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北海道上川郡和寒村字東町 北海道酒化工業株式会社 和寒工場	七六	二五・一一・五
北海道札幌市北三條東十五丁目 北産化学工業株式会社札幌工場	七七	二六・一・一
宮崎県西臼杵郡小林町大字細野二三八 南九州製薬株式会社	八九	二六・一・一
大阪市北区芝田町一三番地の四 阪急共栄製薬株式会社梅田工場	九六	二六・一・一
宮崎県都城市大字川原三八七〇 松山産業有限会社 工場	九七	二六・一・一
宮崎県都城市前田町一四〇一 日町製薬株式会社 工場	一一一	二六・一・一
東京都江東区大島七ノ六六六 理研栄養薬品株式会社大島工場	一一五	二六・一・一
群馬県新田郡宝泉村大字田沒一四七三 塚越化学研究所	一一九	二五・一二・九
東京都足立区千住曙町二五 日本化学製薬株式会社 足立工場	一二〇	二六・一・一
埼玉県鶴谷市大字鶴谷一九六 岡東薬品工業株式会社 鶴谷工場	一二二	二六・一・一
大阪市大淀区長柄浪通り三ノ一六 三共株式会社 大阪工場	一二七	二六・一・一

山形県鶴岡市元岡町甲七 柱内化学工業株式会社 鶴岡工場	一三六	二六・一・一
熊本県市春日町五丁目三四ノ九 久里沃製薬株式会社	一四〇	二六・一・一
京都市東京区西京極大門町二五 不二化成工業株式会社 西大路工場	一四四	二五・一二・七
大阪市西淀川区野里野大三九 協和化学工業株式会社 工場	一四六	二六・一・一
兵庫県加古郡高砂町宮前石二五七ノ三 鐘淵紡績株式会社 高砂化学工場	一五三	二六・一・一
湖南川県川崎市堀川町五八〇 明治製糖株式会社 川崎製薬所	一五六	二五・一二・九
札幌市南三條西三丁目七 三星薬品 研究所	一六〇	二六・一・一
北海道虎田郡豊浦町字旭町五一 日東化成工業所	一七〇	二六・一・一
茨城県北相馬郡取手町取手町六五 三井化学工業株式会社 取手工場	一七六	二六・一・一
札幌市外上白石四区 北海道硝化工業株式会社札幌工場	一九〇	二六・一・一
静岡県清水市村松地先新田字宗新開二〇 静岡県飼料株式会社	一九三	二六・一・一

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東京都中野区野方町九八二 片山鉄 深野方工場	二四一	二六・一・一
東京都大田区城巻町三ノ五一 ダイヤ産業株式会社	二一〇	二六・一・一
鎌倉市花園町大ニ三 鎌本化学工業株式会社	二〇五	二六・一・一
愛媛県伊豆郡口中町下谷川八四二ノ一 伊豆農村工業農業協同組合	一九九	二六・一・一

東京都文京区本郷二ノ三

文永堂書店 敬

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Good example for Red-taped work:

The Tokyo Times, 16th Feb. '51

Anti-rabies measures are lately being published and reported through radio and newspapers very-very actively, and I at this juncture attempted to assist in this program, ao I caught a big stray dog using my own vacation and brought the dog to H.C. However, it was leaned that there are no active movement among officials regarding this program and not like [redacted] the propagations of radio and newspapers, there were no zealous movement. a H. C. official led me to the back yard of the Health Centre building where there was a poor and incomplete box (should be cage)and he told me to put the dog in the box. I felt it was dangerous to carry a strange dog in my arms, but I was daring to do so.

When I and my family were eating in the same evening, the very dog I brought to H.C. came to our back door with a rope attached to his collar. I and all of my family members were greatly surprised and at the same time, I was deeply impressed in RED TAPED WORK they did. I am determined not to cooperate with officials in this program. If you (authorities) have made up a plan, do what you decided to do !.

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ANIMAL HYGENE WEEKLY /nt

1. Lecture meeting of Dr. Sato and conference for cattle control: counter-plan.

The above mentioned meeting will be held at the Animal Health Laboratory, Chygyoku branch sponsored by Hyogo Prefecture on January 17 and 18 and the Chief of the Health Section left Tokyo on January 16th.

2. Pressing the presentation of the written application for the approval of establishment and the delivery of subside of the livestock hygene service center. We have warned to submit the above mentioned written application by January 20th without fail, so any prefecture has not submitted it, shall do so strictly observation the day. Especially any prefecture has not submitted the written application for permission should manage to submit the written application for the delivery of subsidy simultaneously. Morever, as to buildings don't meet the anforcement regulations and staffs who are not permitted as full-time service when the subsidy is applied, it is impossible to grant the subsidy therefore, papers should be submitted carefully.

According to the application for subsidy which have been submitted so far, it learned the fact that fixed numbers of staffs of the health service center and the artificial fertilization institution in a certain prefecture had not been filled but regular staffs of the local office or the breeding station etc. and the most terrible situation is assigning the same person toward application for subsidy of both establishments. Therefore, it is desired to manage not having the misconduct like this.

3. Distribution of the automobile gasoline for animal disease control use.

We have specially distributed gasoline totalling 28,000 litters as fuel of vwhicles for the domestic animal c.d. prevention during the bovine influenza was prevailing and we presume the gasoline was used effectively but since then the disease was almost over and use of vehicles was decreased accordingly an application for the special distrivution is none at the present time, but if there is any business which needs it urgently for adjusting reamining business or other things of late, we will try to distribute it possibly, therefore, we request you to submit the written application for the special distrivution by the end of January. Mowever, we wish you will supply it at your place on conferring with the Land Transportation Bureau branch closely, if it is a little gasoline due to shortage of materials.

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220351

Animal Hygiene Weekly No. 104
January 16, 1951
Animal Hygiene Section M A F.

Kaiya
Translated
checked by
9/

Contents:

Letter from Dr. Kobayashi.

Lecture meeting of Dr. Saito and conference for cattle influenza control, counter-plan.

Bulls, boars and he-goat were imported from America.

Continuance of Izuhara Animal Quarantine Station.

Pressing the presentation of the written application for the approval of establishment and the delivery of subside of the livestock hygiene service center.

Notification of Veterinarian.

Concerning to inquiry of situation of artificial insemination in 1949 fiscal year and inquiry of artificial insemination and station of artificial insemination come under to item 9 and 13 of supplementary provisions of The Law concerning the Improvement & Increased Production of Livestock.

Distribution of the automobile gasoline for animal disease control use.

Application of the provisions of "The Law concerning the prevention of Infectious Disease of Domestic Animals" article 16 and Article 18.

Number of animals attacked by infectious disease from Jan. 6 to Jan. 13, 1951.

Explanation assembly for partial revision of the Control Regulation of Drugs and Others for Animal Use.

