts. There
18 were a number of other workers that would have testified, had we had time,
19 to two fairly important things. One is that they have worked in other parts
20 of California and other parts of the country in the same crops, in sugar beets,
21 in lettuce, and they've used the long-handled hoe, that the growers in those
22 places used the long-handled hoe and were able to operate successfully. And
23 secondly, they would have told you what you also heard here which is that
24 those who have used the short hoe have suffered great agony and great pain
25 in the course of doing same. Finally they would have testified to something
26 that I think we should put our weight here because I think it's a little fuzzy.
27 And that is that this workmens compensation thing isn't going to show you
28 anything. An injury from a short-handled hoe for a long period of time is not

compensatable. You have to show if you go to workmens comp some more immediate injury that just happened. The doctor and patient that used the short hoe for a long period of time, and then the man was injured because he jumped a ditch and he had a weak back, or he did something else, is going to put on the workmens compensation form jumped a ditch, or whatever it is, and for the patient he sees who has the disc out there, but where nothing recent happened, or it happened at home, it didn't happen on the job, it happened at home. Even there if the short-handled hoe caused the injury, there's no way he can get workmens compensation because of the way the laws work in compensation. You can look at those records all day long, and they're not going to be helpful in dealing with the question we have before us here, and nothing in our testimony suggested that it should be or would be. As the other doctor pointed out, State disability, people who are disabled, the doctors have pointed out that they experience with farm workers a terrifically higher rate of back injuries. It's not theoretical, it's actual. I think that's a fair summary.

MR. TURNER: I think that's clear to us that this is a wear and tear type of work.

MR. WHITE: Thank you so much for your summary. Thank you for coming today. There's another hearing in Salinas on May 3, and any of you who have information are most welcome to appear there. We would ask that a representative of the California Rural Legal Assistance be there. Thank you so much. The meeting's adjourned.

/clc
6-4-73

THE EFFECT OF THE SHORT-HANDLED HOE ON THE PRODUCTION OF DEGENERATIVE DISEASE OF THE LUMBAR SPINE

In order to understand the effect of the short-handled hoe on the development of injuries to the low back area, we must first discuss briefly some of the physical properties of the spine itself. The spine can be visualized as a supporting column which must be strong enough to hold the body erect and yet be flexible enough to permit changes in body position. Nature has solved this problem by constructing the spine as a series of alternating rigid bones called vertebra, interposed between less rigid soft tissues called intervertebral discs. The bones provide the strength of the spine and permit the attachment of strong muscles that move the spine to different positions. The discs permit this motion to occur and act as shock absorbers against stress. An understanding of the intervertebral disc, and its role as a shock absorber, is key to the understanding of the effect of the short-handled hoe on the production of back injuries.

The intervertebral disc is composed of two essential parts: an inner core made of complex chemicals that behave for the sake of discussion similar to a balloon filled with water. When it is compressed from above, its sides will expand so that its volume remains essentially constant at all times. This structure is called the nucleus pulposus. Surrounding this "water balloon" is the anulus fibrosus, a tough fibrous structure that is attached to the vertebral bodies both above and below. This structure prevents the nucleus pulposus or "water balloon" from deforming when compressed from above. In other words, when a vertical

load is applied to the spine as in placing a weight on the head, the disc spaces throughout the spine narrow imperceptibly as the nucleus deforms. As the nucleus deforms, the vertical stress is transmitted horizontally by way of the "water balloon" to the anulus fibrosus at many levels in the spine, thus dissipating the weight over many vertebral levels. This is a very efficient system when the body is in the erect position. There is an upper limit to the amount of force that can be applied to the spine before it fails. Studies have been done showing that in a young healthy male, the intervertebral disc structure will fail at approximately twelve hundred pounds. When the forces reach approximately two thousand pounds, the vertebral bodies themselves will fracture and crumble. Twelve hundred pounds would seem like an ample margin of safety for the spine of a one hundred fifty pound man who would certainly never have occasion to have twelve hundred pounds sitting on his shoulders. However, this is not the whole story. The spine, without its muscle attachments, is very flexible. It requires only three or four pounds to bend it. So it must be held in position by muscles. There are two main groups of muscles supporting the spine; the abdominal muscles in front and the erector spinae muscles along the spine in back. When these muscles contract they exert considerable pressure on the spine. The amount of force they exert is directly dependent upon body position; that is, how far the center of gravity of the body is away from a vertical line through the spine. Actual measurements of these forces have been done by various researches, but mainly by Dr. Nachemson from Sweden. It is known, for example, that if a

