ASSEMBLY AGRICULTURE COMMITTEE MINUTES
MARCH 31, 1977
4:00 p.m.

MEMBERS PRESENT: Chairman Hickey
Mr. Price
Mr. Jeffrey
Mr. Serpa
Mr. Polish
Mr. Jacobsen

MEMBERS ABSENT: Mr. Rhoads

GUESTS: Al Edmondson, Nevada Health Division
Jack N. Armstrong, Nev. Department of Agriculture
John L. O'Harra, Nev. Department of Agriculture
S. D. Mastroianni
June Roberts
Greg McKenzie
Robert W. Fink, Nevada State Dairy Goat Association
James A. Henry, Nevada State Dairy Goat Association
Bill Abel, Nevada State Dairy Goat Association
Clem Martin, Nevada State Dairy Goat Association
Bobbie Metzeger, Nevada State Dairy Goat Association
Paul J. Virgin, Alta Dena Dairy, Industry, California
Jennifer Amo, Legalization of Raw Milk Committee
Frank Amo, Legalization of Raw Milk Committee
Art Palmer, Legislative Counsel Bureau

A quorum being present, Chairman Hickey called the meeting to order. The purpose of the hearing was to take testimony on AB 501 and AJR 37.

AB 501, Permits sale of raw milk

Al Edmondson, Nevada Health Division, spoke against AB 501, stating that he presented a memo on this bill reflecting their position on this bill. This memo is attached to these minutes as Exhibit A and herewith made a part of this record.

Mr. Edmondson stated that this memo does document diseases in the last several years that have been past through raw milk. He stated that there was one thing about raw milk and that is that it can never be absolutely certified as safe. An individual handling the milk can take a physical and be deemed safe; yet one week later he could have a communicable disease. This also holds true with the dairy animal. Pasteurization is a method of heat treatment that does kill all of the pathogenic organisms in the milk. True pasteurization does kill some of the enzymes in the milk.

Mr. Edmondson stated that the USDA Food Council has stated that they have never found any difference in the natural value of raw or pasteurized milk.

Mr. Hickey inquired if there was any evidence of break out in connected diseases where raw milk is sold. Mr. Edmondson stated that there was letter attached to the memo from California regarding this. He stated that there really was not that large of volume of raw milk sold around the country.

Mr. Hickey then inquired what it would cost for enforcement of this bill. Mr. Edmondson stated that he couldn't answer that exactly but that most of the cost would be borne by the producer.

Mr. Jacobsen inquired if raw milk was allowed would it be necessary in California to inspect the milk and dairies producing the milk that would probably be coming into Nevada. Mr. Edmondson stated that they would take samples as the milk arrives into this state but that they do accept inspections made by California as these requirements are pretty well standardized with ours.

Mr. Price asked if there really was a problem with brucellosis in our herds in Nevada. Mr. Edmondson stated that he had heard of a herd infected in northern Nevada but that this herd has been sold. He added that in southern Nevada there were 3 herds that were close to being free of this disease and one that was still heavily infected.

Mr. Price inquired whether a dairyman that wanted to sell raw milk would be allowed to keep a certain number of head away from the rest of the herd for this purpose. These few could be tested more often and just be used for raw milk. Mr. Edmondson stated that he did not feel that this would be feasible in that the dairyman would also have to have special equipment set aside as well as separate rooms for processing of the milk.

Mr. Edmondson also stated that he does not think that California has the 30 hour limit that this bill contains. In California this 30 hour limit would be impossible. He also stated that on line 7, page 1, should the bill be passed he would like to see 50 degrees changed to 45 degrees as this is what they are presently requiring for other products. He stated that on line 10, page 1 they would like the words "and 0 pathogenics per milliliter" added after the words "15,000 bacteria per milliliter".

Mr. Polish inquired whether there have been any cases of undulant fever reported in western Nevada in the last 5 years. Mr. Edmondson stated that there was a case reported here in Carson City just recently but as yet they have not determined where it came from.

Mr. Polish went on to ask if there was actually a law against the sale of raw milk. Mr. Edmondson stated that there was not but that the Division prohibits it by regulation not by statute.

Mr. Hickey inquired if Mr. Edmondson felt there was much "bootlegging of raw milk" into Nevada. Mr. Edmondson stated that they did not feel there was much problem with this and there probably was some "over the fence" sale of raw milk. Mr. Jacobsen then inquired whether the Health Division had any control over the "over the fence" sales. Mr. Edmondson stated that they do not , some herds of goats have been inspected but not for this purpose. He added that if a complaint were filed they would be required to go out and check it out.

June Roberts presented a prepared statement from Marilyn Rusk. This statement is attached to these minutes as Exhibit B and herewith made a part of this record. Mrs. Rusk's statement is in support of AB 501.

Paul Virgin, Alta Dena Dairy, Industry, California, spoke in support of AB 501. He gave a brief background of their Dairy in California stating they process 80,000 gallons a day of which 20,000 is raw milk sales. Mr. Virgin then gave a brief statement on the number of cases of fever reported over the years. In 1973 there 172 cases in the country, none of which were attributed to the consumption of raw milk. In 1974 there were 189 cases reported and very few of these were attributed to raw milk consumption. He stated that perhaps 6 of these were attributed to consumption of raw milk from outside this country. In 1975 there were 232 cases reported and again none of these were attributed to raw milk consumption. Brucellosis in cattle can be controlled by vaccination of the animal itself. Mr. Virgin stated that in a certified herd, the animals are blood tested before they enter the herd and thereafter every 6 months. The milk from those animals are given a ring test for brucellosis every month. A normal herd is tested this way every three months. This ring test is a screening test for these animals. They have not had any brucellosis in their herd at any time.

Mr. Virgin went on to say that tuberculosis is controlled by testing the dairy cows itself. There has never been any case in their herd of this disease either.

Certified milk is produced under the highest standards in the entire dairy industry, which is a process that relies on super sanitation to make sure that the milk is free from any harmful or disease causing organisms.

He went on to say that pasteurization relies on a heat process to destroy harmful bacteria. He would much rather see milk produced clean and pure. Pasteurization does not make milk clean just makes unsafe milk safe.

California is also one of the few states that tests for the colorform. This is a type of organism found on a cow's udder. They allow as many as 750/milliliter in raw milliter if it is to be past rized. Raw certified milk by comparison cannot have more than 10/milliliter. This is an excellent guide as it tells how clean the milk is handled after it left the cow.

Mr. Virgin stated that he would agree with 45° is important but he would rather see 40° but there would be some difficulty with this in markets. The 30 hour limit is prohibitive and not reasonable. If you have good safe milk, whether it sits on the shelf for 2 or 3 days or more the pathogentic is not going to come from within it because there was none present. Agree with the suggestion that the milk be free of pathogenic bacteria.

Mr. Virgin stated they have people in this area that would like to have certified raw milk available to them. They have some distribution in this area of their other products but they are not allowed to bring in raw certified milk or the raw certified milk products. He added that one of their distributors brought in some raw milk products and they were held responsible for that. It was stated that if any of their raw milk products were sold in the state the State Division of Health would revoke their permit to distribute any of their products here.

Mr. Polish asked what time frame Mr. Virgin would suggest as a delivery time. Mr. Virgin stated that he would suggest 144 hours, which would be reasonable.

Mr. Jacobsen inquired if they had their cartons dated. Mr. Virgin stated that they have them coded for 10 days. Mr. Jacobsen then inquired if this product was available at Tahoe and Truckee. Mr. Virgin stated that they did have products all though that area on the California side.

Mr. Serpa inquired if they bought any of their milk from dairies in Nevada. Mr. Virgin stated that they did not as most of their milk comes from Southern California. Local producers there help them out with milk that they don't produce.

Mr. Virgin stated that he had talked to Mr. Baham from Anderson Dairy and they have expressed that they would like to have an opportunity to distribute Mr. Virgin's dairy products in this area, including raw certified milk.

Mr. Jacobsen inquired what the price differential was in California between raw milk and pasteurized milk in the quart size. Mr. Virgin stated that in the Southern California area it is 4¢.

Mr. Jacobsen inquired how they maintained a butterfat content. Mr. Virgin stated that certain cows will give an averaged percentage of butterfat. They test milk samples every day. Mr. Jacobsen then inquired whether they have had a time when butterfat was not up to required amounts. Mr. Virgin stated that they test the milk before it is actually bottled.

Mr. Hickey inquired whether Nevada would have to go in and inspect California dairies. Mr. Virgin stated that he felt that California had stricter regulations then other states. Mr. Virgin inquired whether this bill would allow for the sale of raw milk and milk products as certified in the State of California. Mr. Hickey replied that there would have to be some amendments made on this bill.

Clem Martin, Nevada State Dairy Goat Association, stated that he was the DHI supervisor from Douglas, Carson and Washoe Counties. He stated that he tests dairy goats and dairy cows. He stated that he is very interested in this bill because of the interest that has been shown by the people living in the areas that he tests. Dairy goat people are strongly in support of this bill because they are constantly plagued with people that want to buy raw milk. There is presently no outlet for this product. There are presently 9 herds that are being tested.

Mr. Martin stated that they are not in favor of seeing that the term certified. They feel that they can conform to the requirements. They do not feel they need to have the extra burden imposed on the certification. In California certification means that they comply to a medical board as a requirement. He stated that there are other herds that are Grade A producers of raw milk that are not certified and they distribute Grade A raw milk products. They do comply with health requirements. They feel the Health Department could monitor and make them comply instead of having to file the certification requirements. This would cost the consumer eventually.

Robert Fink, President, Dairy Goat Association, stated that they were in favor of AB 501. They are concerned, however, about the power of the board to adopt rules and regulations. They feel there should be something in the bill that would make it mandatory for the department to hold hearings. They would to see the right to produce raw milk stay within the means of the average individual. If a person can comply with the stipulations in the bill he should be able to go ahead and market that product.

Mr. Fink cited several beneficial results from the consumption of raw milk. Their main concern is that if this adopted that the board be required to have the hearings to make sure that it is not prohibitive to the average individual who might want to enter into this type of business.

James Henry, Nevada State Dairy Goat Association, stated that he supported the bill. He stated that he had been raised with goats. He stated that he would talk about goat milk as opposed to cow milk. He added that goat milk is structurally different in the size of the fat globulars. Goat milk assimilates into the body more easily and is more like human milk.

Mr. Henry stated that he has heard of no incidents of brucellosis in the last 5 years in goats in the United States. Goats will react to this test if they are pregnant or shortly thereafter. He stated that he has been pleaded with to give someone milk and they have to refuse to do this.

Mr. Polish inquired what kind of packaging would it be.
Mr. Henry stated that it would probably have to be glass.
Mr. Hickey inquired whether that would be decided by a board.
Mr. Henry stated that this is why they would like to have somebody from the association be in on what is being done.

Mr. Jacobsen inquired how many were in their association. The answer was that there were approximately 60 and that there were 230 animals under testing with 9 herds that are tested. There are a great number of animals that are not on test.

Joan Pedden, speaking for herself, stated that she was in favor of sale of raw milk. She stated that she had recently moved from Washington State where she was able to buy raw milk. She stated that she presently goes to California to buy it and would really appreciate it if she could buy it here. She stated that her pediatrician recommended it for her children and she feels that it is far more nutritious.

Jennifer Amo, Legalization of Raw Milk Committee, submitted petitions containing over 1500 names from Reno and Las Vegas in support of certified raw milk and 932 from Carson City. These petitions will be submitted with Secretary's set of minutes and be a part of that record.

Mrs. Amo stated that as far as amending the bill there are a couple of things they would like to see. She stated that there was little split in their group as far as certified and not certified. The people that she represents want only certified milk. They would the bill to state certified raw milk and certified its products on line 3.

Mrs. Amo then presented a prepared statement which is attached to these minutes as Exhibit C and herewith made a part of this record.

Mrs. Amo also presented the committee with other articles for informational purposes. Copies of these are attached to these minutes as Exhibits D, E and F.

Dr. Armstrong, Department of Agriculture Veternarian, stated that he was here to merely present objective facts. He stated that wholesome milk from healthy animals is a very highly nutritious substance. He would endorse the recommendation of 0 pathogens.

Dr. Armstrong stated that there were several disease entities that are capable of being transmitted through raw milk. These are salmonellae, staphylococci, streptococcus and others. There also are viral entities that are capable of being transmitted through milk. This organisms are controlled through pasteurization of raw milk.

Dr. Armstrong stated that there was brucellosis present in Nevada dairy herds. As of March 30 there were 5 dairy herds under quarantine with 3,850 animals being represented by this. The total dairy herds in Nevada number approximately 67 which in turn represents approximately 12,000 animals.

All dairies are tested on a monthly basis for brucellosis. Family milk cows and dairy goats are frequently tested for tuberculosis upon the owner's request.

Dr. Armstrong presented a copy of the membership of the Dairy Goat Association. This is attached to these minutes as Exhibit G and herewith made a part of this record.

Mr. Jacobsen inquired whether they get many complaints from the consumer. Dr. Armstrong stated that they do not get this as this goes through consumer affairs.

Mr. Polish inquired if they had any occasion to have some checks on dairy goats. Dr. Armstrong stated that there are no instances of brucellosis in dairy goats in Nevada.

Dr. O'Hara, Nevada State Department of Agriculture, stated that dairy goats have only been of any importance in Nevada within the last 10 years.

Mr. Hickey asked if Dr. O'Hara felt that 45° was reasonable. Dr. O'Hara stated that this would be a maximum and that he wouldn't want it to go any higher. Mr. Hickey inquired if it was safe at 45°. Dr. O'Hara stated that this would depend on the quality of the milk prior to the cooling. If there are viral agents in

the milk the 45° would hold them status quo until the temperature rose above this temperature.

Dr. O'Hara stated that if raw milk is produced under ideal conditions it is probably a safe product, but there must be continuing and constant controls on it.

Dr. Armstrong stated that he felt that the risk benefit ratio of raw milk was somewhat high. In order to protect and provide a safeguard for the consumer pasteurization is recommended.

Dr. O'Hara stated that he would question the value of putting the burden on the Department of Agriculture and Division of Health to see that all these things are abided by for the minority of people who would want to buy raw milk.

Dr. O'Hara stated that this brucellosis problem concerns them greatly. They have tried extremely hard to rid Nevada of this. Brucellosis in humans is rarely diagnosed and he would guess that only 1 in 10 cases are diagnosed.

Mr. Polish stated that he had heard that it passed through meat products. Dr. O'Hara stated that this was true in slaughter houses and with butchers. Dr. Armstrong stated that this was occupational associated disease.

Mr. Hickey inquired what kind of rules and regulations would have to be drawn up. Mr. Edmondson stated that they would have to adopt some rules and regulations as prescribed by APA. This would require that they do hold hearings before any final rules and regulations were adopted. They have to this by statute.

Mr. Hickey inquired about milk outside the State of Nevada Mr. Edmondson stated that they would have to check with the regulatory authority within the state of origin and if they have passed that state's regulations, then if it was legalized here, they would except their inspection. However, they would take samples here of the product periodically.

Mr. Mastrioanni stated that he throughly agreed with Dr. O'Hara's, Armstrong's and Mr. Edmondson's remarks. He stated that Nevada approves of having the same requirements that we do would be approved for sale here.

Mr. Hickey then inquired about certified as opposed to non certified milk. Mr. Edmondson stated that certified would be more safe. He stated that he had been to Alta Dina and they have a good operation. He stated that he has seen a lot of raw milk produced and every once in a while disease does come out of raw milk. This can happen on any raw milk.

AJR 37, Proposes constitutional amendment to conform constitutional state boundary to actual boundary.

Art Palmer, Legislative Counsel Bureau, explained the background for this bill. He presented a portion of the Political History of Nevada. This is attached to these minutes as Exhibit H and herewith made a part of this record.

Mr. Palmer explained that in May 5, 1866, the United States Congress offered to Nevada this portion of the State provided that Nevada consent to it. On November 5, 1866, the Legislative Assembly of the Territory of Arizona, memorialized Congress stating that this territory had never been accepted by the State of Nevada. Mr. Palmer went on to explain that in Governor Blasdel's biennial message of January 10, 1867, he urged the Senate and Assembly to amend the consitution to conform our southern boundary to the lines designated in the grant. The legislature, a few days later, passed a resolution accepting this additional territory. Mr. Palmer explained that this merely expresses their desires but does not actually amend the constitution. No action was taken on the Governor's suggestion to amend Nevada's Constitution.

Mr. Palmer stated that at this point the Arizona Legislative Assembly moved the Pah-Ute county seat from Callville on the Colorado River north to St. Thomas, a location within the area Nevada had accepted by resolution. This was further evidence that Arizona did not concede that this territory was lost to Nevada. However, when Arizona was brought into the United States as a state her boundaries were set by their constitution. Arizona's pleas for this territory fell on deaf ears.

Mr. Palmer stated that this resolution would bring the consitution into conformity with what is now the boundary of this state.

Mr. Price inquired whether somebody didn't try to move some legal action stating that was in fact Arizona. Mr. Palmer stated that there have been attempts, discussions and inaccurate news articles on this because of a lack of complete understanding. Arizona would have no claim to this area, however, because in 1912 when it was admitted to this union, its boundary lines were specifically set. If Arizona territory still existed they might have a point.

Mr. Hickey inquired if the citizens of this State did not vote this portion to come into the State would this make it a territory. Mr. Palmer stated that it couldn't really answer this. Attorneys have argued this point back and forth. He stated that the nearest that he has been able to determine is that by adverse possession, because we have occupied and administered it for over 100 years, this would be pretty binding that we own it. Nobody has moved to challenge this

in any way, so for all practical purposes it is part of the State of Nevada. A technical point could be made to the fact that since Nevada never accepted and incoporated it; and since Arizona came in later as a state and it has no claim to it; and it is obviously not a part of Utah or California; one could use the label of unincorporated territory of the United States to define it. This same condition prevailed for a two year period of time over all the territory that was obtained from Mexico in the Treaty of Guadalupadalgo. The Congress did not provide for any organized government in this entire area between 1848 and 1850. This is one reason the Mormon State of Deseret was brought into being to provide some form of government to this area.