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1951
No. 104

家畜衛生週報

昭和廿六年一月十六年（火曜日）

東京都千代田区鱗ヶ関二丁目二番地
農林省畜産局衛生課
農林省畜産局薬事課

目次

○小林場長米國便り
○衛生課長帰朝講演会並に牛の流行性感冒予防対策協議会について
○米国より種牡牛、種牡豚、種牡山羊輸入される
○厳原家畜検疫場の存続について
○家畜保健衛生所の設置承認、同補助金交付の申請書提出督促について
○獣医師法第二十一條の再出について
○家畜人工授精実施状況調査及び家畜改良増殖法附則第九項並び第十三項に該当する家畜人工授精師家畜人工授精所の調査について
○家畜防疫用自動車燃料配給について
○家畜伝染病予防法第十六條及び第十八條の規定の適用状況
○家畜伝染病発生状況
○動物用医薬品等取締規則一部改正説明会開催について

○小林場長米國便り

（第一）

十二月十二日　ワシントン

十日にニューヨークから来ました。昨日から畜産局に出かけて、調査をしています。病理部のL・T・ギルトナー博士のお世話で各係の方と連絡をとりながら意見をたたいています。各係はいずれも相当の年配で、ひとかどの専門家であり実験室を持ち、研究と検定の一部を行っています。主任はシエーニング博士です。R・R・ヘンリー博士は有名なドルセット博士の弟子で自下ツベルクリンと豚コレラを専門に仕事をしており、又豚コレラのクリスタルバイオレット、ワクチンも畜産局の基準で研究しています。ツベルクリンの製造は畜産局の基準で無蛋白人型菌培養を牛に用い、腐型菌は豚及び鳥類の診断に使用し、ヨーネを以って年間少量のツベルクリンを特別に造っています。

年間約一〇〇万㍍で二、五〇〇万頭の牛の検査をするわけで、従って公の検査は無料で洲の獣医師に分與されるわけです。なお同氏は反応牛で病理解剖学的変化のないものが相当あり、この問題の研究をしていると申していました。なお此処の製造にはシープレスの遠心分離器（タービン式）を使用することになってい

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ます。

実験室はロックフェラーの如く新しい所とは比較になりませんし、特に目立つものもありません。

モーラー博士は目下、伝貧、豚丹毒、豚コレラ、アナプラズマの補体結合反応の研究に従事し、相当な期待をかけているようでした。

C.N.ダレ博士は豚コレラ病毒の毒力について実験報告を見せてくれました。病毒と血清の交叉試験でこの証明をし、共同注射による豚コレラの病毒と血清との免疫関係に及ぼす疑問の一部を解いているようでした。なお脾臓を用いたクリスタルベイオレット臓器予防液をヨーサル研究所で作っている由ですので後で又報告します。豚コレラの予防には共同注射によるもの約三四〇〇万頭、クリスタルベイオレットワクチンによるもの約四〇〇万頭と申しています。豚コレラ病毒のM.L.Dは平均一〇〇万であり、最高五〇〇万（一cc稀釈）であるそうです。（文責　稲吉技官）

（第二）

America の動物用生物学的製剤の検定に就てはB.A.Iの Division of Virus-Serum Control が技術的行政事務を取扱って居り、長は Dr. O.E. Herl 氏で A.L. Jelleijohn 氏が副主任、色々判り難い事ら聞いてみると Public Health Service（日本の厚生省に当る）に於けるN.I.H（Bethesda にあり実際の control と検定を行っている）とは違って、Minimum Requirement はB.A.Iにはない。唯B.A.Iには Rules and Regulations relating to Viruses, Serums, Toxins and Analogans Products, and to certain Organisms and Vector があって豚コレラ virus と Serum に就ては相当厳重であり、又 Pubiorum antigen, Brucella antigen, Erysipelas Serum は各 lot 毎にB.A.Iの検定を受ける事になっている。これ等の検定はB.A.Iの pathological Division が実験室をもっており其処で行っている。即ち control 課は実験室がなく此処の課とよく連絡して仕事をしているわけである。

それからもう一つ、N.I.Hとも違いB.A.Iは大部分の所にB.A.Iの派遣検査員がいて常に製造会社の籠での状況を監督し、以上記述以外の製造は lot 毎に検定せず（但し sample は一部B.A.Iに随時に会社は各 lot 毎に保存）会社自身の検定をこの Inspector がB.A.Iに報告している。但し上記の品はB.A.Iの承認が要る。

斯様な状態でB.A.Iにも全般的に一定の requirement はないが必要なことは局長の名で検定又は製造について circular letter が出て一つの標準になる。こ

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獣医技術者は二一八級

俸給	年俸	地位	他
二	四、六〇〇 — 五、三五〇	新任	
三	五、〇〇〇 — 五、七五〇	係員	
四	五、四〇〇 — 六、四〇〇	係員	主任
五	六、四〇〇 — 七、四〇〇	主任	開拓
六	七、六〇〇 — 八、四〇〇	課長補佐	課長
七	八、八〇〇 — 九、六〇〇	別課長	別課
八	一〇、〇〇〇 — 一一、〇〇〇	局長級	

日本の金に換算して御覧なさい。部長級は三六〇万円、税金四三二、〇五七円をひいても大したものです。以上中央官庁職員の表です。

○ 衛生課長帰朝講演会並びに牛の流行性感冒予防対策協議会について

表る一月十七、十八日の両日兵庫県主催により家畜衛生試験場中国支場において開催されることとなり、衛生課長は十九日西下した。

○ 米国より種牡牛、種牡豚、種牡山羊輸入さる

客年十二月二十二日チマイナトランスポート号で横浜港に到着した。ホルスタイン種牡牛四頭（パプスト牧場産三頭、カーチスキャンデー牧場産一頭）、種牡豚（バークシャー種六頭、ヨークシャー種一頭）、種牡山羊一頭は横浜動植物検疫所、家畜検疫所に陸揚げされ、検疫中であつたが、一月一〇日解放され、左の各地に仕向けられた。●

ホルスタイン種牡牛四頭、北海道町村牧場一、
守朋畜牧場一、岡部牧場一

バークシヤ種牡豚 二頭 北海道種畜場
一頭 静岡県沓谷種畜場
一頭 宮崎県種畜場
一頭 札幌醸酵研究所

ヨークシヤ種牡豚 一頭 神奈川県二の宮養豚
ザーネン種牡山羊 一頭 農林省種畜牧場

なお、これは先年日、仏天然痘予防のためR.リツチ氏が日本に派した使節団勧誘のロバート・ものである。

○ 厳原家畜検疫場の存続について

門司動植物検疫所厳原家畜検疫場の施設については、各種関係各方面と接渉中であつたが、朝鮮動乱のぼつ発にともない、対馬防衛の急務も増加しつつあり、特に牛疫、牛肺疫、口蹄疫等の侵入防止のため、その存置を必要とする状勢にたち至つたので、今後ともこの施設を存続することとした。