one hundred fifty pound man in a standing position lifts a weight of one hundred pounds and then leans forward twenty degrees, the stress on his lower lumbar discs will be about six hundred pounds. Just sitting in a chair and leaning forward twenty degrees with the arms unsupported creates a force of a approximately five hundred pounds. A formula has been devised by Dr. Nachemson which states that the force created during forward bending is proportional to 3 times the body weight, multiplied by the sine of the angle through which the body is bending. In other words, whereas the body weight of a worker and the load he carries are important determinents to the stress placed on the spine, the body position is much more important, especially forward bending. Not only do stresses increase the further forward you bend, but the forces created are of such magnitude as to approach the failing point of the intervertebral discs. It should be pointed out that in Dr. Nachemson's example forces of six hundred pounds were created when a worker was bending through an angle of twenty degrees. Workers using the short hoe bend through an angle greater than ninety degrees, and are required to maintain this position for many hours at a time. The stresses on these spines would be considerably greater than six hundred pounds.

There is another very important point that should be brought out. Beginning early in childhood chemical changes occur as a process of aging in the intervertebral discs that result in a progressive decrease in the ability of the intervertebral discs to tolerate stress. There is a progressive inability of the nucleus pulposus to transmit forces evenly to the anulus fibrosus. The result of this is the development over a

period of many years of small tears in the substance of the anulus fibrosus. This weakening in the anulus fibrosus causes stresses to be placed on the intervertebral joint as well as on the ligaments surrounding the spine which result in the development of degenerative arthritis and low back pain. Many times, the anulus will weaken to such a point that the nucleus will rupture through the anulus fibrosus into the spinal canal resulting in disabling back pain or even paralysis. Degeneration of the intervertebral discs is a natural process that occurs in all of us as we get older, but is greatly accelerated by poor posture, particularly marked forward bending because not only are the stresses multiplied greatly the farther one bends over, but these forces are concentrated to the posterior aspect of the anulus fibrosus which is where most disc herniations occur. The concentration of forces posteriorly is due, of course, to the fact that as one bends forward the vertebral bodies come closer together anteriorly and widen posteriorly as the disc space changes shape to permit the bending to occur. Other factors that play a role in the rate at which disc degeneration occurs are: a) heredity b) obesity c) poor muscle tone. There is no doubt that the body position necessary to use the short-handled hoe places tremendous stresses on the lumbar intervertebral discs which result in premature aging of the spine.

Not only is it harmful to the spine to maintain a position of marked forward flexion, but working while in this position adds further stresses. It has been shown that not only are the actual forces applied to the spine important in the production of degenerative disc disease, but

low back injuried patients. These people were evaluated using many criteria which included a complete physical exam, x-rays, various chemical laboratory studies, psychological testing and psychiatric interviews. A few points from this study will help to clarify the magnitude of low back pain as an industrial problem.