Mr. Palmer stated the Attorney General was concerned about lines 17 through 20, page 1. He stated that in drafting this correction, the description for the boundary lines of the State of Nevada, they cleaned up some language which the bill drafter and counsel felt was inappropriate. On line 17, instead of "directional along said eastern boundary line," they put in the word "the eastern boundary line" and then made for uniformity by putting "forty-third" into a hypenated word. They also added "the forty-third" instead of "said forty third". Counsel feels that this doesn't in any way weaken the case which the Attorney General is interested in, which has to do with the 128th meridian. This has nothing to do with this more massive situation in the southern portion of the State. The AG seems to be quite sensitive on this issue. Legislative Counsel Frank Daykin feels that there is absolutely no concern in that area whatsoever. A copy of the Attorney General's letter expressing this concern is attached to these minutes as Exhibit I and herewith made a part of this record.

Mr. Palmer then stated that since he was not an attorney he could not speak with any real authority on who would vote on this, what the effects of this might be one way or the other, what would happen if it wasn't adopted by the people, and what status that territory is in.

Mr. Jacobsen moved for a "do pass" on AJR 37 and Mr. Polish seconded the motion. The motion unanimously with Mr. Serpa, Mr. Rhoads, and Mr. Jeffrey being absent.

As there was no further testimony to be heard, Chairman Hickey adjourned the meeting.

Respectfully submitted,

Sandra Gagnier

Sandra Gagnier
Assembly Attache

STATE OF NEVADA
DEPARTMENT OF HUMAN RESOURCES
DIVISION OF HEALTH
BUREAU OF CONSUMER HEALTH PROTECTION SERVICES
CAPITOL COMPLEX
CARSON CITY, NEVADA 89710

TELEPHONE
(702) 885-4750

MEMORANDUM

DATE: MARCH 30, 1977

TO: TOM HICKEY, CHAIRMAN
AGRICULTURE COMMITTEE

FROM: JAMES A. EDMUNDSON, SUPERVISOR
CONSUMER HEALTH PROTECTION SERVICES

The Nevada milk regulations were re-written and approved by the Nevada State Board of Health May 18, 1972, and became effective July 1, 1972. The Nevada milk regulations are now more stringent than most of the surrounding states and the U. S. Public Health Service. The purpose of the regulations is to adequately protect the public. It is possible to regulate any industry out of business.

Raw Milk. The milk regulations adopted by the Nevada Board of Health July 12, 1960, outlawed raw milk in Nevada. Many people have said that raw milk is more nutritious, but it has not been proven. The Nevada Assembly Agriculture Committee has been given documented evidence of the milk-borne disease outbreaks attributed to raw milk. The only known method for the prevention of this disease is pasteurization.

Safeguards for milk were copied from the U. S. Public Health procedure as set forth in the 1965 Pasteurized Milk Ordinance. The Nevada milk regulations state, "Whenever two of the last four consecutive bacteria counts, somatic cell counts, coliform determinations, or cooling temperatures, taken on separate days, exceed the limit of the standard for the milk or milk product, the Health Division shall send a written notice thereof to the person concerned. This notice shall be in effect as long as two of the last four consecutive samples exceed the limit of the standard. Additional samples shall be taken within 14 days of the sending of such notice, but not before the lapse of three days. Immediate suspension of the permit in accordance with Article 3 and/or court action shall be instituted whenever the standard is violated by three of the last five bacteria counts, somatic cell counts, coliform determinations, or cooling temperatures."

The U. S. Public Health Service standards say "A suspension of permit shall remain in effect until the violation has been corrected to the satisfaction of the health authority." The Health Division follows this procedure. The Nevada regulations do not or have not required a specific number of tests be run before reinstatement of a permit. The procedures stated are accepted procedures nationwide.

Raw Goats' Milk. Low bacteria counts on raw goats' milk or cows' milk does not guarantee the safety of the milk. The standard plate count as was run does not say that no disease-producing bacteria was present. It is a well-known fact many bacteria survive pasteurization, but that no known disease-producing bacteria survive the required pasteurization temperatures. Pasteurized cultured milk products (buttermilk, yogurt, etc.) contain millions of bacteria. These cultured products are pasteurized and almost sterilized and then cultures of known bacteria added to produce the product. There is much more to the safety of milk and milk products than low bacteria counts. Low bacteria does tell a story on how the milk was produced and subsequently handled. This is the reason for the standards.

Health cards. In the early 1940's the U. S. Public Health Service took the position "that routine health examinations for persons who handle and process food are not of sufficient value in the prevention of food-borne illnesses to warrant the expense incurred. The medical examination of a food handler, at best, can only give information as to this status on the day of the examination. It is well known that a person may be entirely well one day, yet capable of transmitting the disease the next day. Therefore, routine medical examinations give a false sense of security as they cannot be relied upon to prevent the transmission of food-borne disease."

Section 11.3 of the Nevada milk regulations states "Other infection. Cows or goats which show a complete induration of one quarter or extensive induration on one or more quarters of the udder upon physical examination, whether secreting abnormal milk or not, shall be permanently excluded from the milking herd: Provided, that this shall not apply in the case of a quarter that is completely dry. Cows or goats giving bloody, stringy, or otherwise abnormal milk, but without entire extensive induration of the udder, shall be excluded from the herd until re-examination shows that the milk has become normal.

The Health Division may require, from time to time, any test or examination it deems necessary after consultation with the Nevada State Department of Agriculture, Bureau of Animal Industry. In the event the Health Division does require additional tests, and in the event a reactor is found among a herd, that diseased animal or animals shall be disposed of as the Nevada State Department of Agriculture, Division of Animal Industry, may require."

Any milk that has been found to have antibiotics or any other deleterious substance is impounded and condemned under the Nevada Food and Drug laws as an adulterated food. Tests for abnormal milk are also run regularly. This is the best test known for abnormal milk and when the test indicates abnormal milk, it is again withheld from the market.

Exhibit A

STATE OF CALIFORNIA—HUMAN RELATIONS AGENCY RONALD REAGAN, Governor

DEPARTMENT OF PUBLIC HEALTH
51 BERKELEY WAY
RKELEY 94704

January 29, 1973

Mr. James A. Edmundson
Public Health Rating Survey Officer
Division of Health
State of Nevada
Carson City, Nevada 89701

RECEIVED
JAN 31 1973
Bureau of Environmental Health

Dear Mr. Edmundson:

This is in response to your letter of January 24, 1973, requesting information on disease outbreaks over the past 10-years (1963-1972) attributed to raw milk.

There has been relatively few outbreaks of disease in man in California during the period 1963-1972 which can be attributed to consumption of raw milk produced in this State. However, during 1971-1972, two outbreaks of salmonellosis in man have occurred in association with use of raw milk. One outbreak involved S. dublin, the other S. typhimurium. Bovine infection with the organisms in question have been identified in the two dairy herds involved in the separate outbreaks.

In the case of the S. typhimurium incident, the organism was isolated from the feces of seven of the 380 cattle in the herd and in addition S. typhimurium was isolated on three separate occasions from one quart samples of milk--two from market samples picked up by two separate county health departments, the third from a one quart sample some eight months after the outbreak occurred and after infected cattle had been supposedly removed from the herd on the basis of three serial fecal cultures on each animal carried out over a 2½ month period. The third isolate was made by the local milk inspection laboratory on routine culture. Some 5-6 human cases in three families in three counties were associated with the use of milk from the raw milk dairy involved.

In the S. dublin outbreak, two serial fecal cultures on a total of 3537 cattle on the dairy has resulted in isolations of Salmonellae from 31 animals--S. dublin from 14 animals, S. muenchen from 10 animals, S. typhimurium from 7, S. newport, S. bornum, S. lille, and Arizona sp. from one animal each. Salmonellae were isolated from a total of 31 cows. More than one Salmonellae species was isolated from some animals. A total of 44 cases of S. dublin in man were reported during 1971-1972 in California as compared to an average of 5-6 cases annually during the preceding 7-8 years. Rather complete food and epidemiologic histories have been obtained on 35 of the 44 cases of S. dublin to date, 17 of which have a history of using raw milk from the dairy in question.

Exhibit A

Most of the cases of S. dublin which have been reported have been in very young, very old and/or debilitated persons. The distribution of cases of S. dublin in the foregoing regard differs significantly from the usual distribution of cases of salmonellosis reported to the Department. Likewise, the source of isolation from cases of S. dublin differs markedly from that for other Salmonellae in that a high proportion have been isolated from blood, urine, abscesses or bone marrow. In less than 50 percent of the cases has S. dublin been isolated from the stool.

Neither of the two outbreaks associated with use of raw milk in 1971-1972 occurred as acute episodes, that is, as acute outbreaks in the classical nature of foodborne disease. Rather, the cases have occurred as sporadic instances covering a span of weeks or months. In the instance of the S. typhimurium outbreak, the index case occurred in a young baby being fed a limited diet consisting of raw milk and Similac. The local health department investigating the case isolated S. typhimurium from a one quart sample of the milk picked up at the health food store where the parents made their purchases of raw milk. Subsequent information associated other cases in two other counties where the same brand of milk was used.

In the S. dublin outbreak, the fact that S. dublin is an extremely rare serotype provided opportunity to investigate all cases from which the organism has been isolated. A special comprehensive food history form has been used (11 counties involved) and the only common factor identified to date has been use of raw milk from one particular dairy.

Our ability to identify cases of S. dublin in man has been enhanced by the fact that all cultures of Salmonellae isolated from man in California must be submitted to the California Department of Public Health laboratory for definitive serotyping. The above requirement is by regulation. Recognition of the two outbreaks of salmonellosis in man associated with the use of raw milk in California during 1971-1972 would be doubtful if the regulation requiring submission of all Salmonellae isolates for serotyping did not exist.

We occasionally have cases of brucellosis in man reported to the Department where epidemiologic history suggests use of raw milk in Mexico or other foreign country as the source of infection.

Some 10 cases out of 170 cases of Q fever reported during the period 1962-1968 have a history of using raw milk but without animal contact. The nature of the aerosal transmission of Q fever, however, makes difficult the implication of raw milk to the exclusion of other sources of infection. An outbreak of 49 cases of S. dublin infection in man also occurred in 1958 in association with the use of raw milk. A copy of the herd testing done in connection with the 1958 outbreak is enclosed for your information. The interesting thing is that the dairy involved in the 1958 outbreak is the same as that involved in the present situation.

I am forwarding your letter to Dr. James Chin, Chief, Bureau of Communicable Disease Control, who may wish to add comment.

Sincerely,

George L. Humphrey

George L. Humphrey, D.V.M., M.P.H., Chief
Veterinary Section
GLH:r
Enclosure
cc: Dr. Chin

Exhibit A

Food and Drug Administration
Bureau of Science

August 14, 1969

Dr. H. Howard Kusumoto
Health Officer
State Department of Public Health
P. O. Box 1409
San Luis Obispo, California 93401

Dear Dr. Kusumoto:

In reply to your letter of August 4th:

1. Pasteurization of milk, if done properly, has no known adverse effect on milk. Pasteurized milk generally has a much longer shelf life than raw because the pasteurization process reduces the viable bacterial count to very low levels so that the time required for the pasteurized product to spoil is much longer than that for the raw product.

2. Extensive studies have been done on the nutritional aspects of raw and pasteurized milk. These studies have shown that pasteurized milk is as wholesome, nutritious, and digestible a food as raw milk.

3. Pasteurized milk generally will keep much longer than unpasteurized milk as stated in the answer to question #1.

4. I believe that the use of any raw milk places an entirely unnecessary risk on the consumer. For example, a herd can be tested for brucellosis and be free of this disease at the time of testing. Brucellosis can enter the herd soon after testing and brucella could be found in milk from a "brucellosis free" herd. The danger from brucellosis is only one reason to pasteurize; others are the danger to public health from milk containing microorganisms that cause tuberculosis, salmonellosis including typhoid fever, septic sore throat, food poisoning from enterotoxigenic Staphylococcus aureus, diphtheria, scarlet fever, Q fever, poliomyelitis, and other viral diseases.

5. Milk will serve as an excellent vehicle for transmission of infectious disease if stringent quality control measures are not practiced. To document this, we need only to look at history. In Boston alone, 4,095 milkborne epidemics of diphtheria, scarlet fever, typhoid fever, and septic sore throat occurred from 1907 to 1911. Once better sanitation, including pasteurization, was practiced, the rate of epidemics was reduced to virtually zero. This extensive transmission of disease through milk was the basis for a national effort on milk sanitation which evolved to the program we have today.

Original document is of poor quality

Exhibit A

I hope the above will give you the information that you requested. If you have additional questions, please write or call.

Very truly yours,

R. B. Read, Jr., Ph.D.
Division of Microbiology

cc: Region IX Milk and Food Consultant

Exhibit A

EEFP:MF

September 22, 1966

Dr. J. B. Askew, Director of Public Health
San Diego County Health Department
San Diego, California 92101

Dear Dr. Askew:

Pursuant to your request to Mr. William C. Miller, Jr., Acting Chief, Milk and Food Branch, Division of Environmental Engineering and Food Protection, United States Public Health Service, we are enclosing one certified copy of the Grade "A" Pasteurized Milk Ordinance--1965 Recommendations of the United States Public Health Service. This document sets standards for the production, handling, processing, and distribution of only grade A pasteurized milk. No reference is made to the production, handling, and sale of fluid raw milk for consumption in this recommended Ordinance.

The foreward, preface, and introduction of the Ordinance may have supporting material that may be helpful. Section 9 stipulates the milk and milk products which may be sold following the adoption of this Ordinance.

Also, included is a xerox copy of Sub-part H, Section 72.161 through Section 72.173, of the United States Public Health Service Interstate Quarantine Regulations, which govern milk and food supplies for interstate carriers. Section 72.165 of these regulations stipulates that all milk served on interstate carriers shall be pasteurized.

Data supplied by Public Health Service scientists state that enterotoxigenic staphylococci are found in raw milk, and because of the potential public health problem, it is desirable to have raw milk free of such organisms. However, the production of Staphylococcus aureus free raw milk is not economically feasible. The possibility of enterotoxin production in raw milk, combined with what is thought to be much greater potential public health hazard from other pathogenic microorganisms (e.g. Salmonella, Mycobacteria, Coxiella, Brucella, Diptheria, Hemolytic Streptococci, Pollomyelitis, and Infectious Hepatitis) makes the consumption of raw milk hazardous. The risk associated with the consumption of raw milk is unnecessary and there are no known nutritional advantages to drinking the raw product that might even partially compensate for taking this risk.

We further believe that even a small hazard associated with the consumption of raw milk is unacceptable when there is a practical method for the elimination of this hazard. Pasteurization is the only practical, effective process that will kill Staphylococcus aureus and other pathogenic bacteria. This process is still needed because we have neither eliminated all diseases in our dairy herds nor have we developed foolproof methods in the prevention of contamination of milk after it leaves the cow.

Examination of cows and milk handlers, while desirable and of great value, can be done only at intervals and, therefore, it is possible for pathogenic bacteria to enter the milk for varying periods before the disease condition is discovered. Raw milk may also become contaminated by disease bacteria from other sources, such as flies, contaminated water or utensils. No practicable frequency of inspection would prevent such contamination. It is not feasible to perform routine bacteriological tests on raw milk to determine the presence or absence of all the pathogens which milk may transmit. Even if simple test procedures were available, it is difficult to visualize any practicable testing frequency that would give positive assurance that the raw milk would always be free from infection. That raw milk can and does transmit disease and that pasteurization prevents such transmission has been proved to the satisfaction of health authorities by laboratory and commercial-scale experimental work, by epidemiologic methods, by statistical methods, and by animal experimentation. Compilations of outbreaks of milkborne disease by the United States Public Health Service, over many years, indicate that the risk of contracting disease from raw milk is approximately 50 times as great as from milk labeled "pasteurized."

The public health value of pasteurization is unanimously agreed upon by health officials. The following resolution was adopted by the Governing Council of the American Public Health Association at the 93rd Annual Meeting, October 20, 1965, and may be found published in Volume 55, No. 12, page 2008, of the American Journal of Public Health.

GRADE A PASTEURIZED MILK ORDINANCE AND CODE

"It is essential to the protection of the public health that the safety and quality of milk and milk products be assured. Uniform standards of high quality pasteurized milk help assure the quality of milk and provide a safeguard against milkborne disease. A standard milk ordinance is especially useful to agencies responsible for protecting the public health against hazards associated with new milk products, processes, materials, and marketing practices.

"The American Public Health Association endorses the principles and standards contained in the 1965 Public Health Service

Exhibit A

Grade A Pasteurized Milk Ordinance and Code, and urges all States and communities to adopt the Ordinance as law or regulation for the sanitary control of milk and milk products."

We understand that Dr. Ralston G. Read, Jr., of our Milk Sanitation Research Section, Robert A. Taft Sanitary Engineering Center, has been in correspondence with Dr. Ben Dean, California State Department of Health, and that he may have furnished material to Dr. Dean that would be of interest.

We are hopeful the enclosed documents, as well as the foregoing, will be of value to you.

Sincerely yours,

/s/ Darold W. Taylor

Darold W. Taylor, Acting Chief
Milk and Food Branch
Division of Environmental Engineering
and Food Protection

Enclosures

Respectively forwarded:

MILTON E. HELD, Chief
Milk and Food Section
September 23, 1966

Exhibit A

IV. REPORTS FROM STATES

A. California

Fatal Case of Salmonella dublin Infection Associated with Raw Certified Milk. Reported by Dr. Philip K. Condit, Chief, Communicable Diseases, California State Department of Public Health, Dr. Herbert H. Cowper, Chief, Acute Communicable Diseases Division, Los Angeles County Health Department, Dr. Edward Aaron, Senior Veterinarian, Los Angeles County Health Department, and Dr. George Perlstein, EIS Officer assigned to California State Department of Public Health.

A 25-year old female was admitted to the UCLA Medical Center in Los Angeles on September 14, 1964. A blood sample taken on that date for culture subsequently grew Salmonella dublin. Diagnosis on September 15, the date of death of the patient, included septicemia and acquired auto-immune hemolytic anemia. The hematologic disorder was a pre-existing one.

Epidemiologic investigation of the case revealed the patient to be a consumer of certified raw milk. The dairy implicated was surveyed to determine the status of the workers in regard to S. dublin. One male employee was found to be a shedder of the organism. A survey of the 1500 cow herd on an individual basis was not carried out, but it is of epidemiologic importance that in 1958 this same herd was implicated in a S. dublin outbreak. During this outbreak of 47 cases, 11 of which were laboratory confirmed, certified raw milk was implicated and a survey of the 387 cows at that time revealed 3 who were shedding S. dublin.[1]

Editor's Comment: Salmonella dublin infections in cattle is a well recognized problem and one which has caused a great deal of worry and expense in recent years. It's presence in raw milk has been commented on frequently in the past and points out another danger of the consumption of raw milk.