○ 家畜衛生試験所の設置承認、同期出金支付の申請書提出督促について

このことについては再三、再四督促し一月二十日迄に必着するよう注意を促してあるが、未提出県に於ては期日厳守の上提出されたい。尚に承認申請未提出の県

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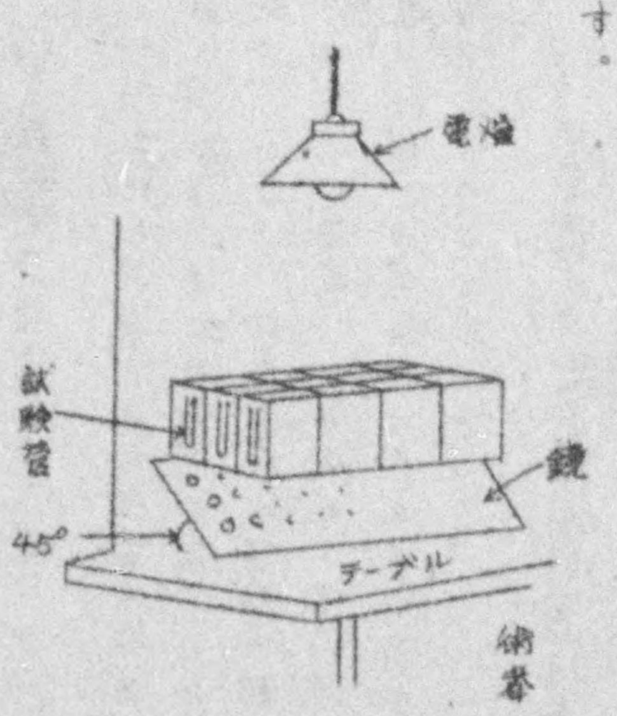
の copy は既に日本にある筈である。

製造許可申請書の雛式と申請には実験成績及び検定方法等が厳重に要求されていて、有効期間はB.A.Iの許可により其の Max Expiration Date を定める。一般に乾燥ワクチンは一年が最長である。一寸期待したこまかい規定がN.I.Hと違い煩いので、あて外れであった。尚又、N.I.Hの様子も今一度聞いてみたいし各々の技術官にも今きいている処です。

Bozemann 氏の要求は即ちN.I.H式でB.A.I式ではないわけです。America の動物用のものは各自製造者の権威が尊重されるわけで、又兼造 inspector が相当ある点等を考へると尤もと思われます。Dr. Heal も一定の Standard ははしいといっていました。尚豚コレラに進んに Virus そのものと Serum の共同注射をするのは豚の頭数が多く且つ注射後すぐ死亡するからで、Tissue Vaccin は注射後二十一日も死亡するのたかかり且つ材料豚が大変であるからといっています。日本も食えだから思い切って Virus-Serum methode にしてみるのも良いでしょう。牛疫のように豚コレラ病毒の variant に就て聞きましたがなお小生でも疑問があります。~~別紙参照せられたい~~。

規則其の他検定関係のものを先に一部送りますから必要のものを選択しておいて下さい。

今の処青柳君が調査した所に一部重複する処あるかも知れません。B.A.Iで同君のきいた話の人と同じ人があるわけです。凝集反応の見方に一寸簡単で良い方法次の通りやって御覧なさい。反応結果がよく見えます。



（第三）

十二月二十日 Washington B.A.I.

今日余分の事ながら America の技術者の新らしい俸給表を入手して見ますと次の様な状態で、日本等の様に事務系統の人間の方が賢い等という事がない様です。詳しいことは判りませんが獣医技術者の分を書いてみます。

一九四九年十一月改正

級別	技術官																							
	一	二	三	四	五	六	七	八	九	一〇	一一	一二	一三	一四	一五									
文官	一	二	三	四	五	六	七	八																
Sub技	一	二	三	四	五	六	七	八																
技術官	一	二	三	四	五	六	七	八																

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は補助金交付申請を同時に提出するよう取計られたい。

なお補助金申請に当り施行規則に合わない建物、寄任であることが認められない職員については補助金の交付が出来ないから、書類は充分吟味して提出されたい。

従来提出された補助金申請をみると、一部の県に於ては保健衛生所及び人工授精施設職員の定員がいまだに充足されず、地方事務所、建築場など他機関の定員をあて、甚だしいのに至っては両施設補助申請に同一人を当てている事実もあるから、このような不都合のないよう取計らわれたい。

○ 獣医師法第二十一條の届出について

獣医師は毎年十二月三十一日現在の状態を一月三十一日迄に規定の様式によって地方庁を経由して農林大臣に報告する様、定められており、これを怠った場合は免許の取消等、行政処分のおそれもあるので、先きに家畜衛生通報一〇二号（昭和廿五年十二月廿五日附）にてこの事に関し詳細説明周知方をお願いしておいたが、いよいよ届出の時期となったので重ねて周知徹底を取計らわれたくお願する。

なおこの届出は十二月三十一日現在の状態であるから、免許申請中の者が一月一日以降免許証をうけとった場合には届出をする必要はない事を念の為申し添える。

○ 家畜人工授精実施状況調査及び家畜改良増殖法附則第九項並びに第十三項に該当する家畜人工授精師家畜人工授精所の調査について

昨年十一月八日衛生、生産両課長名で依頼した昭和二十四年度家畜人工授精実施状況、及び十一月二十日附衛生課長名で依頼した家畜改良増殖法附則第九項及び第十三項に該当する家畜人工授精師、家畜人工授精施設の調査に就いては、再三報告方を依頼しているが、未だ左記地方からは報告に接しないから至急一月中に報告されたい。

一、昭和二十四年度家畜人工授精実施状況調査

北海道、秋田、福島、埼玉、千葉、東京、神奈川、山梨、長野、岐阜、兵庫、鳥取、広島、山口、徳島、香川、高知、長崎、熊本、鹿児島

二、家畜人工授精師、家畜人工授精所に関する調査

北海道、福島、東京、神奈川、三重、奈良、鳥取、島根、香川、熊本

○ 家畜防疫用自動車燃料配給について　資材係

ささに牛の流行性感冒流行中に総計二万八千五のがソリンを家畜防疫用自動車の燃料として特配し、夫々有効適切に使用された事と思われるが、その右牛の流行性感冒も大部分終熄し、自動車の使用も減少し、従

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って前記申請も現在皆無の状況にあるが、なお発生の虞、その他最近において緊縮に必要とする諸務があれば、当課としては極力配給する方針であるから、特配申請書を一月末日迄に到着するよう措置されたい。

又物資不足の折から少量の場合は現地適宜分室と充分協議の上現地自身で措置される事を希望する。

○ 家畜伝染病予防法第十六條及第十八條の規定の適用状況（通報第一〇三号以降）

千葉県	疑似 一、九	現則（通報第九十九号）発生	
兵庫県	疑似 一、六	現則中疑似、滋賀県 神奈川県、東京都、新潟県、三重県大分県、香川県、高知県、福井県埼玉県、和歌山県宮崎県、山口県大阪府、佐賀県、鹿児島県豊島村豊東村、福井村、野崎村、内日村、宇賀村、神至村、阿川村、田村村、豊田下村、豊田諸村、山口市、宮野、喜川、高知各地区、下関市（但疑生地区を除く）阿武郡隣生村を削除	
大分県	昭二ヲ一一五	現則中疑似を削除	