In 1970 in the state of California there were 23,322 financial decisions made in favor of patients who had job related low back injuries A conservative estimate of the compensation paid to these injuries is well over one hundred million dollars ($100,000,000). The national cost during any given one year period would easily be a billion dollars ($1,000,000,000). This figure does not include compensation payments made to people on the compensation rolls from previous years. This is just an estimate of the added cost each year. In California low back injuries are the most common industrial injuries and account for approximately forty percent of all industrial claims filed. To compound the problem further, the results of rehabilitation of the back injured patient have been very disappointing. Studies dealing with the surgical results in the treatment of back injured patients regarding the ability to return to work vary from study to study, but typical statistics would be as follows: about 30 percent of patients operated on following a back injury will return to full or nearly full working capacity, approximately 20 percent will be able to perform only very light work, and approximately 50 percent will never return to work at all. We have learned that if a worker fails to return to work after six months following his back injury the chances of him ever returning are less than fifty-fifty. If he fails to return after one year, his chances are

less than five percent. I would expect that a study of farm workers using the short hoe would be even more dismal because of the great demands placed on the back by using this tool.

By far the most depressing aspect of the low back problem is the tremendous human waste that results from this fifty percent of patients who never return to work. Most of these people are not suited for vocational rehabilitation and certainly no one will rehire a laborer who has a bad back. The net result ultimately is that these people become the responsibility of the taxpayer in one way or another. Everyone loses when a worker injures his back: the employer loses a worker and may also lose in compensation payments to the worker, the worker loses his livelihood as well as his family status and reemployability, and society loses a productive citizen.

Let me summarize everything that I have said: 1) the low back injury is the most common, the most costly, and the most difficult to treat problem in the field of industrial medicine today, 2) the results of present day treatment are so poor that every effort should be taken towards the prevention of these injuries, 3) there is no doubt that the use of the short-handled hoe predisposes to the development of these injuries, 4) the short-handled hoe should be eliminated as an industrial tool or modified in such a way as to allow the worker to use it while maintaining a more erect posture.

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April 30, 1973

Re: Status of Robert W. Murphy, M.D.
with respect to expert witness testimony

To whom it may concern:

Dr. Robert Murphy is currently a resident in the Orthopedic Training Program at UCSD. By July 1, 1973 he will have concluded the three years of training necessary for board eligibility. Dr. Murphy will become an instructor on the staff at UCSD beginning July 1, 1974.

Dr. Murphy has taken an interest in lumbar disc and cervical disc disorders in the course of his training at UCSD. He has become one of the authorities on this subject in the Southern California area as attested to by his newest publications in this field and by his presentations before scientific bodies in the Southern California Region. A copy of his publications and his speeches on the subject matter is available on his curriculum vitae.

I know of no one in Southern California more knowledgeable on this subject matter, and would expect Dr. Murphy to be an effective, unbiased witness who would be helpful in developing the factual basis in any disputes concerning low back problems.

Sincerely,

W H Akeson, MD

Wayne H. Akeson, M.D.
Professor and Head
Division of Orthopedics
and Rehabilitation

CURRICULUM VITAE - DR. ROBERT MURPHY

1. Guest Lecturer - San Diego Psychiatric Society
"The Gate Control Theory of Pain"

2. Guest Lecturer - Post Graduate Instructional Course on Pain - UCSD
"The Low Back Pain Patient"

3. Guest Speaker - Annual Winter Meeting of the Los Angeles Chapter of the Western Orthopedic Association.
"Symposium on the problem back"
Ojai, Calif. March 1972.

4. Participant - NBC News Special
"PAIN" March 28, 1972

5. Featured Speaker - Annual Meeting of Teachers of Rehabilitation
USC Medical School
"Physical and psychological aspects of pain and their application to the problem of low back pain"
December 1972

6. Guest Lecturer - Workmans Compensation Carriers of California
Instructional Course on Industrial Back Injuries.
May 31, 1972

7. "Aspects of Low Back Pain", Psychosomatics, accepted

8. "Low Back Pain" Postgraduate Medicine, submitted.

9. "Traits of Pain Patients: The Low Back Pain Patient"
Psychosamatics, submitted.

10. "The Present Status of Anterior Interbody Fusian in the Lumbar Spine" Recent Issue Calif. Med. Journal

11. "Measuring the Severity of Clinical Pain,"
To be published in Advances in Neuaology Vol. 5

(Paper to be presented at the International Symposian on Pain sponsored by the National Institutes of Health)
Seattle May 21-25, 1973.