In this particular case the patient had an auto-immune hemolytic anemia, a disorder which has been shown clinically and experimentally to predispose to salmonella infections.[2] The hypothesis has been advanced that phagocytosis of the cellular breakdown products by the reticuloendothelial cells saturates or impares the capacity of these cells to effectively combat pathogenic bacteria.

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1. Schroeder, Robert J., and Dale, Mary B. Epidemiology and Control of a Salmonella dublin Food Infection Outbreak in Man. Proceedings of the Third Annual Meeting of the United States Livestock Sanitary Association, p. 248-254, 1959.

2. Kaye, Donald, and Hook, Edward W. Influence of Auto-immune Hemolytic Anemia on Susceptible Salmonella Infections. Proceedings of the Society for Experimental Biology in Medicine. 117:20-23, 1964.

"CDC SALMONELLA SURVEILLANCE", DECEBER REPORT, 1964

Brucellosis still found

DEAR DR. LAMB — In my opinion, a discussion on chronic brucellosis in your column would be very useful. Believe it or not, I find people who never heard of the disease. Some that know this infection exists have little knowledge otherwise and, in fact, think the sources of the illness no longer exist.

Brucellosis controls are indicated and have lessened the extent of the disease, but I understand it is a health menace over the world. With proper knowledge, many people could avoid the disease.

DEAR READER — Fortunately, it is not as common as it once was. Equally fortunate, the medical profession has medicine that will cure it when it does occur. You are right, however, it still is a health problem. Most cases of brucellosis occur from drinking raw milk. The germs in the milk enter the body through the digestive tract and infect the person. About five per cent of the cattle in the United States are infected with brucellosis.

The disease in man is characterized by recurrent fever. These can be severe spiking fevers with intermittent chills. The lymph glands are swollen and there is associated headache and joint aches. The diagnosis is often suspected because of the nature of the fever and the absence of other causes for the fever. The diagnosis is established by finding the germs.

The infection may cause almost no symptoms or severe sudden symptoms. It can also be chronic, causing persistent low-grade fever. The germs can be eliminated by antimicrobal treatment. In chronic cases, two or three courses of treatment may be necessary.

The disease is also called Malta fever because it was first described in British soldiers dying on the island of Malta from this infection. They got it from goat's milk. A Dr. Bruce described the disease, hence, the name brucellosis. It is also called Bang's disease, particularly among dairy men, after the name of the man who first discovered it in cattle. Others know the disease as undulant fever, describing the undulating nature of the body temperature of the patient.

A small number of infections are caused by the germs getting into a break in the skin from infected carcasses, usually in slaughterhouse workers.

In infected raw milk, the organism can live under refrigerated conditions about 10 days, and in cheese as long as three months. When a person gets infected, the disease may become apparent within days or months after the germs enter the body. Pasteurization of milk kills the germs.

It is important to realize that milk is excellent food, not only for us but for germs, too. Many diseases used to cause epidemics as milk-borne diseases. Pasteurization and strict standards have eliminated the massive problem. There are still isolated areas in the United States, however, where uncontrolled raw milk is available. This is even more true on a world-wide basis. The traveler in foreign lands is wise to avoid milk unless it is pasteurized. Also, you should avoid drinking fresh milk from your friendly farmer neighbor. He just might have an infected cow and not know it. The way to prevent most cases of brucellosis is to avoid raw milk that might be from an infected cow or goat.

Pasteurization, heating of milk to 61.8° C - 30 minutes or
71.8° C - 15 seconds, will:

a. destroy Pathogenic Organisms

b. preserve desirable characteristics of milk and its product

Fortunately, pasteurization also partially or totally inactivates most of the degradation enzyme systems. The pasteurized product is not sterile and has limited shelf life even when stored in refrigerators.

When longer shelf life or holding periods are desired, high temperatures are employed (79.6° C to 87.8° C for 20 to 40 seconds).

Minimum pasteurization processes do not materially alter the physical behavior of the lipid phase. High temperature does contribute to the alteration in the nature of the fat membrane, and coagulation of proteins.

Milk lipase - combination of several enzymes.

The lipase that causes rancidity (rancidity destroys some vitamins) can be inactivated by holding at 55° C for 30 minutes. Rancidity causes a bitter flavor.

Membrane lipase is irreversibly absorbed on the fat globule membrane as fresh milk is cooled.

Plasma lipase remains in plasma as milk is cooled. It must be activated by homogenization or agitation before it produces rancidity. Amount present depends on many factors, such as type of feed, etc.

Esterase - 3 types

All three are active in degradation.

Alkaline - Phosphatase is always present in milk and is destroyed by pasteurization, hence is used an an index to the effectiveness of pasteurization.

Acid phosphatase is found in both cream and skim milk. It is unstable to sunlight and ultra violet light, but is heat resistant.

Xanthine Oxidase is the name used to represent several oxidases found in milk. They catalyze the addition of oxygen to a substance or the removal of hydrogen from it. This enzyme is known to be active up to the coagulation temperature of albumin in milk.

Lactoperoxidase

Peroxidase is an enzyme which catalyzes the transfer of oxygen peroxide. It is found in all milk. Pasteurization does not de-activate peroxidase.

Protease

Protease is an enzyme which catalyzed the hydrolysis of peptide linkages to produce smaller protein fragments. It is present in all milk. Protease is active in neutral or slightly alkaline medium and retarded in acid medium. It is inactivated by heat at temperatures of 75 to 80° C.

Amylase

Amylases catalyze the hydrolysis of starch to dextrin and maltose. Milk contains an alpha amylase which may be destroyed by heating milk at 55° C for 30 minutes. It contains the beta amylase which withstands 65° C for 30 minutes with no loss of activity.

Catalase

Catalase is an enzyme that catalyzes the decomposition of hydrogen peroxide. It is present in milk and the quantity varies with differenct breeds of cattle, with individual cows and with intervals between milking. The amount of catalase is increased in the fresh milk if the bacteria count is high. The present of increased catalase is used to detect infected udders. Heating milk for 30 minutes at 65° - 70° C destroys the enzyme.

Aldolase

Aldolase splits fructose 1,6 - de phosphate. It is found in all milk. It is destroyed by heating at 45° C for 20 minutes.

Carbonic Anhydrase

This enzyme catalyzes the hydration of carbon dioxide and also the reverse reaction. It has no known purpose in milk.

Salolase

Salolase is an enzyme which catalyzes the hydrolysis of a salicylate.

Exhibit A

Rhodonase

This enzyme catalyzes the conversion of cyanide to thiocyanate.

Lactase

This enzyme catalyzes the hydrolysis of lactose to glucose and galactose. Some investigators report this enzyme in milk, others do not. Its presence in milk is not established.

The above information was taken from Fundamentals of Dairy Chemistry by Byron H. Webb and Arnold H. Johnson, The Avi Publishing Company, Inc., 1965.

Milk secreted in its cleanest, freshest form would not yet be degraded by enzyme action. If consumed the enzymes would be de-activated by the stomach content which is normally a a Ph of about .9 to 1.5. The pasteurization of milk slows the degradation of milk.

It is felt that many of the milk enzymes are present by accident, because they appear in the blood.

Exhibit D

March 30, 1977

The State of Nevada Legislature
Carson City
Nevada

Attention: Mr. Tom Hickey, Chairman
Agriculture Committee

Dear Mr. Hickey and members of the Agriculture Committee:

It has been said over and over that any effort to try and legalize the sale of raw milk in Nevada is a hopeless attempt due to the fact that the Nevada dairies have so much control over elected officials. I refuse to believe that such is the case. I certainly believe that all of you will honestly evaluate the information presented to you regarding this issue with an open mind.

If I were to ask each of you to endorse a bill which would legalize the sale of a product that could make its consumer feel fantastic, happy, self-confident and enthusiastic you might be interested. However, if I were to continue to explain that if the consumer purposely or accidentally ingested too much of this product, it would perhaps make him very sick, cause him to lose his memory, render him totally incapable of making proper decisions, perhaps cause him to die, or least of all give him a terrible hangover, you would all agree that your trusting constituents should not be subjected to such a terrible product. Well, you all know that such a product is freely available as long as one is over the age of 21.

Another product which can do as much for you is cigarettes. As soon as you are 18 years of age you may begin to smoke for pleasure or for lung cancer, heart disease or emphysema.

Millions of dollars are spent each year by consumers to remedy alcohol addiction, nicotine addiction and the diseases that result in their use. But there is one terrific aspect to all this...the consumer has a choice. He has the right to decide!

For those Nevadans who believe in proper nutrition such a choice is not available. When it comes to obtaining raw milk and raw milk products which are unquestionably more nutritious, one has four choices:
1) travel to California where raw milk is available in the stores
2) purchase and maintain properly zoned land for a cow or a goat
3) illegally purchase raw milk from a questionable source
4) buy no pasturized dairy products

I personally feel that it is unfair that I have less freedom of choice than the residents of California, Utah, Washington, Oregon, New York or Georgia (to name a few of the states which currently do allow the sale of raw milk).

Believing in the freedom of choice so long as that choice does not infringe upon the rights of others, I wish to make it clear that it is not the intent of those of us who are interested in purchasing raw

milk to insist that the local dairies produce such a product unless they are interested in doing so. I spoke with Tom Bahan, General Manager of Anderson Dairy in Reno. He said that his dairy would not be interested in producing a raw milk line due to the million dollar cost of having to buy a new herd for raw milk standards. He also stated that he would have no objection to out-of-state raw milk being sold in Nevada.

I then phoned Barry Brooks, President of Model Dairy and Old Home Milk. He too said that his dairies would not be interested in producing raw milk for sale. He stated that he would have no objection to raw milk being sold to Nevadans from out of state sources as long as it was from a reputable dairy such as Alta Dena. He further stated that since clean raw milk has such a low bacteria count that it would have the same shelf life as pasturized milk or about 7 to 10 days. He said that the 30 hour limit now included in AB 501 is totally ridiculous for any dairy, local or out-of-state.

I contacted Mr. John Olsen of the Associated Nevada Dairymen an association of 35 Northern Nevada dairies. He agreed that the 30 hour delivery limit was nearly impossible for a Nevada dairy. He did not think there would be enough demand for raw milk to justify their producing it for sale but did not see any objection to raw milk coming to Nevada from a dairy that wishes to bring it here from out of state.

The only other objection to this bill would be the concern for the consumers' health. I am certain that the Health Department will convince you that you would surely die tomorrow if you drank a glass of raw milk today. Certainly California, Utah, Oregon, Washington and the other states that I mentioned previously are equally concerned with the health of their residents. To make certain, I telephoned the California Department of Food and Agriculture in Sacramento and asked them whether or not there had been any health problems with the sale of raw milk in their state. The information they have should alleviate any of your fears; 30 years ago there was one recorded case of brucellosis which was traced to a particular raw milk source. In 1957-1959 there were several cases of salmonella dublin contracted by people who drank raw milk from an identified source. When I inquired as to whether or not anyone died from these diseases, I was told that several of those people did die, but they also had other diseases at the time and their deaths could not be labeled as a direct result of drinking raw milk.

Let's assume that in California during the past 40 years as many as a dozen deaths from drinking raw milk from unsanitary or diseased cows have occurred. How does that figure compare to the number of deaths caused by alcohol related accidents or from deaths caused from lung cancer or emphysema during just this past year!?

To conclude my request that you pass A.B. 501 with the necessary amendments in order to make it workable, I submit the two attached letters from Dr. Zimmet and Dr. Bennett, both medical doctors located in Sparks, Nevada.

Thank you for your time and consideration.

Sincerely,

Marilyn Rusk

Marilyn Rusk

1338 Jones St.
Reno, Nevada 89503
323-3477

EXHIBIT D

1015 Spanish Springs Rd.

SIDNEY ZIMMET, M. D.
K. S. BENNETT, M. D.
Telephone (702) 359-3466

Sparks, Nevada 89431

February 27, 1977

The State of Nevada Legislature
Carson City
Nevada

Dear Sirs,

I am writing this letter endorsing legislation supporting certified raw milk in Nevada.

There is no question that from a medical standpoint, certified raw milk offers much greater health advantages over pasteurized milk for the following reasons:

1) There is no boiling process and thus specific enzymes and nutrients are not destroyed as with pasteurization.

2) Sick herds of cows are no longer permitted. The cows must be healthy to pass certification of their milk. In pasteurization we are depending on the heat process to destroy bacteria in the milk and thus care little for the state of the milk prior to the treatment.

3) It will stop the numerous people who drink raw uncertified milk in their attempt to have what they know is healthier for them. This is a dangerous practice to drink milk that has not been certified.

Besides the above scientific reasons for allowing raw certified milk in this state, there is also the basic reason of personal freedom again. To allow people to drink alcohol freely and yet not allow people to drink healthy pure milk makes very little sense.

Raw certified milk is 100% safe and will allow children to live a much more healthy and productive life. Certainly this is the prerogative of any family to so decide.

Sincerely,

Sidney Zimmet, MD

EXHIBIT D

1015 Spanish Springs Rd.

SIDNEY ZIMMET, M. D.
K. S. BENNETT, M. D.
Telephone (702) 359-3466

Sparks, Nevada 89431

February 27, 1977

The State of Nevada Legislature
Carson City
Nevada

Dear Sirs,

As a physician, I am in favor of allowing certified raw milk in Nevada. As a mother who drank nothing else during my pregnancy in California, it helped me to give birth to an exceptionally healthy child, who we still call "Tiger" to this day.

I have put many such mothers on certified raw milk and have compared them with those who only drank pasteurized milk. Scientifically, the results were astounding. Needless to say, those that drank the pasteurized milk were not even close to the same health range as the mothers on certified raw milk. This was in regard to state of pregnancy, lactation results, and above all, the health of their children as well as their own.

If I could buy such in the state I would do so immediately and would certainly advise all my patients to do the same.

Sincerely,

K. S. Bennett M.D.

Katharine S. Bennett, MD

Jennifer Hind

Gentlemen, I would like to submit with my testimony a petition of 932 names from Carson City.

I'm sure your first question on this issue is "Why?" Why are Nevandans unhappy with pasteurized milk and its products--why do we want raw milk?

Of course the nutritional values of raw milk are far superior to that of pasteurized, and many doctors and nutritionists agree that pasteurized milk may even be harmful to your health.

Here is a brief outline on exactly what happens in the pasteurization process:

(1) Enzymes are killed which are needed for proper assimilation.

(2) Anti-stiffness factors are destroyed.

(3) Vitamin A - destroyed
Vitamin B complex - 38% destroyed
Vitamin C - destroyed (infants fed pasteurized milk will develop scurvy)
Anti-neuritic vitamin - destroyed
D, E, K - not altered

(4) Calcium - very much diminished

(5) Fat content is harmed during pasteurization

(6) Protein - in raw milk is complete and contains all 22 amino acids

Pasteurization damages lysine and other amino acids, decreasing the absorbability and assimilation of protein.

Dr. Annand has advanced the theory that the heated protein of pasteurized milk is directly related to heart disease.

Another, Dr. Kurt Oster, has brought forth evidence that the homogenization of milk is directly related to arteriosclerosis.

Statistics also favor raw milk:

Under test conditions at Auchincruive Agriculture College, 16 calves were divided into two groups. For three months, one group was fed raw milk and the other group fed pasteurized milk.

All raw milk calves completed the trial in excellent condition.

The pasteurized group were all either ailing or dead--two died before the end of the first month.

Further testing was made by a Dr. McDonald, Medical Officer to Dr. Barnado's Homes for Boys.

750 boys were given raw milk along with their regular diets. Another 750 boys were given pasteurized milk with their regular diets.

This was done over a 5-year period. At the end of this time, the pasteurized milk group had 14 cases of tuberculosis. In the raw milk group, only one case of T.B. occurred.

This test report appeared in the British Medical Journal and was conveniently forgotten. If the figures had pointed in the other direction, we would still be having weekly reminders.

I could cite case after case of raw milk's superiority, but I feel I have made my point on the nutritional aspects.

The next question should be, are there proper safeguards on the production of certified raw milk? Is it safe?

Certainly, raw milk coming from a backyard cow or goat, if not handled under sanitary conditions for the animal, the barn or the milker himself, might lead to possible infection for those who drink such milk. However, certified raw milk is produced under the most rigid, sanitary conditions.

Animals, housing and milkers are supervised so thoroughly that the milk is endorsed and prescribed by physicians throughout the country. The health record for this milk is so enviable that it is the only milk endorsed by many nutritionists. This is due to its higher nutritional content as well as its excellent sanitary record.

Uncertified raw milk may be purchased from Reno dairies, if you sign that it is for pet food. But after the head of a Reno Dairy admitted that to produce raw milk he would have to replace his whole heard, I wouldn't want to subject my cat or dog to possible contamination--much less my family (nor should I have to).

We want only the legalization of certified raw milk which is tested daily by qualified lab personnel.

There is a list of health and sanitation requirements on your desk.

Raw milk is legal in 15 or more states, most of which surround Nevada. California, Oregon, Washington, Utah, New York, Georgia--to name a few--are all raw milk states. This doesn't mean that all citizens drink raw milk, but those who choose to have the freedom to do so, and certainly they haven't been overcome by all of the epidemics which we have been told shall befall us if we dare drink this liquid.

Would these states permit the sale of certified raw milk if it was indeed a health hazard? Of course not!

The Food and Agriculture Department of California said they have had no problems at all--what problems that had arisen were 20-30 years ago and were very isolated incidents.

There are certainly more problems at alcohol rehabilitation centers and hospitals where people, literally in epidemic proportions, are suffering and dying every day. Not only are tobacco, alcohol and many drugs perfectly legal, but they are practically crammed down our throats by the advertising media.

To be objective on this issue, we must stand back and look at the total picture.

Another question: How will Nevada's dairies be affected?

The dairies of other states have not been adversely affected. I see no reason for Nevada's dairies to be any different.

In fact, if the dairymen thought it would be a threat, they would be here to oppose it.

I see only positive aspects in legalizing certified raw milk: It could possible open up a new industry for Nevada; and it will give Nevadans freedom of choice in health matters. This is the freedom to choose the type of food and drink they wish to consume--a freedom which no governmental agency should interferewith.

Those who want pasteurized milk are certainly entitled to buy it as always. Now those who want certified raw milk should be able to do the same.