○ 家畜伝染病発生状況

一月六日より一月十三日迄次の通り家畜伝染病の発生報告があった。

病名	頭数	発生月日	場所	帰帰
炭疽	一	一、八	愛知県知多郡大府町	斃死
炭疽	一	一、一一	愛知県知多郡大府町	斃死
豚丹毒	一	一二、一五	千葉市	廃棄
〃	一	一二、一七	横浜市	〃
豚コレラ	二	一二、二〇	岐阜県大垣市	殺処分
〃	八	一二、二一	〃	〃

○ 獣医用医薬品等取締規則一部改正説明会開催について

現在動物用医薬品、用具に関する事務は、薬事法に基き動物用医薬品取締規則によって実施されているが、最近この面の学術の進歩に伴い、これが実施に際し不便の点が一層多くなって来たので、同規則の全面改正を必要とするのであるが、薬事法の改正も考慮計画されている関でもあるから差当り緊急必要とするそのみを一部改正し実務の円滑化を計るため一月二十日（土）午後一時より東京大学農学部四号館大講堂において日本獣医協会主催のもとに説明会を開催することとなった。

追って当日の説明会は今般の一部改正により動物用医薬品用具製造業者、医薬品販売業者及び輸入販売業者並びに関係事務担当者の影響する処も大きいと思われるから振って御参集の上各位の活発な御意見をお聞かせ願いたい。

東京都文京区本郷二ノ三

文永堂書店

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TOKYO PREFECTURAL LIVESTOCK SECTION

19 January 1951

CERTIFICATE OF INSPECTION

The following list of establishments were inspected and found to be sanitarily satisfactory or very satisfactory and are considered safe for release of indigenous poultry products (eggs) to occupation agencies authorized to purchase such products.

1. Very satisfactory

Flock	Name	Location	Number of birds
1	Rokuro Takagi	561, Soda, Tasai-mura, Nishitama-gun	200
2	Akira Suda	1228, 1-chome, Owada, Hachioji-shi, Nishitama-gun	2,500
3	Masuzo Yabe	160, Nake-gawara, Nishifu-mura, Kitatama-gun	1,000
4	Joichiro Nakajima	Yotsuya, "	1,200
5	Kenji Ohkubo	976, Koremasa, Tama-mura, Kitatama-gun	300
6	Toshisaburo Iijima	188, Kami-hoya, Hoya-machi, "	400
7	Sentaro Ishida	2686, Koganei-machi, Kitatama-gun	2,000
8	Toshio Shimizu	24, Naito-shinden, Kokubunji-machi, "	400
9	Kiichi Sakamoto	58, Nonaka-shinden, Kokubunji-machi, "	400
10	Hidejiro Hiraki	580, 8-chome, Kami-meguro, Meguro-ku	400

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2. Satisfactory

Flock	Name	Location	Number of birds
1	Takaji Futami	5,276, Nagai, Okuno-mura, Nishitama-gun	200
2	Mataji Hayashibe	292, Hane, Nishitama-mura, Nishitama-gun	200
3	Ryuzo Moriya	Kasumi-mura, Nishitama-gun	200
4	Sakuzo Miyadera	Tomioka, Osogi-mura, Nishitama-gun	200
5	Yoshizo Hosoya	568, Fussa-machi, Nishitama-gun	400
6	Sueo Murano	425 " "	200
7	Chujiro Ito	1224 " "	350
8	Zensaku Kishino	Setooka, Tasai-mura, Nishitama-gun	300
9	Masaichi Okuzumi	1,153, Hino, Hino-machi, "	200
10	Shoji Kimura	303, Hinoshinden, Hino-machi, "	250
11	Matsunosuke Shijikata	955, 3-chome, Owada, Hachioji-shi, "	500
12	Shigeji Harajima	Yanokuchi, Inagi-mura, "	200
13	Yoshitoshi Arakawa	" "	700
14	Tokujiro Hrada	Yanokuchi, " Inagi-mura,	200
15	Taichi Sasakubo	" "	400
16	Zenjiro Ishiguro	" "	200

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17	Zenzo Kawashima	400, Nakagami, Showa-machi, Kitatama-gun	700
18	Sosuke Sashida	111, Kami-kawahara, "	700
19	Kuraji Koyama	1929, Haijima-mura, "	600
20	Shoji Kotani	5205, Nishihara, Motoine, Nishifu-mura, "	500
21	Ginsaku Naito	129, Honshiku, Nishifu-mura, "	600
22	Hide Matsumura	3,719 " "	600
23	Kenichiro Ohmori	129, Yotsuya, Nishifu-mura, "	300
24	Shiro Isoda	495, Nake-gawara, " "	200
25	Kikuzo Takano	3,026, Shibama, Fuchu-machi, "	800
26	Koichi Hayashi	3,260, " " "	200
27	Katsuhei Kuwada	2,269, Honcho, Fuchu-machi, "	200
28	Choji Enomoto	978, Koremasa, Tama-mura, "	400
29	Choichi Yokoyama	915 " " "	200
30	Masaichi Hiruma	888 " " "	350
31	Harukichi Yokoyama	998 " " "	200
32	Kenzo Kawabe	962 " " "	350
33	Shinkichi Kageyama	978 Koremasa, Tama-mura, "	200
34	Katsuzo Ohkubo	976 " " "	200

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35	Minekichi Watanabe	2240, Koganei-machi, Kitatama-gun	400
36	Fujio Sakuma	2532, " " "	200
37	Taro Sakamoto	48, Nonaka-shinden, Kitatama-gun	300
38	Ichiro Koinuma	476, Suguki-shinden Kodaira-machi, "	200
39	Ichigoro Kamiyama	563, Nonaka-shinden, Kokubunji-machi, "	200
40	Magoshiro Shikuya	165, Sunakawa-mura, "	400
41	Yuzo Nakano	175, " " "	200
42	Katsusaburo Motohashi	Naito-shinden, Kokubunji-machi, "	400
43	Takejiro Uragami	2518, Shimo-hoya, Hoya-machi, "	200
44	Sakunosuke Takahashi	862, " " "	200
45	Takeshi Kato	373, Hoya-machi, "	200
46	Rihashi Matsumura	1682, Nakazato, Kiyose-mura, "	400
47	Takeo Nakamura	20, " " "	300
48	Chuichiro Suga	8, 3-chome, Edogawa, Edogawa-ku	250
49	Tatsu Okada	17, 3-chome, Harue-cho, Edogawa-ku	800
50	Shinji Kobayashi	610, 3-chome, Higashi-komatsugawa, Edogawa-ku	800
51	Masakatsu Nagatsuka	2390, 1-chome, " "	800