The law-abiding people of this state should not have to be considered criminals and subject to fine under an existing, archaic law for buying one of nature's finest accomplishments--pure, unadulterated <u>certified</u> raw milk.

The growing numbers of those interested in the health of their family and themselves should have freedom of choice in matters of health.

Please consider our argument carefully. Now that we have decriminalized our vices, let's decriminalize nature.

Exhibit D

A FRESH LOOK AT MILK

by Francis M. Pottenger, Jr., M.D.

There are a number of vital factors in fresh milk not generally known, in addition to its content of known nutrients

A philanthropist mused. "I must find out why the bones of my high producing Jerseys get soft, why they develop arthritis and have to be slaughtered." He was a man of action so he sought scientific help to answer the problem. At the first Annual Science Conference to be held at his farm in 1933, the preliminary report was made. This group of scientific men, primarily ecologists of varying disciplines, believed that the finest bottle of milk could only be produced through a thorough understanding of the biological cycle of healthy soil, plant, and animal with judicious return to the soil of the elements removed. It was with that concept he attempted to provide a milk product of the highest quality which, in turn, would take its place in the optimum diet of man. The goal is so aptly expressed by him in the archives of the scientific work of the farm.

"The driving force behind the efforts at the farm has been the thought to accomplish something for humanity."

The men who, under the guidance of Erf, set forth to produce the environment necessary to raise the finest of cattle which could give milk that would be most adequate for man were imbued with the idea that to accomplish this end the soil must be living and complete in all of its constituents to produce the finest pastures, corn, sprouts, and other feeds. To supply any deficiency the addition of minerals and conservation of vitamins for these animals must in turn be optimum if the cow was to reach her maximum physiological perfection.

Search for Vital Factors in Fodder

They set about to grow the finest fodder from a biological standpoint. To test their product at each step they fed the resulting milks to laboratory animals. They sought ways and means of preserving the optimum amount of the grass juice factor and the other vital elements in their feeds. Their experiments ran the gamut of the addition of chemicals, of freezing, drying, and of curing, in order to find the methods of treating the hays and other feeds in order to preserve the maximum amount of vital food elements. During the winter months, in particular, when pastures were not available, they sprouted corn to provide the factors of freshness, vitamins, and enzymes for the cattle. They studied the effects on the cows themselves as well as upon the milk which they gave. When the rat was fed the various milks, it showed how the tooth developed normally or abnormally depending upon the feed of the cattle. The experimentors added the use of the ultraviolet lamp to irradiate the cattle in order to give them a greater amount of the short rays. Likewise, they irradiated the milk, testing each step as they went. They thought in terms of how to make the animals most contented and employed the radio, the exercising wheels for the bulls and other innovations, all with the one purpose in view. They placed small amounts of nitrogen

Exhibit D

and carbon dioxide in the milking system to prevent oxidation. Sanitation was always at the top of the list and bacteriological studies were continually made to assure the purity of the milk. They developed the milking parlor where the public could see the process. The greatest of care was taken by the herdsmen, and young men from throughout our land came to learn of the advances in animal husbandry practices at the farm. Scientific experiments to find the important factors within the feed and milk were conducted in the laboratories of the investigators. The quest of quality was ever foremost in their minds.

High Standards Abandoned

The work of these men is recorded in nine volumes.[1] The most prophetic portion of all the work and the summation of its importance is found in Part II of Edition II, "Feeding Dairy Cows With Special Reference to the Green of the Grass," by Erf, 1937, which expressed forebodings of the problems confronting the milk industry today. During the 24 years since this was written a great change has taken place in the American public and its philosophy, and a new social order has arisen in which QUALITY HAS GIVEN AWAY TO QUANTITY. Even those in high places spend their time trying to explain that one bottle of milk is just as good as another, that the meat from one steer, although it may taste a little differently has no difference in food value; that the quantity, not quality, is the important thing. Following the predictions of Erf, when the health of the cattle fails, the nutritional factors of milk will decline and partly metabolized food nutrients will produce sensitizations not only in the cow but in those who use the milk. His prophecy of the production controls and practices predicted the proscription in some medical-dental quarters. Among these attitudes are the following:

1. Milk and milk products increase blood cholesterol and cause atherosclerosis or hardening of the arteries.
2. Milk produces pyorrhea.
3. Milk will cause the calcium to leave bones, bringing about osteoporosis and arthritis.
4. Milk causes obesity.
5. Milk causes abnormal calcium deposits.
6. The use of milk after weaning is abnormal.
7. Cow's milk is not a fit food for human infants.
8. Milk causes allergies.

Cholesterol. That milk causes a problem of cholesterol is largely based on the premise that the ingestion of cholesterol and deposit of cholesterol are the same. The biochemist using tracer elements has been able to show the fallacy that the ingestion of cholesterol will elevate cholesterol in the body. Extensive use of quality raw milk, cream, and eggs, over years of time with tuberculous patients failed to produce hypercholesterolemia and atheroma.

2. and 3. **Pyorrhea and Arthritis.** Experiments initiated at the farm showed that pasteurized milk produces pyorrhea in the cat and imperfect development of the rat incisors. In a similar manner poor quality and/or heat treated milk caused osteoporosis and certain types of arthritis in the cat and rat; likewise, inadequate feeds caused arthritis in the cow.

4. **Milk Causes Obesity.** Only the excessive use of milk may cause obesity.

5. **Milk causes abnormal calcium deposits.** Though not carried on at the farm, the work of Wulzen[2] and coworkers made a very significant contribution to our knowledge of the destruction of the anti-stiffness factor present in unheated milk and cream. The loss of this factor produces abnormal deposition of calcium in many organs and parts of the body. Her series of articles explains abnormal calcification from suboptimal milks.

6. **Weaning.** Weaning is largely an academic question inasmuch as milk drinking and the use of milk products by adults is a very common practice throughout the world. Certain primitive people have continued to nurse, especially the male infant, as long as 3-5 years.

7. **Cow's milk is not a fit food for infants.** That the formula is better than human milk or cow's milk is based on misconception that milk is only fat, protein, carbohydrate, vitamin and mineral. It does not take into consideration other factors that are present both in breast milk and cow's milk. The use of entirely synthetic milks has recently come to the fore inasmuch as such combinations can be manufactured more cheaply and apparently are very stable. Some infants are unable to digest cow's milk. They are not just allergic but actually do not have the digestive enzymes to handle milk. Many (but not all) such infants properly treated will be able to drink milk if the proper enzymes are added to the formula.

8. **Allergies.** There are those who have become sensitized to subquality milks; some can never be desensitized. Therefore, milk should not be a part of the diet of these people; and because of the almost universal use of milk some individuals are seriously handicapped in their normal social behavior. This group of people constitutes a rather large segment of adult population. Many victims are not aware of their sensitivity. When under medical care until desensitized, this group frequently ceases to be milk consumers.

The use of fluid milk is on the decline both in total quantity and per capita usage. If the medical-dental restrictions of the use of milk now recognized are to increase, the effect on a large portion of the American farming community can be disastrous involving other industries as well.

What Have We Done to Milk?

What is wrong with cow's milk? Is it possible that a food that has nutured man since the earliest agrarian times from one of, if not the first, domesticated beasts, has suddenly become harmful to him? Is our fear of milk, and I refer primarily to cow's milk, a psychopathic whim on the part of a great segment of the American society, or is it real? Is it something we have done to the cow, her flesh and milk, that is reflecting unfavorably on us, her consumer? Erf answered these questions.

At the annual conferences such expressions as "Milk can only be as health giving as the health of the cow that produced it." "Trace elements each contain important catalyzing effects on other foods and elements." "Improperly metabolized feeds interfere with the health of both the cow and the consumer." "An allergic cow can produce allergic humans."

Good milk produced by healthy animals was injured even by simple aeration, not only the process of pasteurization. To establish this point, Erf reports the following experiment: Milk drawn into a bucket from one-half of the udder of a group of cows birthing twin calves was fed to one of her calves, while other calves were allowed to nurse on the other one-half of the udder of each dam. The second group was superior physically to those fed from the bucket.

Those who were stimulated by the efforts of this farm with their early experiments showed why ordinary milk produced allergy while good milk did

Exhibit D

not. They showed what happened to the teeth. They showed how and why osteoporosis resulted from improper bone metabolism. Kitchin of Ohio State University showed the differences in the enamel and dentine of rats, and Lyman, the difference in the bone ash of the femur and the dental structures of the rats fed milk from properly and improperly fed cattle. Pottenger also showed the difference in calcium and phosphorus in rats and cats fed the raw, pasteurized, boiled and sweetened-condensed milk.

Grass Juice Factor

Throughout the history of the farm every effort was made to save the grass juice factor and at all the early conferences a discussion of this factor was an important part of the agenda. Peruse the volumes of the transactions of the scientific meeting at the farm to see the unfolding of the story. Though Wulzen and van Wagtendonk, isolated the antistiffness factor as such from raw cream and plant juices, the workers here were close on the trail.

Pasteurization Harms Fats

Of the modern criticism of milk, only the cholesterol story was not answered. The answer was simple. A life time consumption of clean, fresh, raw milk from healthy cattle does not produce metabolic disease in man. Cholesterol is not the villain, but the villain is what man does to cattle. I can add a few medical observations. Dairy products fed in large amounts including raw cream and raw butter do not produce atheroma, do not raise the blood cholesterol, while the highest grade pasteurized produce does.

Unless the dairy industry is to awaken and again recognize the principle of Coit and the practices of Erf, it will give way to the chemist and engineer and forget that, so far, only God has made life. Like dogs and horses, the dairy cow will become the pet of the curious, to be preserved in zoos like the Texas Longhorn.

It is enlightening to see the trend of thought as expressed in the scientific report from the farm. During the earlier editions the trend of thought was in full accord with the following expressions of health. The World Health Organization[3] defines health as follows: "The state of complete physical, mental and social well being and not merely the absence of disease and infirmity." As expressed by the National Research Council[4] in 1943, "This (nutrition) becomes distinctly significant if one recognizes that health has quantitative characteristics involving efficiency reserves and the capacity not only to avoid diseases but to attain maximum inherited potentialities."

Function of Diet

My own definition of optimal diet is that which would provide man with the nutrients essential to regenerate body cells; to enable him to mature regularly as determined by normal osseous, physical and mental characteristics; to resist diseases; to reproduce his kind in homogeneity, and to enable him to produce a livelihood for himself and his family.

Under the tutelage of Erf the stress was toward optimum health. So it was that the well-being of the cows was of real consideration. How good is a cow? Is her brisket thin? Is her thyroid small? Does her fur have a sheen? How does the rap of the fist over her rump resound? Are her ribs hard after the lactation period so they cannot be indented with the examiner's fingers? Are her eyes clean and clear? Are her legs trim? Is she calm and contented? These were points that our mentor showed us and I can attest how aptly they apply to the human being.

Since the death of Erf, far more reliance on the cure rather than prevention seems to be stressed.

Some Diseases Irreversible

Though the finest raw milk may greatly improve the nutrition of an individual, it alone or in combination with the best food obtainable cannot always undo damage once done. Nothing was more clearly set forth than in experiments reported at these science conferences. In answer to the dentists and orthopedic physicians that milk causes demineralization of bones, there is no question that pasteurized milk and milk from poorly fed cattle produces osteoporosis in the experimental animal. With biologically inadequate milk the scientists were able to produce peridontosis, commonly known as pyorrhea, with loss of supporting bone and teeth. Once bone is destroyed by poor metabolism and secondary infection, it may repair with scar, but it is no longer the original bone; and a tooth lost can only be artificially replaced. Thus one can readily see that optimum nutrition including the finest milk will not restore injured tissue to optimum physiologic function.

In a similar manner once allergy has been established by the use of inferior milk products, the finest of food may not be able to overcome that allergy at once, even though the new dietary intake of the individual consists of the finest foods; and it may require months of rehabilitation before the individual ceases, if ever, to show the reaction formerly caused by the product. However, there are those who can consume cheese and not fluid-milk. There are those whom butter does not bother and those who cannot take the protein element.

The rare sensitivity is to the lactose, the usual sensitivity is to the protein, while occasionally, the fatty acids may be the offender.

Fear of milk-borne infection still pervades the professional thought of the day in spite of the advent of the wonder drugs. The basic fundamental principle of the World Health Organization that man should be able to resist his environment is more of an utopian theory than a practice. Then, too, the great fear of animals and the diseases that they may transmit to man over-shadows all other thinking. The point of view that animals that produce food for man should be healthy, free from disease and, likewise, capable of maintaining themselves in optimum health in their imposed environment which in turn should be designed to provide optimum health for man, is lost. Rather than strive for such an utopia, the sanitarian and physician reply, "Man is not capable of carrying out such a concept," and fear takes over. How has man existed these thousands of years? The reply, "He was hardier and only the most fit survived." In our fear must we allow to go unchallenged our reliance on practices of production that may render a most valuable food dangerous to the consumer, and in turn may destroy an important industry?

Synthetic Milk

Must we allow our technologists to tell us in the words of Firman Bear speaking about soils at a recent meeting of the Friends of the Land[5], "Tell us what you want and we will provide it." Synthetic milk may taste like milk, look like milk and serve as a partial food. Reconstituted milk and cream may look like the product, but they do not serve the same biological purpose. Artificial ice cream looks and tastes like the real material to some, and sometimes has more or less caloric value. A large distributor of milk once said to me, "I would not sell a quart of milk if I did not have to for I can make milk for less than two cents a quart." But before we accept the food technologists' product, let us make sure that it has been proven just as good. Let us make sure that he does not use increase in weight as his criterion of excellence of growth, but that he uses homogeneity of offspring and excellence of physical and biological

performance as the criteria. These studies cannot be run in 30 days or even one year. It will require years before a synthetic product can be proved. The technologist says this will block progress. No, it will not block progress, it might save a large segment of the human race from much illness and unhappiness.

Resume. Anyone who will take the time to read the nine volumes of the history of the farm will find that the criticisms of the physicians of today who feel that milk is a food interfering with good human nutrition have been answered therein. The greater part of this answer is given in Erf's general discussion in the second half of Volume Two. Here he discusses the importance of the health of the cows with reference to the quality of milk given; the effect of incompletely digested food stuffs by the cow on the consumer; the effect of the destruction of the producer distributor; the effect of law and bureau on the quality of milk. He quotes the early work of Lyman and Kitchin on the study of the composition of the bones and teeth and why the teeth break down. Some of these were empirical observations and today we tend to throw such observations overboard as being unscientific.

The dairy farmer, if he wants to survive, would do well to return to the precepts of Coit and Erf, and talk about QUALITY MILK NOT JUST PRICE. He must be able to show that his practices produce a product that will raise the finest of animals. That the anti-stiffness factor, the proper minerals, fats, proteins, enzymes, and antibodies are all present in the amount necessary to raise the finest of boys and girls. This requires cleanliness and devotion to the cause of health, not the eight hour day nor the dollar alone.

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Exhibit E

WHICH DO YOU CHOOSE?

RAW CERTIFIED MILK

A. Cleanliness Regulations

1. Tested daily at an independent laboratory for the Certified Milk Commission.

   a) Bacteria count for standard plate count: * 10,000 per ml** maximum for Certified Milk or Cream.

   b) Coliform*** bacteria count may not exceed 10 per ml.

2. Streptococci test once a month.

3. Pasteurization disintegrates milk, while boiling reduces it to a useless, putrefiable mess that is tolerated by the liver with great difficulty. We can almost hear that long suffering gland cry "Oh, no!" when confronted with a shower of hot milk.

   Why do many babies apparently thrive on unnatural baby food? Because their liver is strong and their adrenals adequate; but later, from the ages of three to six, we get the chronic sniffles, frequent colds, tonsillitis and croups that are found so regularly in the kindergarten and early school years. (3)

   Those of Dr. Pottenger's cats who were fed a diet consisting solely of pasteurized milk died after three months, while the control cats, fed raw milk, remained healthy. Calves seldom live over two months on the same diet. Despite the

PASTEURIZED MILK

A. Cleanliness, Calif. State & County Law

1. Tested once a month by the Health Dept.

   a) Bacteria count for the standard plate count: 50,000 per ml maximum before pasteurization; 15,000 per ml maximum after pasteurization for milk, 25,000 per ml maximum for cream.

   b) May not exceed 750 Coliform per ml in raw milk before pasteurization, taken at farm pick-up.

   Coliform bacteria count may not exceed 10 per ml after pasteurization.

2. No regulation requires test for Streptococci.

3. Pasteurized milk may contain a large quantity of bacteria, causing putrefaction, and if it contains diseased and dead bacteria, it is much worse than if the bacteria were alive. For example, serum vaccines and anti-toxins are the result of dead bacteria. They are very potent and must be used with extreme care. (1)

   "Unclean milk cannot be made clean by pasterization. In fact, pasteurization increases the danger of infection of the intestine with Welch's bacillus and other putrefactive organisms by destroying the lactic acid-forming organisms which when present hinder the growth and development of the putrefactive flora. Destruction of these germs gives the putrefactive bacteria opportunity for unlifited growth and development under favorable conditions whether within or without the body." (2)

   "It is well known that the mildest of all treated milks for bottle feeding to infants is the one that has been subjected to the pasteurization process. Still, the infant's secretions after ingestion of pasteurized milk become odorous and irritating. Con-

reverence for Pasteur, enlightened pediatricians know that pasteurization of cows' milk for infant feeding is a definitely harmful process. The large dairy interests use pasteurization to insure preservation, to keep milk from souring quickly. Very little milk would ever reach the large congested cities if it was not pasteurized. But cleanly handled milk need not be pasteurized, as is proved by the excellent quality and sweetness of raw certified milk. When available, it should always be used. (3)

stipation often results. If the baby's urine is examined, the waste products of protein putrefaction are found. In my own practice of over fifty years, I have found this repeatedly true."

"That pasteurization of milk can result in a deterioration fatal to animals was shown by Dr. Pottenger in his cat experiments. John Thomason of Edinburgh reports another test with twin calves, one suckled and the other fed on pasteurized milk. The first was healthy but the second died within sixty days. This experiment was repeated many times." (3)

B. Herd tests in Los Angeles County, Calif.

1. All dairy cows in a certified milking herd are vaccinated for brucellosis between the ages of 2-6 months.
2. Each certified cow is blood tested for brucellosis before entering the milking herd and receives a blood test at least once a year; thereafter reactors are removed.
3. All raw certified milk is ring tested at least 4 times a year for brucella. If the ring test is positive, then the entire dairy herd is blood tested for brucellosis and any positive reactors are removed.
4. TB skin test is performed annually on all cows in the certified milking herd by a state veterinarian. If reactors were found they would be removed from the certified herd. All certified milk dairy herds are free and are maintained free of TB because of constant vigilance and testing.
5. Herd sanitarian from the County Medical Milk Commission visits the dairy weekly or more often. A health inspector from the county visits the dairy at least monthly.