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52	Nobukichi Kofukata	63, Higashi-tamagawa-machi, Setagaya-ku	1,000
53	Wuhei Nishimoto	" " "	200
54	Fukuzo Kato	588, Higashi-3-chome, Magome-cho, Ohta-ku	200
55	Tokujiro Kishi	339, Nishitaishido, Setagaya-ku	400
56	Sueji Sakuma	178, 1-chome, Maki-cho, Setagaya-ku	300
57	Kaname Suzuki	3-chome, Shin-cho, Setagaya-ku	300
58	Toshiji Yonekura	478, Fukazawa, Setagaya-ku	200
59	Seiichi Hanji	396, Kaminoge-cho, Setagaya-ku	200
60	Kane Miyoshi	248, 2-chome, Kami-noge-cho, Setagaya-ku	300
61	Kotaro Umehara	1277, 2-chome, Soshigaya, Setagaya-ku	300
62	Manjiro Yoshimura	40, Yahatayama-cho, Setagaya-ku	200
63	Hisae Fukuoka	118, 3-chome, Kugayama, Suginami-ku	200
64	Kan Yamano	995, 4-chome, Shimo-takaido, Suginami-ku	200
65	Sutematsu Akiyama	650, 2-chome, Asagaya, Suginami-ku	200
66	Harumitsu Kitamura	1181, 3-chome, Kami-kitazawa, Setagaya-ku	400
67	Toshiaki Nosaka	132, 1-chome, Ikebukuro, Toshima-ku	200
68	Fujio Mizusawa	5-1, 5-chome, Toyo-tama-kita-machi, Itabashi-ku	500
69	Harunosuke Torii	16, 4-chome, " "	200

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70	Shigeo Uchida	132, 1-chome, Ikebukuro, Toshima-ku	500
71	Inosuke Shimoyama	2189, Nishi 2-chome, Magome, Ohta-ku	600
72	Fujio Ohmae	76, Yohka-machi, Hachioji-shi	300
73	Takeshi Kawamura	687, 3-chome, Nakamura-cho, Nerima-ku	400
74	Yazaemon Saito	5154, 4-chome, Motoki-cho, Adachi-ku	500
75	Yoshio Kuwabara	390, Saifuku-cho, Suginami-ku	500
76	Jirokichi Saiki	199, 2-chome, Higashida-machi, Suginami-ku	500

Signature Dr. T. Hinagawa
Dr. Tsunaki Hinagawa

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Int

LEGAL CASE CONCERNING BOVINE TUBERCULOSIS

Prosecution regarding prohibition of the cow suffered from tuberculosis which was taken up in Okayama Prefecture last spring have resulted winning of the prefecture at the Okayama Districts Court on 27 December last year with the decision that the raiser of the animals should be fined ¥2,000.

Further Dr. Kamachi of our authorities attended at this judgement and as the result of autopsy made with the presence of all officials at the Okayama slaughterhouse on 28th, the following day, it was found that, both from 2 animals, new and old and also slight tuberculosis symptoms in lungs and the attached lymphatic glands.

APPLICATION OF THE PROVISIONS OF THE PREVENTIVE LAW OF INFECTIOUS DISEASES OF DOMESTIC ANIMALS
(Provisions: Art. 16 & 18)

Tochigi Prefecture	Influenza	Dec.	Enforcement Regulation provoked.
Gunma Prefecture	Influenza	"	"
Ishikawa	Influenza	"	"
Gifu	Influenza	"	"
Kumamoto	Swine cholera	"	"
Kagoshima	" "	"	Quarantine area add(Usugun area).
Mieken	Influenza	Nov.	Enforcement regulation revoked.
Nagano	Influenza	Dec.	"

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FUMIGATION

10 Nidori-cho, 1-chome Odawara-Shi

(Japan Fruit Growers Association "SA")

There will be 63,080 pounds of rope fumigated on the 4th of October. The conditions for fumigation are as follows:

1. The rope must be placed in a air tight compartment.
2. Temperature must be maintained at 65°F (18.9°C).
3. The spray solution will be 37 per cent formulin by weight.
4. All materials will be exposed to the spray solution.
5. At the conclusion of the spraying process, the building or compartment will be closed and sealed for a period of 8 hours.
6. The amount of spray used will be 14 2/10 ounces for every 1000 cubic ft. of building space.

At the conclusion of this operation, call SCAP Section.

*473.16 cc = 16 fl. oz. = 1 pint.

#693 cc Needed —

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Liquol Formaldehydi, U.S.P., is an aqueous solution of formaldehyde which contains 37 per cent of the gas. It occurs as a clear liquid which is pungent and irritating to the mucous membranes. It mixes readily with water and alcohol in any proportion, but the solution becomes milky on standing owing to the separation of the formaldehyde from its excipient. It should be kept in the dark and in a cool place.

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Animal Hygiene Weekly No. 103
January 8, 1951
Animal Hygiene Section, MAF.

Contents

Dr. Saito: Impression of New Year.

Letter from Dr. Kobayashi.

Law case concerning Cattle tuberculosis.

Distribution of Animal Hygiene Weekly.

Application of the provision of "The concerning the prevention of Infectious Diseases of Domestic Animals" Art. 16 and Art. 18.

Number of animal attacked by infectious disease from Dec. 30 to Jan. 5.

Registration for animal-use-drugs and animal-use-manufactory.

Amount on builogical products approved by the national assay during the period from Dec. 23 to Jan. 5.

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1951
No.103

家畜衛生週報

昭和廿六年一月八日（一月曜日）

東京都千代田区霞ヶ関三丁目三番地
農林省畜産局衛生課
農林省畜産局薬事課

目次

○ 衛生課長年頭挨拶
○ 小林衛生試験場長の「アメリカ便り」
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○ 家畜衛生週報の増刷配布について
○ 家畜伝染病予防法第十六條及び第十八條の規定の適用状況
○ 家畜傳染病発生狀況
薬事
○ 動物用医薬品、用具製造所登録
○ 生物学的製剤国家検定合格数量

衛生課長年頭挨拶

明けまして御目出度うございます。この週報も発刊以来一〇〇回を突破して愈々第三年に入りました。我々の仕事も年々遂ふて拡大して行く一方です。

昨年中は流感の大流行を初めとして其他疫病・豚コレラ・豚丹毒等と中々多忙でしたが幸に各位の御協力を得て何とか年を越しました。

本年も暫らく昨年以上に多忙な年と予想されますし、防疫以外の仕事例えば人工授精の普及や一般畜産の仕事に大いに進出したいと思って居ります。一層の御協力を御願ひする次第です。

昨年は一番忙しいときに四ヶ月半ばかり留守をしまして各方面に御迷惑をかけたことと存じます。幸に昨年末無事に帰国致しましたので年頭のお祝ひを兼ねて御挨拶を申上げます。

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○ 小林衛生試験場長の「アメリカ便り」に接す

先般渡米された家畜衛生試験場長より新年の挨拶並に現地の状況につき次の如き便りがあった。

謹賀新年

遥かにワシントンより

小林正芳

カいフオルニヤ、ベークルイ、カツタ研究所の主任技術者はH.カスブレイ博士で目下豚コレラ鶏卵予防液、気腫疽予防液、破傷風予防液、炭疽予防液の第三及び第四を作っています。この炭疽第四予防液には普通のものと、水酸化アルミニユームに吸着させたものとあって、後者はペテントをとっています。