B. Herd tests in Los Angeles County, Calif.

1. All dairy cows are vaccinated for bru cellosis between the ages of 2-6 months. All dairy cattle moving within the state must bear evidence of official calfhood vaccination.
2. All dairy cattle must be blood tested for brucellosis if imported into California reactors are removed.
3. The milk from all dairy herds is ring tested at least 4 times a year for brucella. If the ring test is positive then the entire dairy herd is blood tested for brucellosis and any positive reactors are removed.
4. TB skin test is performed on all cows by a state veterinarian at intervals longer than one year. If reactors are found, additional tests may be required. Reactor cows are removed.
5. Health inspector visits dairy monthly.

C. Employee Health Examinations

1. Once a month examination of each employee at certified farm. All new employees have a complete physical examination and tests when starting to work on a certified farm.
2. Once a month throat culture and examination for streptococcus.
3. During the year other tests are made at regular intervals. Another step to insure disease-free milk.

C. Employee Health Examinations

1. Examination required at time of employment.
2. None required.
3. None required.

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4. Stool specimen is required from each employee bi-annually.

5. Chest x-ray or skin test for TB required annually.

D. Nutritional Values

1. Enzymes, catalase, peroxidase and phosphatase are present.

   a) Phosphatase is needed to split and assimilate the mineral salts in foods that are in the form of phytates. (4)

   b) Wulzen Factor (anti stiffness) available.

   Wulzen and Bahrs reported that guinea pigs fed raw whole milk grew excellently and an autopsy showed no abnormality of any kind. Guinea pigs fed pasteurized milk rations did not grow as well and developed a definite syndrome, the first sign of which was wrist stiffness. (5)

   c) X Factor in tissue repair available. (6)

2. Protein — 100% metabolically available; all 22 amino acids, including the 8 that are essential, for the complete metabolism and function of protein.

A very interesting observation for a period over six months was carried out by M. Ludd, H. W. Ewarts and L. W. Franks, in New York on infant feeding. The infants were divided into four groups. The first was fed on pasteurized milk alone; the second on pasteurized milk plus orange juice and the third on pasteurized milk plus orange juice and cod liver oil and the fourth certified milk, which was the only raw milk obtainable in New York. The percentage in weights of those different groups showed that those fed on pasteurized milk alone gained 1.7% weight; with pasteurized milk plus orange juice and cod liver oil the gain was 9.5%, while those fed on raw

4. None required.

5. None required.

D. Nutritional Values

1. Pasteurization destroys the enzyme phosphatase. (8)

   a) Absence of phosphatase indicate that milk has been pasteurized.

   b) Wulzen Factor destroyed (anti-stiffness nutrition factor lost). (5)

   c) No evidence of alternation by pasteurization.

2. Digestibility reduced by 4%, biological value reduced by 17%. From the digestibility and metabolic data it is concluded that the heat damage to lysine and possibly to histidine and perhaps other amino acids destroys the identity of these amino acids and partly decreases the absorbability of their nitrogen. (7)
"Lactalbumin and Lactoglobulin are both coagulable proteins and will coagulate when isolated from milk by suitable separation methods. As present in milk, they do not coagulate on heating because the pH is not favorable, but they are undoubtedly denatured by heat." (8)

"It is worth repeating again and again that the more protein is heated or cooked. the more its colloid form is changed. Hydrophilic colloids are converted into hydrophobic colloids. Structurally, the proteins differ from the sugars, starches and fats in that their composition contains nitrogen, sulphur, phosphorus, iron and many other trace elements. The sugars, starches, and fats (carbohydrates and hydrocarbons) contain carbon, hydrogen and oxygen, al[illegible] which are not materially changed or [illegible]ged by heating. But the heating does alter the proteins, which then easily putrefy in the intestines and give rise to grave disturbances. This is the factor which leads to

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milk gained 14% in weight. (2)

disease in both childhood and the later years." (3)

"The cats fed pasteurized milk as their principal item of diet, and raw meat as a partial diet, showed lessened reproductive efficiency in the females and some skeletal changes, while the kittens presented deficiencies in the development. Cats fed evaported milk showed even more damage. However, the most marked deficiencies occurred in the sweetened condensed milk-fed cats. We believe that the excessive carbohydrate in this milk was responsible for much of this heavy damage." (9)

3. Vitamins—all 100% available.

3. Vitamins

a) Vitamin A—fat soluble

a) Vitamin A — destroyed

b) Vitamin D—fat soluble

b) Not altered

c) Vitamin E—fat soluble

c) Not altered

d) Vitamin K—fat soluble

d) Not altered

e) Vitamin B—complex

e) Vitamin B complex — pasteurization of milk destroys about 38% of the vitamin B complex. (4)

Vitamin Bw — Biotin
Vitamin B — Choline
Vitamin Bc — Folic Acid
Vitamin B1 — Thiamine
Vitamin B2 — Inositol
Vitamin B2 — Nicotinic Acid
Vitamin B2 — Riboflavin
Vitamin B2 — Pantothenic Acid
Vitamin B3 — Niacin
Vitamin B6 — Pyridoxine
Vitamin B12 — Cyanocobalamin

f) Vitamin C

f) Vitamin C is weakened or destroyed by pasteurization. Infants fed pasteurized milk exclusively will develop scurvy.

g) Antineuritic vitamin

g) Testing of pasteurized milk indicates some destruction of this vitamin. (13)

4. Minerals — all 100% metabolically available.

4. "The effect of pasteurization on the calcium salt (lime) in milk has been studied by H. E. Mague and D. Harvey working in the Rewett Research Institute, Aberdeen, Scotland. They demonstrated that the calcium in milk is in two forms — a soluble one, and an insoluble one bound up in caseinogen. After pasteurization the total of soluble calcium is very much diminished. The loss of soluble calcium as regards infants and growing children must be a very important factor in growth and development, not only in the formation of bone and teeth, but also in the calcium con-

a) Major mineral components; calcium, chlorine, magnesium, phosphorous, potassium, sodium and sulphur.

b) Vital trace minerals, all 24 or more, 100% available.

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Raw milk contains approximately 1 gram of calcium to each 2 ounces of milk, and the calcium and raw milk are in a state that will be utilized by the body tissues. Upon this depends the health of children. Without the raw milk the child's resistance to disease is always very low, as there are no natural sources from which calcium is obtained in foods in quantities enough to supply the demand. Approximately all calcium taken into the body in foods which are prepared with the use of heat is devitalized and is in such a state that it cannot be utilized by the body tissues. This is shown to be true by those who are recognized as authorities, as quoted in "Physiology" written by Best and Taylor. A child requires 16 to 23 grams of calcium daily. Another suggests that in some instances much higher quantities are required. Authorities show that approximately 55% of calcium taken in foods prepared with heat is devitalized. They also state that possibly more diets are deficient in calcium than any other mineral element and more individuals are deficient in calcium than any other mineral element. This shows that there is a great need for calcium. This statement alone is enough to condemn the use of pasteurized milk. (1)

5. Carbohydrates — easily utilized in metabolism. Still associated naturally with elements (instable).

6. Fats — all 18 fatty acids metabolically available, both saturated and unsaturated.

tent of the blood, the importance of which is now being raised." (14)

"Harold F. Hawkins, D.D.S. of the University of Southern California, has this to add: 'Raw milk from healthy cows that have been suitably tested is of the highest biological value. Pasteurized milk is not so desirable as raw and greatly increases the difficulty of calcium assimilation as well as injuring vitamins and probably hormones. Pasteurization should not be used for food. Homogenized milk is usually pasteurized from 160 to 186 degrees F by the flash method. This type of milk is not suitable for a growing child or invalid as only about half the theoretical calcium is assimilated by the average child, according to our tests." (14)

5. Carbohydrates — no evidence of change by pasteurization.

6. Pasteurization harms the fat content of milk.

E. Possible Damage to the Health of Consumers from Drinking Pasteurized Milk

1. Dr. J. C. Annand has written a series of articles in which he has advanced the theory that the increase in the incidence of heart disease was proximately related to the onset of pasteurization of milk. Different population groups were studied in various parts of the world. His theory is that the heat process of pasteurization alters the protein found in milk and as a result heated protein is responsible for the large increase in the incidence of heart trouble in citizens of western civilization, during the course of the past generation. (16 to 22)

2. Dr. Kurt A. Oster has advanced the theory that homogenization of milk is proximately related to the atherosclerosis which is so prevalent to citizens in developed countries of the western world. The reduction in the size of the fat particles caused by homogenization permits them to be assimilated into the stomach lining in a manner that was not contemplated by nature. When these fat particles along with xanthine oxidase get into the bloodstream the human system sets up a defense mechanism which results in the scarring of arteries. (23)

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Exhibit F

THERE *IS* A DIFFERENCE

Between MAN'S and NATURE'S HANDIWORK whether it be in SOILS, FOODS, VITAMINS or FOOD SUPPLEMENTS; THE CHROMATOGRAMS SHOW THE DIFFERENCE

The past 75 years have given us autos, movies, electricity, radio, television, airliners, radar, guided missiles, jet propulsion, and interplanetary orbiting — more scientific progress than in the entire previous world's history. But, it is discouraging to realize that man has devoted so much of his creative talents to things outside himself and so little to 'KNOW THYSELF'.

The success of the vast technological advancements of the past 75 years has been made possible because man has followed NATURAL LAWS accurately in things OUTSIDE himself. Why doesn't he do likewise for the INNER man?

For 80 years man has stuck to the calorie theory, which compares his body to a furnace or chemical laboratory requiring oxygen, proteins, carbohydrates, hydrocarbons, and more recently vitamins and minerals. But, has this theory actually increased his physical or mental efficiency after 50 years of age? For example, statistics indicate a 60 year old man has only about 1.7 years more life expectancy now than 100 years ago. Yet, the "Healthy Hunzas", who know nothing about calories, proteins, starches, or vitamins, reportedly have no difficulty living from 90 to 120 years of age, maintaining in many instances perfect 20/20 vision at 100, still possessing physical stamina at 90 equivalent to ours at 40 or 50, according to Dr. Banik, who visited "Hunza" land. These healthy people live on Natural unrefined, unsweetened, unprocessed, unfragmented, and unpasteurized foods grown on healthy, live, organic soil.[1] But, in America today those eminent scientists who can produce for us televisions, radars, movies, build a sputnik that will orbit the moon, or replace the valves of a human heart with plastic ones, still seem to die at the same rate and age as the average layman.

Is it because man believes in *Abiogenesis*-"the theory of the production of living from *non*-living matter" instead of believing in *Biogenesis*-"the doctrine that living things are produced *only from living things?*" Is it because he believes in Natural Science for things OUTSIDE himself, but for the INNER MAN he thinks that *dead* refined foods, dead synthetic vitamins and dead[2] inert materials are as beneficial as live[3] NATURAL FOODS with their *live vitamins* and *organic* minerals, all organized by the sun, rain, water, minerals, and the soil's living bacteria. THERE IS A VAST DIFFERENCE and the chromatograms show it.

Orthodox Nutrition as taught in many schools, colleges, and direct to the public through some avenues of radio, TV, and the press, reflects a reliance on Abiogenesis because it depends on a chemical analysis to determine food values. But, it is fundamental that live organic Natural Foods must be killed (and thus rendered dead and inert) to be chemically analyzed. Hence, they may show up as chemically identical to a synthetic food or vitamin. But, the chromatogram SHOWS THE DIFFERENCE.

As a nation we are led to believe by some so-called scientific writers that we are one of the healthiest nations on earth, that we can efficaciously eat anything advertised and offered for sale. We are told by these writers that LIVE NATURAL FOODS are no better than fragmented, refined, processed or chemically treated foods.

Thus, we try to raise healthy sturdy children on pasteurized milk and are told that pasteurization of foods is one of the great boons to civilization. Yet, no farmer has ever been able to raise a calf well on pasteurized milk. A child will develop scurvy if fed only pasteurized milk, but will not if fed raw whole milk.[4] Dr. Pottenger's 10 year experiment on 900 cats showed that cats fed only cooked meats or pasteurized milk developed multiple degenerative diseases, becoming extinct with the third generation, while those fed raw meat or raw milk lived generation after generation in health, producing large healthy litters.[5] WHAT A DIFFERENCE.

All *live* Natural Foods have enzymes yet some so-called experts maintain that enzymes are unnecessary because the human body makes its own. The whole effect of mass production to feed a vast population is to destroy the enzymes in our foods, in an effort to insure that they will not spoil in transportation or storage. Hence, Orthodox Nutrition conveniently ignores these minute live particles in our foods. However, other experts have indicated the necessity of enzymes.[6] WHY not investigate THE DIFFERENCE for yourself?

We have been told by some so-called experts that synthetic Vitamins are as beneficial

as the Vitamins in Natural Foods. Some so-called experts even claim they are identical. Other authorities, such as A. J. Carlson[7] of Chicago, Dr. Baron Chow[8] of Johns Hopkins, Ed. Mellanby[9] of England, C. A. Elvehjem and W. A. Krehl of Wisconsin,[9] Agnes Fay Morgan of California[10] and an official publication of the U. S. Army[11] maintain that synthetic man-made vitamins can never take the place of the vitamins as found in Natural Foods. Our Food and Drug Administration at one time assented to this view.[12] Yes, THERE IS A DIFFERENCE and the chromatograms show it.

Many so-called experts still insist that INORGANIC minerals are as nutritionally effective as the ORGANIZED minerals Nature puts in our foods. If this is true then why can't we all be readily free of all mineral deficiency, because every mineral is available and very cheap in its inorganic form. However, new evidence indicates that both vitamins and trace minerals, to be beneficially effective, must be bound up in Enzyme systems.[13] Enzymes are found only in raw, fresh Natural Foods. THERE IS A DIFFERENCE as shown by the chromatograms.

Many scientific articles have set forth the deficiencies of white sugar, yet Orthodox Nutrition has failed to come out openly against it and in favor of old fashioned raw sugar or molasses. BUT THERE IS A DIFFERENCE. See for yourself.

Harvey W. Wiley, M.D., father of our Pure Food Laws, was strongly opposed to synthetic sugar made from corn starches, hydrochloric and other acids,† and known commercially as glucose or dextrose.[14] He predicted adverse effects on the pancreas unless it was banned. However, its backers were able to procure some so-called scientists who maintained these synthetic substitutes were just as good as honey because their chemical analysis was the same. Orthodox Nutrition thus accepts these products. But they are not natural and the chromatograms show it.

Nearly all agricultural colleges and agents now recommend using chemical fertilizers to increase yield. Neither they nor many so-called nutrition experts disclose that the quality of the food grown with chemical fertilizers can be inferior in quality to that grown with Natural methods used by most farmers prior to 1930. But, the chromatogram SHOWS THE DIFFERENCE, both in the soil and in foods grown thereon.

WHAT IS A "CHROMATOGRAM"

The Chromatogram has been used in urine analysis since 1944 but in 1953 Ehrenfried E. Pfeiffer M.D.,[15] internationally known soil expert perfected it for graphically demonstrating hidden differences in soils. He knew that frequently two soils might have almost *identical* chemical analysis but *differ* widely in biological values such as yield, quality of protein, and seed germination.* Its value rests upon the property of certain specially manufactured filter papers, through which individual fractions of a certain substance may be separated, then in turn be made visible by means of a reagent. The resulting picture allows interpretation through distinct difference in color, rings, spike like forms, etc. as related to qualitative and biological values. These interpretations can be made by anyone who studies them carefully working from a chromatogram of the well known live product to the one under interpretation.

Having perfected it for differentiating soils, Dr. Pfeiffer then found it worked equally well in differentiating values between two foods or two vitamins which might chemically analyze almost identical yet have widely different biological and qualitative values.

In Nature not only does every living thing have a purpose but its juice** displays a definite PATTERN in a chromatogram, whether it be a grain of wheat, a drop of milk, an apple, egg or blade of grass, the fresher the product the greater the biological activity and the more prominent the enzyme formations. But an inorganic mineral, chemical or synthetic vitamin show only varied colored rings but no definite pattern, for they are inert.

In this circular the reader will see chromatograms illustrating differences for SOILS, FOODS, and VITAMINS. Chemically treated soils or products grown thereon are contrasted with organically treated soils or products grown thereon. Some well known foods that have been refined, pasteurized, fragmented or synthesized are compared with corresponding products left as Nature made them. We illustrate the intrinsic biological difference between synthetic man-made vitamins with the inorganic minerals so frequently added and Natural Vitamins with their many synergists organized and balanced in Nature's Laboratory.

The Chromatograms show that Nature does SOMETHING that man cannot duplicate. Even when the chemical analysis is identical, that SOMETHING IS STILL THERE.

* reproductive value

** an extract is made

† used in the process

(Continued on Page 8)

CHROMATOGRAMS

Exhibit F

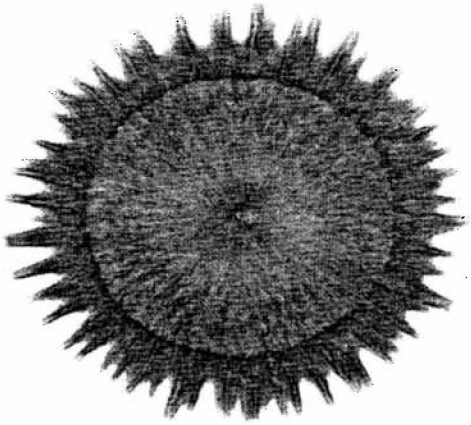
SOILS

LEFT SIDE

Inorganically (chemically) treated soils or produce grown thereon.

RIGHT SIDE

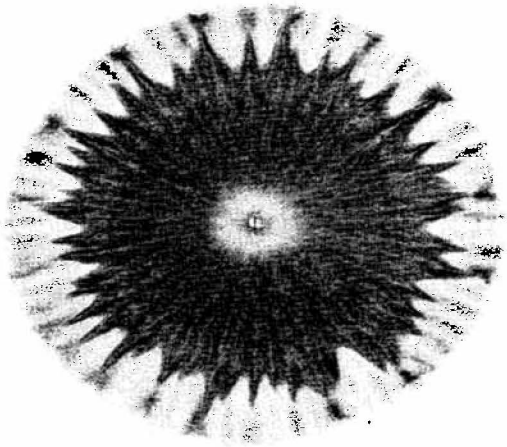
Organically (naturally) treated soils.