設備は日本の新しい製造所と同じ位です。但し消毒と清潔は驚くばかりです。その上飼料は上等なものを与えています。人体用ダプテリヤ血清の液詰室、無菌室は良く出来ています。血清ウォーターバス消毒は日本でもやっていませんが、これは畜産局の標準だそうです。大した工夫もなく利用出来ます。大したエ夫もなく利用出来ます。（五八ー八九度一時間消毒）採血室も小生の計画のものと大きさは丁度同じ位ですが少し汚いと思います。

豚コレラ予防液の検定は白家検定の状態を詳細に西部畜産会が近くにいて、その人に承認してもらいます。その他に製造は毎週（？）二本宛抜取ってワシントンに送ります。この点は日本と相違しています。畜産の空気汚染は羊毛、綿花、ガラス繊維でやります。

以上が本日現在した大体の所です。実に視察して新知をお知らせします。未だ未だ見れませんので間違っているかもしれません。なお西部駐在畜産官はFPレポート博士という相当のお爺さんです。

ペールリバーのラダレー研究所の見学をしました。獣医部の主任はマツクウエルク博士、同主任はレエオダー博士です。ダニクソン博士に案内されて各種施設を見学しました。とにかく大量生産です。少量の製造ではこんな設備はできません。七右衛門と金てがけです。乾燥ワクチンですから何んにでも利用出来るわけです。鶏胎化牡犬病ワクチンは今春から、家兎化豚コレラワクチンは近く売り出すそうです。設備は光市にある武田薬工の人体用製造設備を少し改良すれば出来るさそうです。但しこの人体用製造設備は未だ見ていません。ステンパー乾燥ワクチンは大量に出る様です。特に繁くようなことはありません。逐次ワクチンも改良さ

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ていくようです。豚コレラ死毒ワクチンは免疫期間も短かくまず米国でも絶賛上困ったのを乾燥したと申していす。

注射後の有効期間は未だ判らめそうです。症状の自信ばアビナイズされたものは一回注射で一八ヶ月免疫する層ばあり一、五〇〇頭の犬を用いて試験したと申しています。なおニーモ田晃学に行く予定です。

○ 豚丹毒ワクチン検の消毒期間は参考になりました。即ち製品は真空を破ってありますが、先ずゴム栓を半分差込んだ後に空気を排除しながら自動的に密閉します。私が日本で考えていたのと満悪は同じでした。

真空乾燥器は簡単なものでも一大、〇〇〇ドルもします。

（十二月一日発）

○ 結核病牛に関する告発事件について

取年春、岡山県に於った、結核病牛の殺処分拒止に関する告発事件は、昨年十二月二十七日岡山地裁で判決が下されて、同裁判所において飼養者は罰金二、〇〇〇円の判決が下されて県の勝訴となり結末をつげた。

なおこの判決には当局から強地抗告が提出し、翌二十八日岡山屠場において立会解剖を行った結果、二頭共に肺及びその附属淋巴腺に限旧且つ重度の結核病態が認められた。

○ 家畜衛生週報の頒布について

当課において発行している家畜衛生週報は昭和二十四年一月第一号の創刊以来、既に満二年を経過し、その発行も一〇〇号を超えるに至り、その間中央と各地方との意志の疎通、情勢判断等に種々寄与するところがあったことと思うが、現在予算の都合上文末ながら好意により印刷しており、従ってその発行部数も制限せられ、各都道府県に対し僅に一部の送附に止らざるを得ない実情である。然るに都道府県においては、各係、地方事務所、家畜保健衛生施設或は畜産団体等に配布し、依然事務の迅速徹底を図るため、受領部数の増加を希望する向が多く、この際発行部数を増加する予定であるが、参考のため増加希望のむきはその部数を一月末日迄に御知らせ願いたい。

なお都合により増加の分はその実費の負担を願うやも知れず申添えます。

○ 家畜伝染病予防法第十六条及び第十八条の規定の適用状況（週報第一〇二号以降）

栃木県	流感 二、	規則発止
群馬県	流感 二、八	規則発止
石川県	流感 二、二	規則（週報第九十六号）発止

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岐阜県	流感 一二三	規則	廃止
滋本県	脳コラ 一二一九	規則（通報第九十八号）	廃止
鹿児島県	豚コラ 二、三〇	規則（通報第一〇一号）中大分県宇佐郡を追加	
追加			
三重県	流感 一二四	規則（通報第九十、九十三号）	廃止
長野県	流感 一三、三一	規則（通報第九十九号）	廃止

○ 家畜傳染病発生状況

十二月三十日以後一月五日まで家畜傳染病の発生はありません。

業事

○ 動物用医薬品・用具製造所登録

製造所々在地名称	登録番号	登録月日	備考
福岡県河内郡宝村大字宝満字五二之			
株式会社 治郎	五一	三、一〇、九	用具
宮崎市御幸町一			
宮崎県衛生試験所	一〇二〇	三、一二、三	生劑

製造所名	製造番号	登録番号	登録月日	備考
千葉県印旛郡佐倉町大字一〇三 千葉県血清研究所佐倉支所	一〇一九	三、一二、三	生劑	
香川県大川郡松島野浦崎本二八八 三共化学工業株式会社ナーリン工場	二四五	三、一二、一	医薬品	
鳥取県米子市茶町二九 小枝商店 第一工場	二四九	三、一二、三	医薬品	
香川県大川郡三本町四四一 香川県血清薬株式会社本社工場	二四六	〃	〃	
宮崎県宮崎郡清武町七九 日新化学工業株式会社	二四八	〃	〃	
京都市下京区大宮通大学東入る クサノ薬局	二四七	〃	〃	
鳥取市茶町五四 一関製薬株式会社第二工場	二五一	〃	〃	
鳥取県米子市万能町五 小枝商店 第二工場	二五〇	〃	〃	

製品名	製造番号	登録番号	登録月日	製造所名
ダスティベー 四混	七	一三、二〇〇	三、一二、三	飼料添加剤

○ 生物学的製剤国家検定合格検定

（十二月二十三日――一月五日）

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片頭血清	三〇	二九、六〇〇〇	一、四	七七〇	京都東牛痘血清製造所
〃	四二	五三、九〇〇	〃	七一〇	〃
豚コレラ予防液	四一	七五、八〇〇	一二、三五	六九二	日本生物科學研究所
〃	九	九、七〇〇	〃	八〇三	〃
〃	八	九、七〇〇	〃	八〇三	〃
〃	七	九、七〇〇	〃	八〇一	〃
〃	六	九、七〇〇	一三、三七	八〇〇	佐藤夏血清製法研究所
〃	九一	一九、五〇〇	一三、三六	七九二	北里研究所
〃	一一	二四、二〇〇	一三、八	七八五	〃
〃	九	二九、三〇〇	一三、八	七八三	杭州科學研究所
〃	九〇	九、七〇〇	〃	七七七	〃
〃	八九	九、七〇〇	〃	七七六	〃
〃	八八	九、七〇〇	一三、三五	七七五	押田研究所
〃	二〇	一九、五〇〇	〃	七九七	〃
狂犬病予防液	一九	一九、五〇〇	一三、三三	七九六	東京都衛生研究所
〃	五	四、六六〇	〃	八〇〇	〃
〃	四	二、八六〇	〃	八一九	〃
〃	三	二、五八〇	〃	八一八	〃
〃	二	三、〇六〇	〃	八一七	〃
〃	一	二、六〇〇	一三、三七	八一六	杭州科學研究所
破傷風血清	二	一八、四一〇	一三、三三	八〇八	北里研究所
炭疽精予防液	九	八九〇	一三、三二	七七二	家畜商生試驗場

〃	二〇	七七、四〇〇	一、五	七四四	家畜衛生試驗場
〃	一七	四二、四〇〇	一、四	七九五	服藥輸入業務委員會
〃	九三	一九、五〇〇	一、四	八〇四	北里研究所
〃	九四	一九、五〇〇	一、四	八〇五	〃
〃	九五	一九、五〇〇	一、五	八〇六	〃
〃	九三	九、七〇〇	一、四	七九一	押田研究所
〃	八	一八、六〇〇	一、五	七六五	杭州科學研究所

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1. TAX AND COMMISSIONS CONCERNING SLAUGHTER-HOUSE

(A)

Payment to	Sorts of Tax or Commissions	Cow	Horse	Swine, Calf, Goat & Sheep
Finance Bureau	Tax for Slaughtering animal	¥350	¥280	¥180
Health Bureau	Commission for inspection	200	200	80
Economic Bureau	Slaughter house rent	300	300	150
Total:		¥850	¥780	¥410

(B) CHARGE TO ASSN. FROM APPLICANTS FOR SLAUGHTERING

Cow	Horse	Swine, Calf, Goat & Sheep
¥25	¥25	¥10

2. RAIL TRANSPORTATION FEE

(A)

	Cow	Horse	Swine, Calf Goat & Sheep
Charge for admission	¥30	¥30	¥20
Hitching Fee	100	120	80
Freight-car using fee	527	527	418
Total:	657	677	518

(B) RENT OF ONE FREIGHT-CAR (For 10 large animals)

	Cow	Horse	Swine, Calf, Goat & Sheep
Including the all above	¥1,532	¥1,482	¥938

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775 013

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P.

1. と場関係 税及び手数料

当内入庁	税及び其の他の手数料	牛	馬	豚、緬山羊、とく
財務局	と畜税	350.00	280.00	180.00
衛生局	検査手数料	200.00	200.00	80.00
経済局	と場使用料	300.00	300.00	150.00
計		850.00	780.00	410.00

と畜申請人より組合(知)え（代行手数料）

	25.00	25.00	10.00

2. 鉄道関係

貨車に積込む場合

入場料	30.00	30.00	20.00
繋留料	100.00	120.00	80.00
貨車引込料	(大) 527.00		(小) 418.00
計	657.00	677.00	518.00

（1貨車大動物約10頭分）

総　計	1,532.00	1,482.00	938.00

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Rail Station Platform and Stall Milk Products Distribution

Charles E. Pegg DVM

During the period 8 November to 15 November 1950 a survey was conducted on milk and milk products in the Tokyo area to determine product quality and the degree of processor compliance with the requirements of the Food Sanitation Law and Regulation and the Ministry of Welfare Ordinance regarding ingredient standards for milk and similiar dairy products.

The survey was conducted by the Tokyo-To Public Health Section as a result of recommendations made by KaCAR Public Health Section and was accomplished on three (3) classes of dairy products sold to train passengers from rail station platforms and stalls. Investigations were also conducted at milk and milk drink product processors supplying the sales agencies of these platforms and stalls. The survey included collection and analysis of city milk, milk drinks and ice cream.

A total of eight teams, composed of three to four men each, were assigned to the project. Six teams engaged in sample collection while two teams conducted laboratory analysis on the collected sample; laboratory analysis was begun on all samples on the day of collection and evaluations were based upon the minimum requirements of the Ministry of Welfare Ordinance No. 58 and the annexed table of ingredient standards of manufacturing, processing, and preservation of the products considered in the survey.

During the survey the following number of samples were collected and analyzed in each category subject to the interest of the project.

Product	Samples Collected
City Milk	40
Milk Drinks (beverage)	54
Ice Cream	15
Total	109

Each class of milk or milk product examined will be considered separately with consolidated remarks presented when such are common to all classes of collected samples.

City Milk Samples

Three types of bottles were found to be in use for station milk distribution. The regulation type bottle was the least common while the cider and coco cola type bottles were the processors choice for dispensing. The regulation bottles were capped with paper disc and all other containers were stoppered with various types of covers ranging from wooden or cork plugs to the beer-bottle type cap. Bottles with chipped crowns were frequently found and caps or plugs on these did not facilitate complete sealing. Most of the collected samples were sold in clear glass bottles; however, many samples were found to be contained in bottles ranging from blue to clear glass.

Light to moderate sediment (dirt and foreign matter) was observed in a few samples and flocculation or curding was also evident. In some cases, there was ringing or coagulation of milk within the container.

Storage facilities were rarely utilized and milk generally remained in the agents' sales-tray until his supply of products were sold. If refrigeration chests were found on station platforms or in stalls, they were usually conspicious by the absence of ice and the presence of an accumulation of dirt, rust and other foreign matter.

For results of laboratory analysis on the forty samples of city milk collected refer to chart no. 1.

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Milk Drink Samples

The method of bottling and capping milk drinks is much the same as that defined in city milk samples except that the regulation type bottle is not used and the contents are sold in bottles ranging in color from brown to clean glass.

In many of the milk drink samples there was evidence of separation of milk and other ingredients incorporated in the product. In samples containing a mixture of coffee, lemon, etc. heavy ringing at the surface of the milk was seen and the presence of sediment was not of uncommon occurence.

The results of the evaluation study on milk drink samples is reflected in chart no. 2.

Ice Cream Samples

Ice cream was packed in two types of containers. The carton which afforded the most protection against contamination was made of lightweight cardboard partially impregnated with wax; the carton was completely covered with wax paper. Other samples were sold in a very thin wooden box which were covered on three sides by a sheet of paper that was held in place by a rubber band or string.

The condition of the product was variable in that texture and color changes were not characteristic of ice cream. In many of the samples, the texture resembled an ice or sherbert rather than ice cream and color changes in the product were well defined.

Laboratory analysis of ice cream samples is reflected in chart no. 3.