1a. A chemically treated soil.

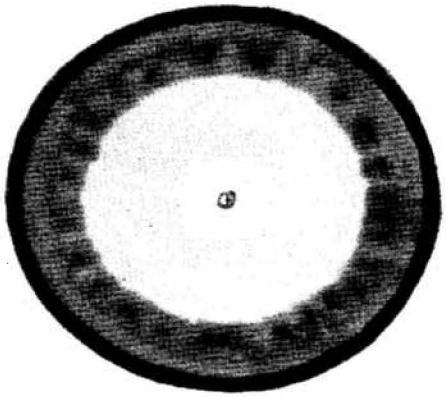
"Minerals and nitrates higher than 1b. — organic matter 1.7% but shows poor humus management."*

VS.



1b. A typical good organically treated soil.

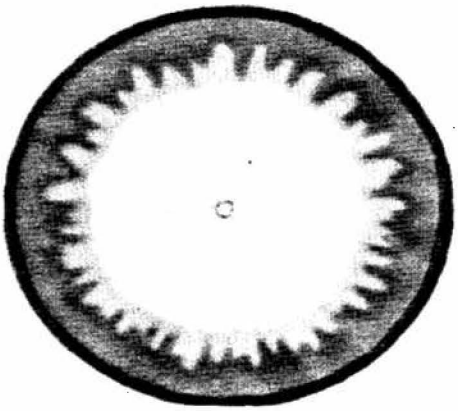
"Higher than 1a. in microlife — better in humus organic matter 2.8% — shows no deficiencies."*



2a. Corn-young green leaves grown on chemically treated soils.

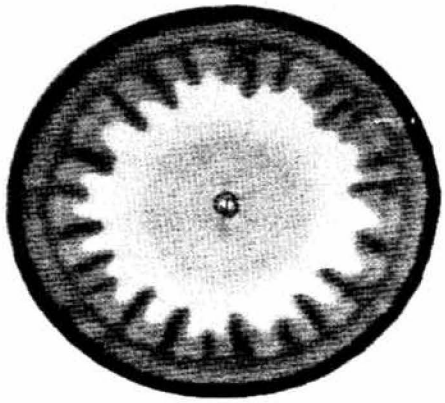
"Middle ring shows washed out faded pattern indicating less active enzymes compared with 2b."*

VS.



2b. Corn-young green leaves used in Greenlife and Springreen, grown on organically treated soil.

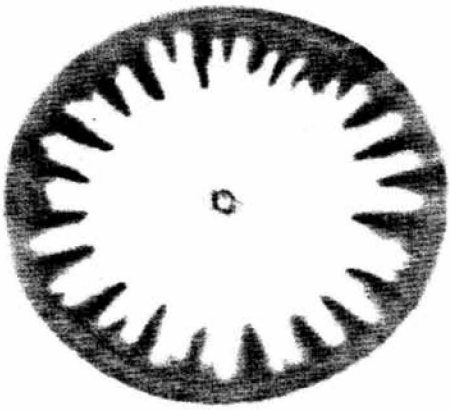
"The serrated (jagged) inner edge of middle ring is typical for enzymes & biological activity."*



3a. Oats-young green leaves grown on chemically treated soils.

"Shorter spikes & less serrated (jagged) border indicates less protein and enzyme activity."*

VS.



3b. Oats-young green leaves used in Greenlife and Springreen, grown on organically traeted soil.

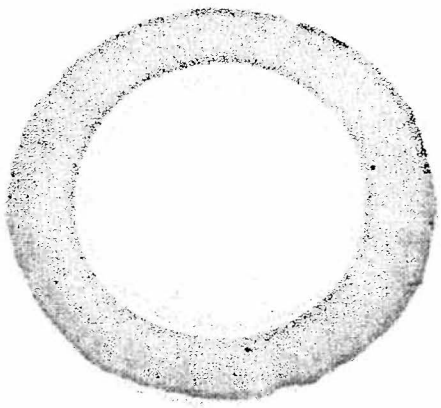
"Jagged border and strong spikes indicate stronger protein and enzyme activity."*

* see bottom of page 7

CHROMATOGRAMS

LEFT SIDE **FOODS** **RIGHT SIDE**

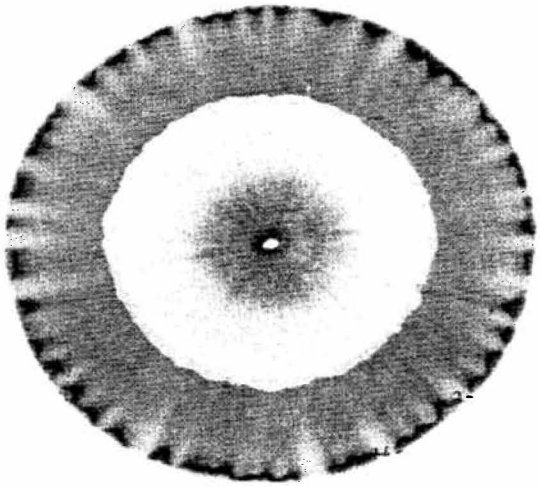
Refined, fragmented, heated or chemically treated. **Natural-unrefined, unfragmented and (mostly) raw.**



4a. White refined sugar.

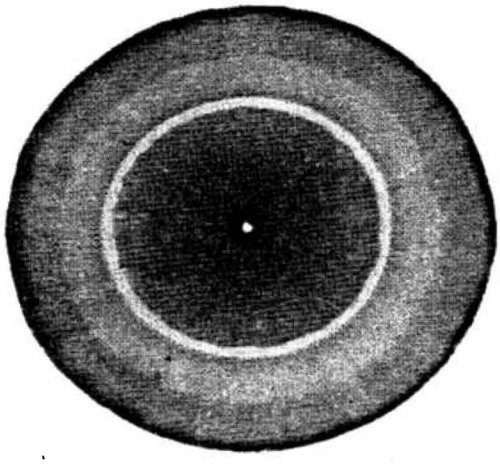
"Pure sugar but minus all intrinsic factors present in raw brown sugar 4b."*

VS.



4b. Raw brown sugar.

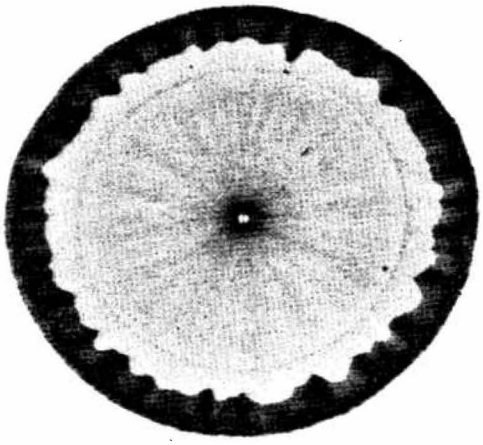
"Shows several intrinsic factors — serrated sawtooth outer zone indicates presence of enzymes."*



5a. Synthetic sugar - glucose (dextrose) mostly used in presweetened foods.

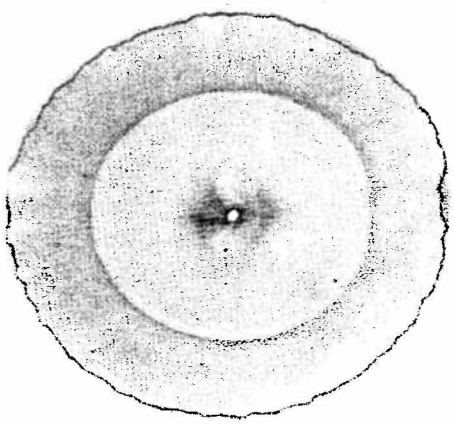
"Corn sugar chemically refined — brown color shows sugar reaction — yellow shows some other reaction."*

VS.



5b. Molasses-old fashioned.

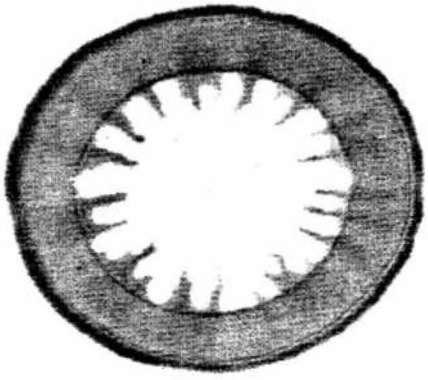
"More vitamins indicated by wider more undulating outer zone & slight radiating inner field."*



6a. White flour - bleached.

"Little is left of original quality of the wheat seeds."* Vitamin and enzyme formations lacking.

VS.



6b. Whole unbleached flour-organically grown.

"Contains intrinsic factors, vitamins & enzymes of the germ — spikes of inner circle indicate enzymes."*

* see bottom of page 7

Exhibit F

BIOGRAPHY
of
DR. EHRENFRIED E. PFEIFFER

Dr. Pfeiffer was director of the Biochemical Research Laboratory, Threefold Farm, Spring Valley, N.Y. and taught nutrition at the School of Dentistry, Fairleigh Dickinson University, Teaneck, N.J. His life interest was the study of growth in any form.

His academic study was done at Technical College, Stuttgart, Germany and the University of Basel in Switzerland, where he also did graduate work in chemistry and physical chemistry.

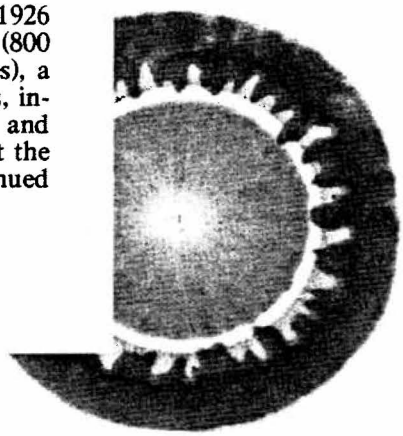
Pfeiffer was always interested in combining basic research with practical application and demonstrating his points of view by practicing them. Therefore, he not only operated a biochemical research laboratory (the first one in Switzerland) but, at the same time, became the director of the N.V. Cultuur Mij., Loverendale in Holland from 1926 to 1938, a company which operated several large farms (800 acres) and gradually built up greenhouses (2-1/2 acres), a truck garden (21 acres) and a food processing business, including a flour mill and bakery. Part of the buildings and all the greenhouses were destroyed during the war, but the buildings were built up again and the company continued to operate.

RIGHT SIDE

refined, unfragmented and (mostly) raw.

7b. Raw milk-whole.

edge & protrusions from edge to center indi- amins & minerals."*



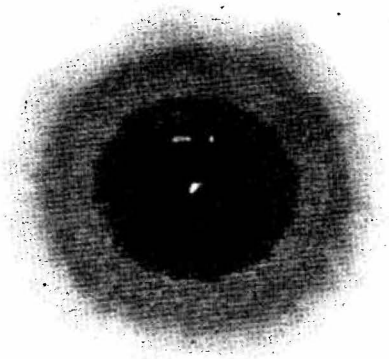
8a. A popular soft drink.

"Outer edge shows the sugar — other factors not identified."*

VS.

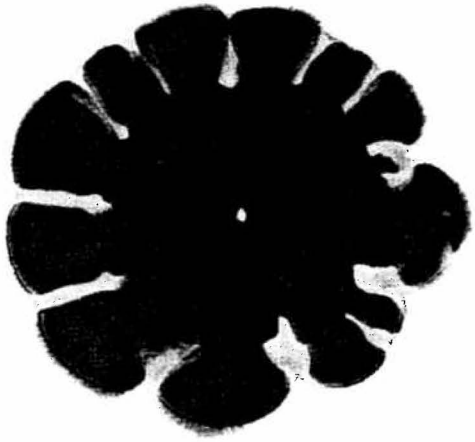
8b. Fresh orange juice organically grown.

"Outer zone indicates presence of enzymes & Vit. C, latter shown, also by color of inner circle."*



9a. Margarine.

"Lacks vitamin & enzyme formation — its value best judged by comparison with butter 9b."*



VS.

9b. Butter — fresh home-made from unpasteurized milk.

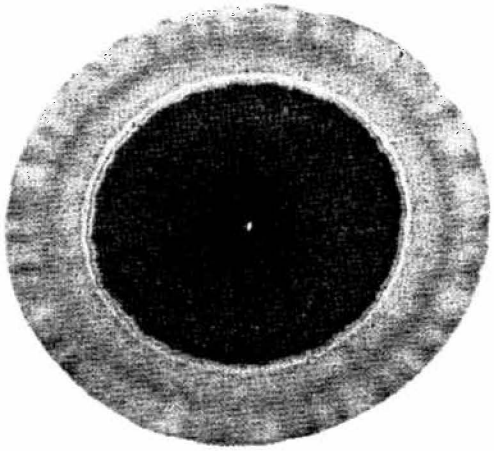
"See the winged pattern and color of many intrinsic factors and vitamin influences."*

* see bottom of page 7

CHROMATOGRAMS

LEFT SIDE — VITAMINS and FOOD SUPPLEMENTS — RIGHT SIDE

Synthetic Vitamins and inorganic minerals-inert.

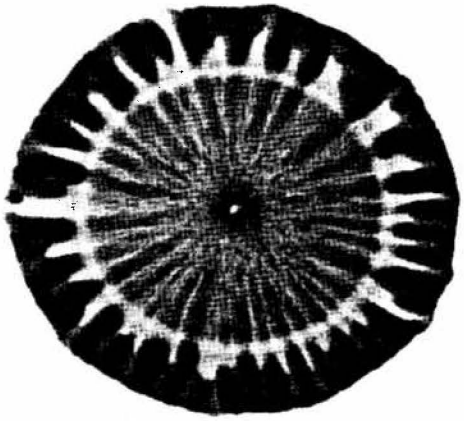


10a. Pure Commercial Vitamin C (ascorbic acid)

"Typical color and rings of ascorbic acid but no biologically active ingredients."*

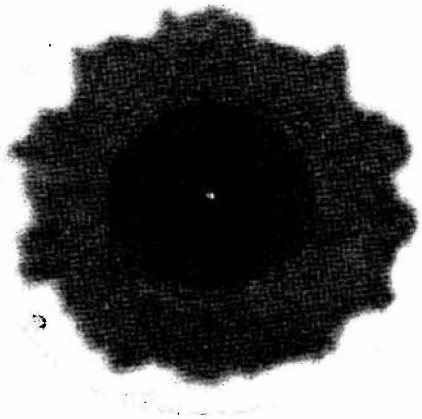
VS.

Unrefined vitamins and minerals as found in Nature.



10b. Acerola — a tropical cherry — Natural C — used in Vit-Ra-Tox #57, Springreen #87 & Sonne's #17.

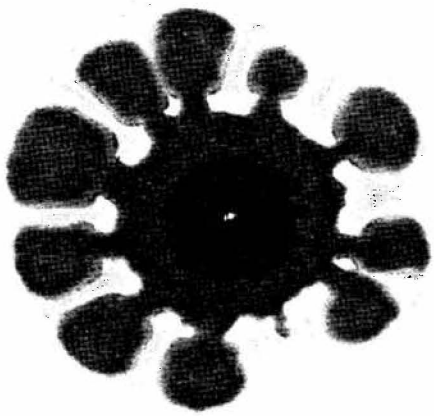
"Jagged border & strong radiations indicate intrinsic factors, vitamins & enzyme activity."*



11a. Alpha — tocopherol commercial Vitamin E only a part of complete E complex.

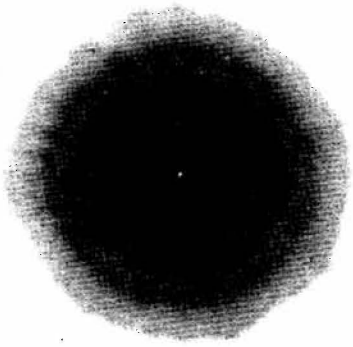
"Intrinsic factors cannot show up because of refined state."*

VS.



11b. Wheat Germ Oil unheated encapsulated in Vit-Ra-Tox #53, Veico #83 and Sonne's #3.

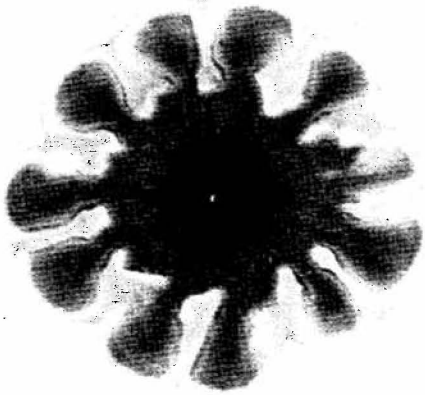
"In addition to Alpha-Tocopherol other fatty acids and enzymes indicated — note similarity to butter."*



12a. Synthetic Vitamin A made from refined and chemically altered lemon grass root.

"We miss here the winged or leaf pattern which shows up in natural products."*

VS.



12b. Cod Liver Oil — unrefined specially made for V. E. Irons, Inc. — excellent source of Vit. A & D.

"Note wings or leaf pattern found in all natural oils or fats as butter and wheat germ oil above."*

* see bottom of page 7

Exhibit F

CHROMATOGRAMS

LEFT SIDE VITAMINS and FOOD SUPPLEMENTS-cont'd RIGHT SIDE

Synthetic Vitamins and inorganic minerals-inert.

13a. Complete synthetic Vitamin B complex — mixture of known parts.

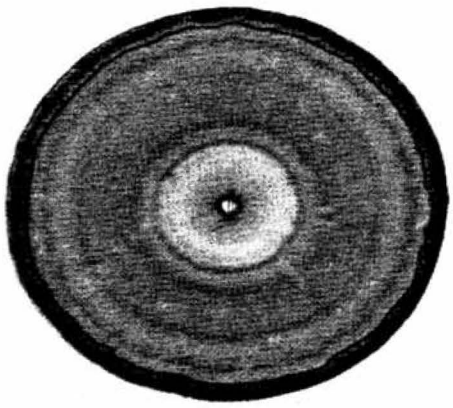
Notice complete absence of spike like enzyme formations and biological intrinsic factors.

VS.

Unrefined vitamins and minerals as found in Nature.†

13b. Natural 'B' complex plus intrinsic factors in Vit-Ra-Tox #23, Springreen #31 & Sonne's #11.

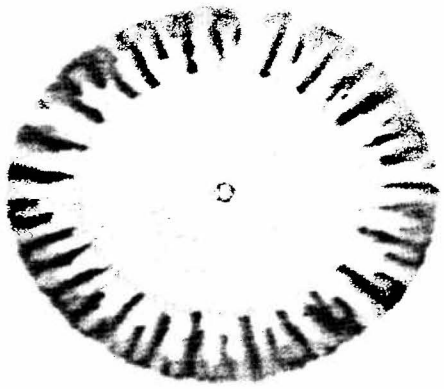
"Thin outer rim, long jagged teeth indicate intrinsic factors, good protein & strong enzyme activity."*



14a Mixture of synthetic vitamins & inorganic minerals to duplicate analysis of items in 14b.

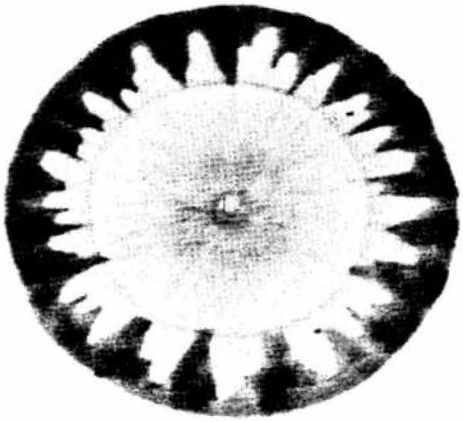
Utterly lacking in biological intrinsic factors or any spike like enzyme formation.

VS.



14b. Greenlife #22, Springreen #30 & Sonne's #10 analysis of which was chemically reproduced in 14a.

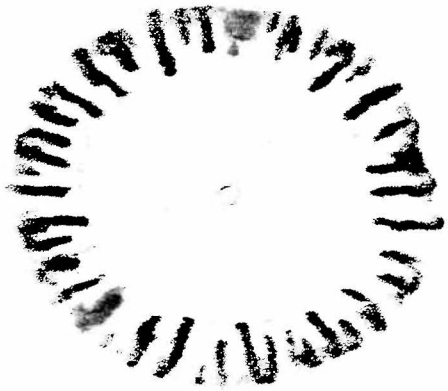
"Center radiation & jagged spike formations show excellent intrinsic factors, vitamin & enzyme activity."*



15a A 'so-called' Natural Supplement with potencies supplied by synthetic vit. and inorganic min.

"Edges and spikes show smudged pattern indicating interference with organic enzymes by inorganic minerals and/or synthetic vitamins."*

VS.



15b. Greenlife #21, Springreen #33 and Sonne's #12 Greenlife 60%, bone meal, yeast, fish oil 40%.

"The enzymatic pattern, in addition to intrinsic factors and vitamins, may be called 'classical'."*

† VIT-RA-TOX'S "GREENLIFE", SPRINGREEN and SONNE'S.

* Quoted from Dr. Pfeiffer's scientific report on this work.

THERE *IS* A DIFFERENCE (*Continued*)

When Orthodox Nutrition recognizes these DIFFERENCES and the inadequacy of man's puny efforts to duplicate Nature, the nutritional welfare of our people will be inestimably bettered.

NOTE: As noted above, various so-called experts in the nutritional field may disagree with some of the conclusions reached herein, and some conclusions may be considered as contrary to the consensus of current expert opinion. Nevertheless, based upon our own experience and upon the opinions of the experts cited, we believe such conclusions to be sound, and the experts cited to be well-qualified in their respective fields.

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We are indebted to Dr. Ehrenfried E. Pfeiffer and his staff in their Biochemical Research Laboratory, Spring Valley, New York for the infinite care and patience in developing these Chromatograms. A more thorough bibliography of Dr. Pfeiffer is attached or obtainable upon request from us.

BIBLIOGRAPHY

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2 By 'dead' is meant non-perishable — inert cell structure, devoid of ENZYMES.

3 By 'live' is meant perishable — capable of fermenting, souring, rotting, developing a bad odor, moulding, attracting weevils, moths, bugs and mice — i.e., thus still containing living tissue and Nature's ENZYMES.

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15 Clayton, R.A. and Strong, F.H.: New Solvent System for Separation of Amino Acids by Paper Chromatography. Analytical Chemistry, August 1954, page 1362. Amino Acids Metabolism and a New Test for Amino Acids in the Urine by E.E. Pfeiffer, Spring Valley, N.Y. and other references therein.

16 Dr. Pfeiffer majored in chemistry at the University of Basel, Switzerland. In 1939, he was awarded an honorary M.D. degree by Hahnemann Medical College. From 1948, he was in research as director of Biochemical Laboratory of Spring Valley, New York. He was agricultural consultant to firms here and abroad and taught nutrition at the School of Dentistry, Fairleigh Dickinson Univ., Teaneck, N.J. He has written extensively, including a book, "Formative Forces in Crystallization."

March 30, 1977

Dr. Armstrong:

Information on the dairies in Nevada, as requested.

1. Total dairy herds from which BRT samples are taken on a regular basis is 67 and this represents 12,510 animals.

2. Total number of dairy herds quarantined for Brucellosis is five, with 3,850 animals represented.

3. BRT samples are taken on a monthly basis from all dairies.

5. Family milk cows and dairy goats are frequently tested for TB upon owner request. Commercial dairy producers are not TB tested.

6. Attached is the last quarantine list and the Nevada State Dairy Goat Association roster, for your information.

Lois

Exhibit 6

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

Veterinary Services
P. O. Box 11100
Reno, Nevada 89510

MARCH 1977

NEVADA CATTLE HERDS UNDER QUARANTINE FOR BRUCELLOSIS

NAME	COUNTY	HERD TYPE	NUMBER OF ANIMALS	DATE OF QUARANTINE	QUARANTINED BY	LAST HERD TEST
Bedke, Ray C.	Elko	Beef	895	2-21-75	Dr. Green	2-28 & 3-1/2-77
Biasi, Bruno	Clark	Dairy	1200	9-19-74	Dr. Lynch	3-1-77
Carmichael, Frank	Churchill	Beef	400		Dr. Adams	1-31 & 2-1-77
Elquist Ranches	Elko	Beef	750	10-5-76	Dr. Green	3-22-77
Guazzini, Louis	Churchill	Dairy	200	2-4-77	Mr. Payne	2-28-77
[illegible]n & Sons	Clark	Dairy	750	3-4-75	Dr. Lynch	3-22-77
Hughes Brothers	Clark	Dairy	700	7-21-76	Ms. Cavett	3-24-77
McErquiaga, John	Humboldt	Beef	325	12-8-76	Dr. Cushing	2-3-77
Mentaberry Brothers	Humboldt	Beef	525	12-8/10-76	Dr. Cushing	3-23/24 (Partia
Piquet Ranches	Humboldt	Beef	900	3-16-77	Dr. Cushing	3-15 (Partial)
Rosevear, Thomas	White Pine	Beef	250	3-16-77	Dr. Green	3-15-77 (Partia
River Road Ranch	Churchill	Dairy	1000	9-24-76	Mr. Payne	3-8/9-77
Whitaker, Charles	Churchill	Beef	40	2-24-76	Mr. Payne	1-18-77

EXHIBIT G

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east to the line of one hundred and thirteen degrees twenty minutes west longitude; thence north, along said line of longitude, to its point of intersection with the thirty-seventh parallel of north latitude; thence west, along said parallel of latitude, to a point where the boundary line between the State of California and the Territory of Arizona strikes said thirty-seventh parallel of latitude; thence southeasterly, along said boundary line, to a point due west from said Roaring Rapid; thence due east to said Roaring Rapid and point of beginning, be and the same is hereby erected into a county, to be known as the County of Pah-Ute. The town of Callville, in said county, is hereby created the seat of justice of said county, and the County Commissioners thereof are hereby authorized to establish election precincts in said county.

SEC. 2. . . . SEC. 8. . . .

The following resolution passed at the Third Legislative Assembly of the Territory of Arizona (1866) mentioned the Pah-Ute county seat and river port of Callville, as associated with steamship navigation from the open seas into what is now Nevada above Hoover Dam.

CONCURRENT RESOLUTION Regarding the Navigation of the Colorado River.

Whereas, The successful accomplishment of the navigation of the Colorado River to Callville, has been effected by the indomitable energy of the enterprising Pacific and Colorado Navigation Company; therefore, be it

Resolved, That the thanks of every member of this Legislative Assembly, for themselves and their constituency, are due and hereby tendered to Admiral Robert Rogers, commander of the steamer *Esmeralda,* and to Captain William Gilmore, agent.

Resolved, That this resolution be spread upon the minutes of the Council.

In 1866 Congress took action again to enlarge Nevada, this authorization following the first attachment of additional area to Nevada in 1862, when still a territory. The congressional act and the events that followed have created much confusion among historians and caused mapmakers and legislatures considerable concern. This is probably due to the separate nature of the last two additions, and confusion between these 1866 and 1867 additions and the former one made in 1862, along with conflicting references to the times at which these last additions became effective. The congressional act that provided for the last two additions of territory to Nevada read as follows (U.S. Statutes at Large, Vol. 14, page 43):

CHAP. LXXIII.—An Act concerning the Boundaries of the State of Nevada.

(Approved May 5, 1866)

[Boundaries of Nevada]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, as provided for and consented to in the constitution of the State of Nevada, all that territory and tract of land adjoining the present eastern boundary of the State of Nevada, and lying between the thirty-seventh and the forty-second degrees of north latitude and west of the thirty-seventh degree of longitude west of Washington, is hereby added to and made a part of the State of Nevada.

[State to Give Its Assent]

SEC. 2. *And be it further enacted,* That there is hereby added to and made a part of the State of Nevada all that extent of territory lying within the following boundaries, to wit: Commencing on the thirty-seventh degree of north latitude, at the thirty-seventh degree of longitude west from Washington; and running thence south on said degree of longitude to the middle of the river Colorado of the West; thence down the middle of said river to the eastern boundary of the State of California; thence northwesterly along said boundary of California to the thirty-seventh degree of north latitude; and thence east along said degree of latitude to the point of beginning: *Provided,* That the territory mentioned in this section shall not become a part of the State of Nevada until said State shall, through its legislature, consent thereto: *And provided further,* That all possessory rights acquired by citizens of the United States to mining claims, discovered, located, and originally recorded in compliance with the rules and regulations adopted by miners in the Pah-Ranagat and other mining districts in the Territory incorporated by the provisions of this act into the State of Nevada shall remain as valid subsisting mining claims; but nothing herein contained shall be so construed as granting a title in fee to any mineral lands held by possessory titles in the mining States and Territories.

An examination of this congressional act indicates that section one became self-executing under the Nevada Constitution, which reads in Article 14, Section One, as follows:

". . . And whensoever Congress shall authorize the addition to the Territory or State of Nevada of any portion of the territory on the easterly border of the foregoing defined limits, not exceeding in extent one degree of longitude, the same shall thereupon be embraced within and become a part of this state. . . ."

This new eastern line is the same as the present eastern boundary of the State of Nevada. The area was taken from the western portions of Box Elder, Tooele, Millard, Beaver, Iron, and Washington counties of the Territory of Utah (see Maps L and M). The 1866 addition incorporated within the State of Nevada another area of 18,325 square miles where now are located Wells, Ely, Pioche, and Caliente, Nevada. The 1866 line established by this addition gave a third definition for an eastern boundary for Nevada (1861, 1862, and 1866).

The present eastern boundary line for the State of Nevada does not fall on the 114° of longitude west of Greenwich because of the differential between Washington and Greenwich longitudes, at this latitude amounting to approximately 2 miles, and evidentally not recognized at the time Congress employed Washington longitude for defining boundary lines. Thus we inherit the peculiar situation whereby Congress defined 6 full degrees of longitudinal width for Nevada but we do not have such area secured to us, being squeezed by California on the west or Utah on the east.

The second section of the congressional act required specific action on the part of Nevada before the northwestern portion of Arizona Territory could be embraced within the State, there being no provision in the Constitution for acceptance. The congressional act states this situation quite clearly, as follows:

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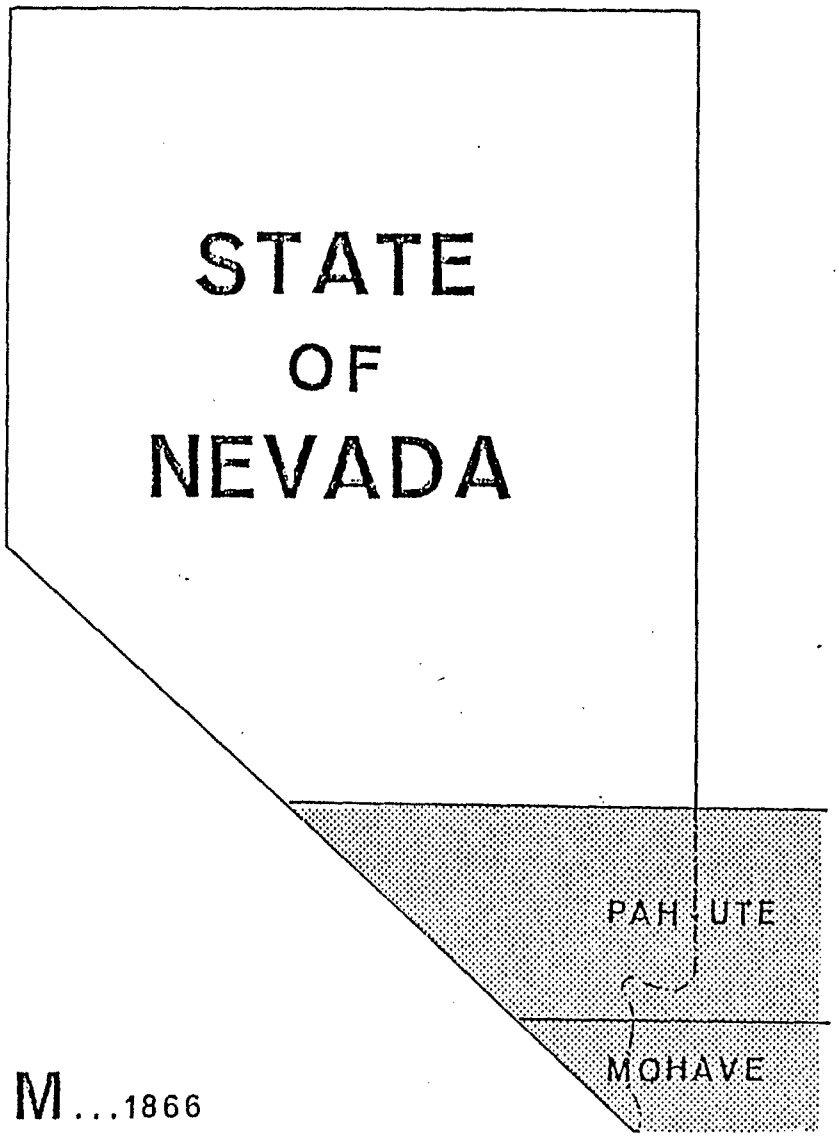
Exhibit H



MAP M

1866—State of Nevada extended eastward one degree of longitude. Area taken from western portions of Box Elder, Tooele, Millard, Beaver, Iron, and Washington Counties, Utah Territory.

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". . . *Provided*, That the territory mentioned in this section shall not become a part of the State of Nevada until said State shall, through its legislature, consent thereto: . . ."

Although many histories and maps show the wedge-shaped section, now southern Nevada, as having been attached to the State in 1866, obviously such is not the case. The Third Legislative Assembly of the Territory of Arizona was quite aware of this and later in 1866 adopted the following memorial to the Congress:

MEMORIAL

Asking that the Act of Congress, approved May 5th, A. D. 1866, setting off to the State of Nevada all that part of the Territory of Arizona west of the thirty-seventh degree of Longitude west from Washington, and west of the Colorado River, be repealed.

[Approved November 5, 1866]

To the Senate and House of Representatives of the United States in Congress assembled:

Your memorialists, the Legislative Assembly of the Territory of Arizona, respectfully represent, that by an act approved May 5th, 1866, Congress added to, and made a part of the State of Nevada, "all that extent of territory lying within the following boundaries, to wit: Commencing on the thirty-seventh degree of north latitude, at the thirty-seventh degree of longitude west from Washington, and running thence south on said degree of longitude to the middle of the river Colorado of the west, thence down the middle of said river to the eastern boundary of California, thence north-westerly along said boundary of California to the thirty-seventh degree of north latitude, and east along said degree of latitude to the point of beginning;" *Provided*, however, that the territory mentioned should not become a part of the State of Nevada until said State should through its Legislature consent thereto.

Your memorialists further represent, that to the best of their knowledge and belief, this territory has not yet been accepted by the State of Nevada, in the terms and manner required by the foregoing provision, and that the matter is yet wholly within the control of Congress, and they earnestly pray that the act by which it is proposed to take from Arizona this important part of her territory, be repealed by your honorable bodies.

The area in question, which embraces the chief part of Pah-Ute County and all of Mohave County west of the Colorado River, holds a natural and convenient relation to the Territory of Arizona, and a most unnatural and inconvenient one to the State of Nevada. It is the water shed of the Colorado River into which all the principal streams of Arizona empty, and which has been justly styled the Mississippi of the Pacific. By this great river the Territory receives the most of its supplies, and lately it has become the channel of a large part of the trade of San Francisco with Utah and Montana. Moreover, while it is a comparatively short and easy journey from any part of the territory in question to the county seats or the capital of Arizona, it is a tedious and perilous one of three hundred miles to the nearest county seat in Nevada, and to reach the capital of that State, by reason of intervening deserts, including the celebrated "Death Valley," over which travel is often impossible and always extremely hazardous, it is necessary to go around by Los Angeles and San Francisco, a distance of some fifteen hundred miles, and a most circuitous way. It is the unanimous wish of the inhabitants of Pah-Ute and Mohave counties, and indeed of all the constituents of your memorialists, that territory in question should remain within Arizona; for the convenient

transaction of official and other business, and on every account they greatly desire it. And on their behalf and in accordance with what appears to be no more than a matter of simple justice and reason, your memorialists earnestly request your honorable bodies to set aside the action by which it is proposed to cede it to Nevada, and as in duty bound your petitioners will ever pray.

Resolved, That our Delegate in Congress, Hon. John N. Goodwin, is hereby requested to spare no effort to secure a favorable response to this memorial.

When the Third Session of the Nevada State Legislature convened in 1867, Governor Blasdel included in his biennial message to the body the following recommendations relative to the congressional authorization for more territory:

BIENNIAL MESSAGE

STATE OF NEVADA, EXECUTIVE DEPARTMENT
CARSON CITY, January 10th, 1867.

Gentlemen of the Senate and Assembly: . . .

EASTERN AND SOUTHERN BOUNDARIES

By Act of Congress, approved May 5, 1866, there was added to this State on the east all the territory lying between the 37th and 38th degrees of longtitude, west from Washington, extending from the 37th to the 42d degree of north latitude, embracing 18,000 square miles, or 11,530,000 acres. This grant was anticipated and provided for in the formation and adoption of the State Constitution, and, therefore, no further action is required. A further addition "commencing on the 37th degree of north latitude at the 37th degree of longitude, west from Washington, and running thence south on said degree of longitude to the middle of the river Colorado of the West; thence down the middle of said river to the eastern boundary of the State of California; thence northwesterly, along said boundary of California, to the 37th degree of north latitude; and thence east, along said degree of laltitude, to the point of beginning," was contingently made to become effectual upon the acceptance of the State, through its Legislature. This grant, connecting us as it does with the navigable waters of the Colorado River, and embracing extensive and valuable agricultural and mineral lands, is of great importance to the State, and should be promptly accepted. Looking alone to the Act of Congress, it would seem that all the action necessary on the part of the State, for a full and final acceptance of this last named cession, would be that of the Legislature in the form of an Act or joint resolution. But the establishment of boundary lines by the Constitution would seem to leave the Legislature without present authority to bind the State in the premises. In order that no misapprehension may arise from a failure to comply with the Act, I suggest the propriety of immediate legislative acceptance as therein contemplated. And in order to legally and fully extend the jurisdiction of the State over the ceded territory, I suggest the propriety of proposing and submitting to the people, for their ratification, an amendment to the Constitution conforming our southern boundary to the lines designated in the grant. . . .

H. G. BLASDEL

(From Senate Journal and Appendix, Third Session, 1867)

A few days later the Legislature passed a resolution accepting this additional territory, ceded to the State of Nevada, which read as follows:

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No. IX.—*Joint Resolution in relation to the boundaries of the State of Nevada, and the acceptance of additional territory, ceded by the United States to this State.*

[Passed January 18, 1867]

[Accepting additional territory ceded to the State of Nevada]

WHEREAS, by Act of the Congress of the United States, entitled "An Act concerning the boundaries of the State of Nevada," approved May fifth, A.D. 1866, certain territory belonging to the United States, bounded and described as follows, to wit: commencing on the thirty-seventh degree of north latitude, at the thirty-seventh degree of longitude west from Washington; and running thence south on said degree of longitude to the middle of the River Colorado of the West; thence down the middle of the said river to the eastern boundary of the State of California; thence northeasterly along said boundary of California to the thirty-seventh degree of north latitude; and thence east along said degree of latitude to the point of beginning, was added to and made part of the State of Nevada; and

Whereas, by the provisions of the second section of said Act of [?] the Legislature of the State of Nevada is required to consent to the cession of said territory to said State before the same becomes a part of and within the jurisdiction of this State; therefore

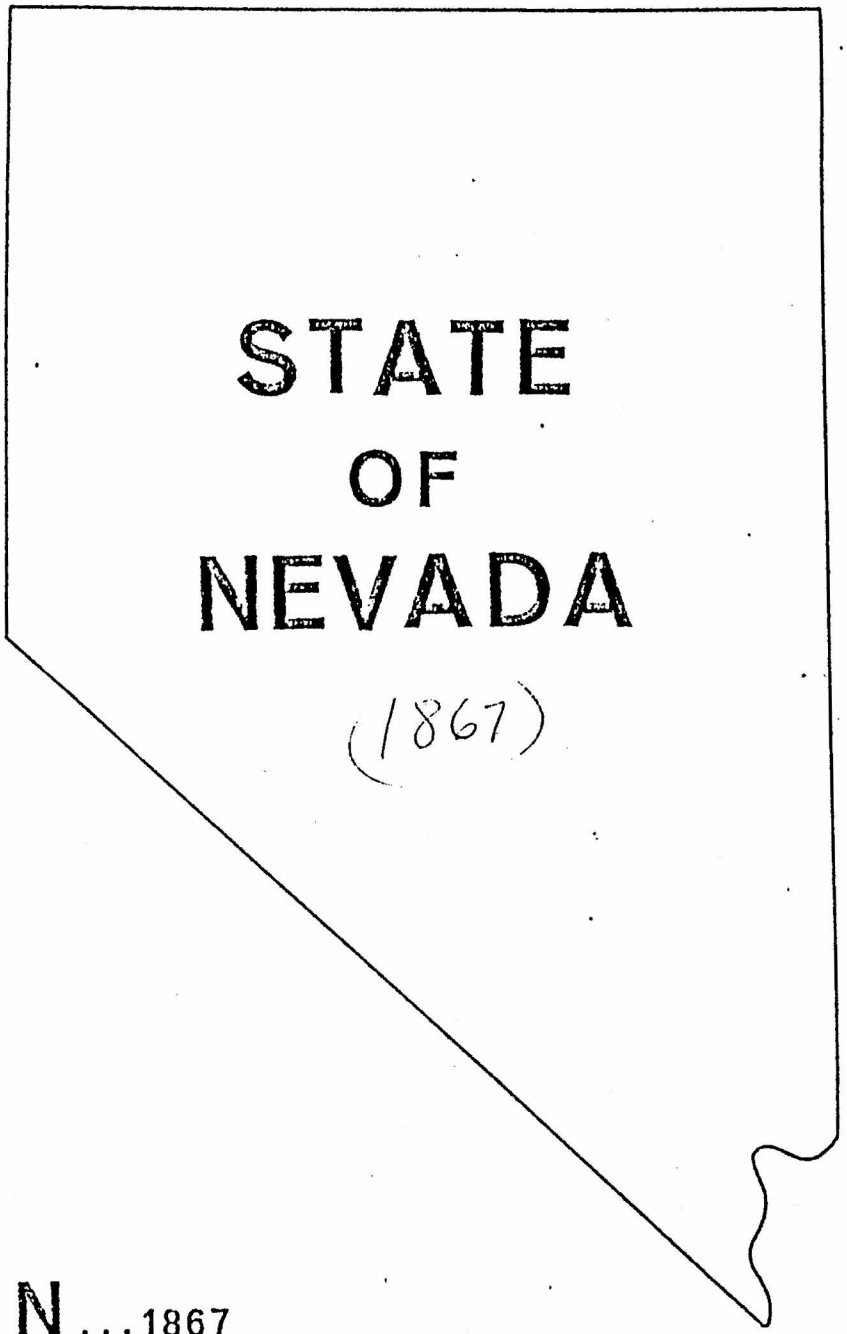
Resolved, by the Legislature of the State of Nevada, that the territory bounded and described in the second section of the aforesaid Act of the Congress of the United States is hereby accepted, made part of, and declared to be within the jurisdiction of the State of Nevada, subject to and under all the provisions and conditions contained within the second section of said Act.

However, no action was taken on the Governor's suggestion to amend Nevada's Constitution to encompass this last addition of territory. Subsequent sessions likewise took no action to amend the Constitution and to this day the section of the Nevada Constitution identifying our boundaries reads as follows:

ARTICLE. 14.

BOUNDARY.

Section. 1. **Boundary of the State of Nevada.** The boundary of the State of Nevada shall be as follows: Commencing at a point formed by the intersection of the thirty eighth degree of Longitude West from Washington with the Thirty Seventh degree of North latitude; Thence due West along said thirty seventh degree of North latitude to the eastern boundary line of the State of California; thence in a North Westerly direction along said Eastern boundary line of the State of California to the forty third degree of Longitude West from Washington; Thence North along said forty third degree of West Longitude, and said Eastern boundary line of the State of California to the forty second degree of North Latitude; Thence due East along the said forty second degree of North Latitude to a point formed by its intersection with the aforesaid thirty eighth degree of Longitude west from Washington; Thence due South down said thirty eighth degree of West Longitude to the place of beginning. And whensoever Congress shall authorize the addition to the Territory or State of Nevada of any portion of the territory on the Easterly border of the foregoing defined limits, not exceeding in extent one degree of Longitude, the same shall thereupon be embraced within, and become a part of this State. And furthermore Provided, that all such territory, lying West of and adjoining the boundary line herein prescribed, which the State of California may relinquish to the Territory or State of Nevada, shall thereupon be embraced within and constitute a part of this State.



N . . . 1867

MAP N

186[illegible] of Nevada extended south to Colorado River. Area taken fro[illegible]-Ute and Mohave counties, Arizona Territory. State attains final [illegible]

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Later in 1867, the Fourth Legislative Assembly of the Territory of Arizona reacted to the acceptance by Nevada of part of Arizona Territory as apparently not granting de facto control to Nevada. Pah-Ute County was not abolished though most of its area was absorbed by Nevada. Arizona did not recognize the Nevada acceptance resolution as incorporating most of that county. The Arizona Legislative Assembly passed the following act moving the Pah-Ute county seat from Callville on the Colorado River north to St. Thomas, a location within the area Nevada had accepted by resolution.

AN ACT For the Removal of the County Seat of Pah Ute County.

(Approved October 1, 1867)

Be it enacted by the Legislative Assembly of the Territory of Arizona:

SECTION 1. That the County Seat of Pah Ute county be and the same is hereby removed from Callville to St. Thomas in said county.

SEC. 2. That this act shall take effect and be in full force from and after its passage.

As further evidence that Arizona did not concede that her territory was lost to the State of Nevada, the same session of the Arizona Legislative Assembly directed the following memorial to the Congress a few days later. This memorial quoted directly from Nevada's Governor Blasdel and pointed out why they felt the area was not as yet a part of Nevada.

MEMORIAL

Asking that the Act of Congress, approved May 5th, 1866, setting off to the State of Nevada all that part of the Territory of Arizona west of the Thirty-seventh degree of Longitude west from Washington, and west of the Colorado River, be repealed.

[Approved October 5, 1867]

To the Senate and House of Representatives of the United States in Congress Assembled:

Your memorialists, the Legislative Assembly of the Territory of Arizona, having at their last session memorialized your Honorable body with reference to the setting off of the greater portion of Pah Ute County, and all of Mohave County west of the Colorado River, to the State of Nevada, would again most earnestly but respectfully appeal to your Honorable body for the relief sought and so much desired by all of the citizens of Arizona, and especially the inhabitants of the said portions of this Territory.

We, your memorialists, had great hope that the Legislative Assembly of the State of Nevada would listen to our memorial and petition of last year, and would not compel an unwilling people to become a part of their State, when the relations are, and necessarily must ever be unnatural and inconvenient while the relations of Pah Ute and Mohave Counties (the portion in question,) are most natural and convenient to and with those of Arizona Territory. But from a resolution accepting the cession by Congress of said Territory to said State of Nevada, passed January 18, 1867, the Legislature of that State has manifested a determination to take from Arizona this important portion of her Territory, notwithstanding her memorials and petition unanimously signed by the citizens therein a[illegible]e earnest and solicitous appeal of the Arizona Assembly. Our only hope now

is vested in the fact that while that State has made Constitutional provision for the acceptance of Territory on the east and west, she has made none for the south of her limits. Therefore, in the language of Governor Blaisdell, "in order to legally and fully extend the jurisdiction of the State over the ceded territory" an amendment to the Constitution of that State is necessary to conform on the southern boundary to the lines designated "in said grant," and as an amendment to the Constitution of that State, cannot be effected in less than two years, your memorialists do not consider said territory legally under the jurisdiction of that State; and, therefore, most earnestly pray that your Honorable body will repeal the act, ceding to that State said portions of Arizona, approved May 5th, A.D. 1866, and your memorialists will ever pray.

Resolved, That our delegate in Congress, the Hon. Coles Bashford, is hereby requested to use all honorable means to secure a favorable response to this memorial.

Resolved, That the Secretary of the Territory be requested to forward a copy of this memorial to our Delegate in Congress as early as possible.

Evidently Arizona's pleas to the Congress fell on deaf ears. The authorization granted Nevada to absorb the northwestern part of Arizona Territory was never repealed. Apparently in recognition of Congress having failed to reverse itself on the issue, and in view of the fact that most of Pah-Ute County was lost, along with a small portion of Mohave County, to the State of Nevada, the Sixth Legislative Assembly of the Territory of Arizona, meeting in Tucson in 1871, repealed the act creating Pah-Ute County (see Maps M and N).

This last addition of territory to Nevada, 12,225 square miles, containing close to half of Nevada's population, based on the 1960 census, now includes all of Clark County, with Nevada's 1st and 3rd largest cities, Las Vegas and North Las Vegas, as well as Henderson, Boulder City, part of Hoover Dam, a strip of southern Lincoln County, Nye County from Beatty south, and the southernmost tip of Esmeralda County.

From the foregoing history of Nevada it can be seen that the Territory of Nevada existed between 1861–64, covering two different territorial extents. The State of Nevada existed between 1864–67, covering three different territorial extents. The five different possible sets of boundary extensions and terminology, a territory of two shapes and a state with three undoubtedly have in large measure contributed to the confusion existent today in regard to the origin and development of Nevada (see Map O). Not only were there numerous changes after Nevada was first organized, but the foundation of Carson County which represented the nucleus of Nevada underwent vast modifications between 1854–61 by means of various enlargements, attachments, modifications, and reestablishments. The entire period from 1854 (Carson County created) to 1867 (last addition to the State of Nevada) presents a complex problem in the geopolitical history of Nevada.

SEAT OF GOVERNMENT

The original territorial capital and seat of government for Carson County was Fillmore City. This location was about 150 miles south of Great Salt Lake City and about 500 miles east of the populated part of

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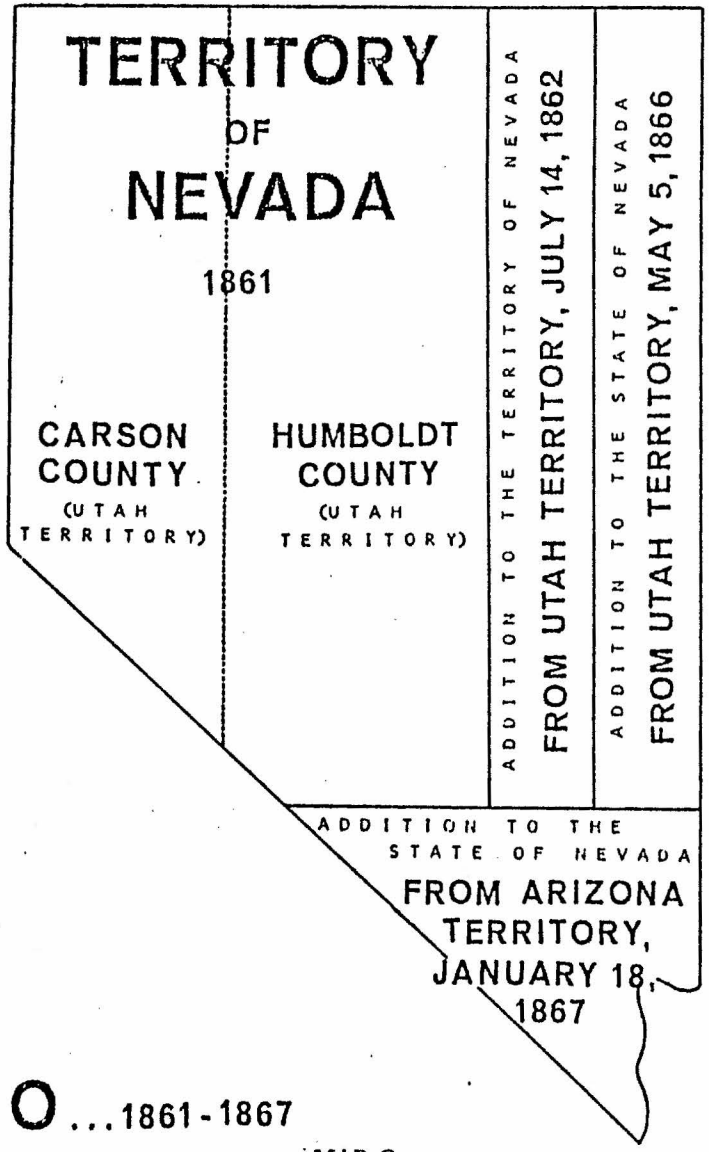

MAP O

1861–67—Territory of Nevada formed in 1861 from Carson and Humboldt counties of Utah Territory. In 1862 Nevada Territory enlarged by extension eastward one degree into Utah Territory. Enlarged Territory, and State as created in 1864, coextensive in size. Additional extension eastward one degree into Utah Territory in 1866 by State of Nevada. Extension south into Arizona Territory to the Colorado River by State of Nevada in 1867. Nevada Territory existed in two different sizes; Nevada as a state in three different sizes.

EXHIBIT L

STATE OF NEVADA
OFFICE OF THE ATTORNEY GENERAL
CAPITOL COMPLEX
SUPREME COURT BUILDING
CARSON CITY 89710

ROBERT LIST
ATTORNEY GENERAL

March 23, 1977

Assemblyman Thomas J. Hickey
Chairman
Assembly Committee on Agriculture
Legislative Building
Carson City, Nevada 89710

Re: AJR 37

Dear Assemblyman Hickey:

This office notes with more than passing interest the above Assembly Joint Resolution to amend the boundary description of the State of Nevada to include that part of Nevada lying below the 37th parallel of north latitude. We are disturbed by the proposed changes in the north-south boundary between California and Nevada, appearing on lines 17 through 20, page 1.

This office has been engaged in discussions with representatives of the California State Land Commission and the California Department of Justice over the status of the present boundary as located on the ground from Lake Tahoe northerly to the Oregon border. It is therefore imperative that no amendments be made to this portion of Nevada's border with California as such might affect Nevada's position in the current boundary location discussions.

Certainly this portion of Nevada's border with California is not in any way affected by the primary purpose of AJR 37 which is to amend the boundary description to include lands lying south of the 37th latitude. It is therefore strongly urged that AJR 37 be amended to eliminate the proposed changes appearing on lines 17 through 20, page 1.

Sincerely,

ROBERT LIST
Attorney General

By James H. Thompson
James H. Thompson
Chief Deputy Attorney General

JHT:rab