Results

1. City Milk (see chart)

a. The specific gravity range is within the normal limits for all samples.

b. The acidity range is high in 9 (22.5%) of the samples.

c. Butter fat is low in 12 (30%) samples.

d. Solids not fat within normal limits.

e. Bacterial counts by the plate count method of analysis indicate that 29 (72.5%) of the samples are not within the prescribed limits.

f. The coli group test resulted in 31 (77.5%) positive.

g. Of the primary factors governing the acceptability of the city milk under the present regulation:

(1) Samples condemned for coli group only 5 (12.5%)
(2) Samples condemned for bacteria only 1 (2.5%)
(3) Samples condemned for butter fat only 4 (10.0%)
(4) Samples condemned for bacteria and coli only 18 (45.0%)
(5) Samples condemned for butter fat and coli group only 1 (2.5%)
(6) Samples condemned for butter fat, coli group and bacteria only 7 (17.5%)

h. Only four samples (10%) were found to be within the required limits in the laboratory analysis.

2. Milk Drink (see chart)

a. The specific gravity range is from 1.0122 to 1.0312.

b. The acidity range is characteristic of a wide variation (0.07% to 0.22%).

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c. Butter fat range is also characteristic of a wide variation (0.0% to 3.02%).

d. Solids not fat shows a wide variation (2.62 to 8.72).

e. Bacterial counts by the plate count method of analysis indicate that 21 (38.9%) samples are not within the prescribed limits.

f. The coli group test resulted in 18 (33.3%) positive samples.

3. Ice Cream (see chart)

a. Butter fat is low in all samples.

b. Bacterial counts are too high in 14 (93.3%) samples.

c. The coli group test resulted in 11 (73.3%) positive samples.

Conclusion

1. City Milk

a. In general the large percentage of "coli" positive samples indicate that the majority of product contamination takes place at the processing plant.

b. Lack of "coli" positive samples found in the Hachioji Milk Plant would indicate that processed milk was undergoing an incubation lag or was not properly handled by the selling agent.

c. The butter fat percentage in "coli" positive samples is not sufficiently low to conclude that there is criminal tampering with the product.

d. The type of bottles used in distribution may be a factor in contamination since caps or stoppers are often found to be ill-fitting.

e. High bacterial counts (including coli) indicate improper processing, handling and or refrigeration.

f. Damaged crowns may serve as an avenue through which bacteria may gain entrance into the product.

2. Ice Cream

a. The butter fat percentage is low in all samples indicating that the labeling of these products is incorrect.

b. High bacterial counts (including coli) indicate very poor handling of the ingredients or the finished products as well as poor and insanitary equipment.

c. Close supervision will have to be given to the employees in reference to sanitation and personal hygiene.

3. Milk Drink

There are no complete standards for this product; however, bacterial counts and the high coli index is sufficient to conclude that methods of handling, processing, storage and personal hygiene of employees should be improved.

4. Basically it may be concluded that the regulations governing the control of milk products now in effect are not being complied with.

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Recommendations

1. It is recommended that:

a. Regulation type milk bottles be used in distribution of all city milk.

b. A regulation type carton impervious to contamination be used for packaging ice cream.

c. Refrigeration facilities be made available at all stations and stalls in order to maintain milk at the required temperatures.

d. Complete standards be established for all milk drinks.

e. Incorrect labeling be prohibited.

f. Courses of instruction in personal hygiene and sanitation be made the responsibility of all establishment operators.

g. All equipment in milk processing plants (regardless of type) be standardized in order to effect proper control.

h. More frequent inspections be made into the station and stall milk situations regarding sanitation of plants, distribution points and employees.

2. It is further recommended that all personnel engaged in processing, handling and the sale of station and stall milk or milk products be subjected to regular physical examination.

3. It is recommended that a program of strict control under existing regulations be effected.

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-CITY MILK-

o.	Processor	Collecting Point	Sp.Gr.	Acid-ity	B-Fat	S.N.F.	Bacterial Direct	Bacterial Culture	Coli
1	Hachioji MP	Plant	1.0304	0.17	3.17	8.41	$64x10^4$	$36x10^2$	Neg.
2	"	"	1.032	0.17	3.10	8.39	$38x10^4$	$12x10^3$	Neg.
3		"	1.0301	0.17	3.15	8.35	$60x10^5$	$50x10^2$	Neg.
4		"	1.0315	0.17	3.10	8.61	$90x10^5$	$62x10^3$	Neg.
5		Hagiwara MS	1.0303	0.17	3.08	8.23	$13x10^5$	$21x10^5$	Pos.
6		"	1.0294	0.17	3.12	8.60	$78x10^4$	$18x10^5$	Pos.
7		Hachioji MS	1.0324	0.17	3.12	8.60	$78x10^4$	$33x10^3$	Pos.
8		"	1.0324	0.17	3.10	8.70	$21x10^4$	$50x10^3$	Pos.
9		Maru MS	1.0324	0.17	3.01	8.39	$39x10^4$	$13x10^5$	Pos.
10		"	1.0308	0.17	3.03	8.23	$81x10^4$	$32x10^5$	Pos.
11		Tachikawa*	1.0297	0.17	3.00	8.18	$72x10^4$	$18x10^5$	Pos.
12		"	1.0296	0.17	3.02	8.26	$12x10^4$	$28x10^5$	Pos.
13	Kosaikai FN 1	Plant	1.0303	0.17	2.93	8.58	$24x10^5$	$30x10^4$	Pos.
14		"	1.0314	0.17	3.00	8.51	$31x10^5$	$49x10^5$	Pos.
15		"	1.0314	0.17	2.98	8.30	$30x10^5$	$26x10^5$	Pos.
16		"	1.0304	0.17	2.93	8.71	$16x10^5$	$10x10^4$	Pos.
17		Ueno Station	1.0324	0.18	2.97	8.03	$15x10^5$	$72x10^4$	Pos.
18		"	1.0327	0.19	2.89	8.99	$25x10^5$	$15x10^4$	Pos.
19		Ryogoku*	1.0315	0.17	3.02	8.29	$51x10^5$	$43x10^5$	Pos.
20		"	1.0315	0.18	2.76	8.63	$32x10^5$	$19x10^5$	Pos.
21	Osawa MP	Akabane*	1.0284	0.17	2.90	8.34	$66x10^5$	$34x10^3$	Pos.
22	"	"	1.0283	0.18	2.81	8.43	$12x10^5$	$37x10^4$	Pos.
23		Plant	1.0289	0.17	2.90	8.21	$12x10^4$	$17x10$	Neg.
24		"	1.0289	0.16	2.90	8.35	$36x10^5$	$23x10$	Neg.
25		"	1.0296	0.17	2.80	8.50	$33x10^5$	<300	Neg.
26		"	1.0289	0.17	2.96	8.20	$32x10^5$	<30	Neg.
27	Meguro MP	Plant	1.0304	0.17	3.19	8.31	$25x10^5$	$13x10^4$	Neg.
28		"	1.0304	0.17	3.18	8.32	$10x10^5$	$17x10^4$	Pos.
29		"	1.0304	0.17	3.18	8.35	$12x10^5$	$19x10^4$	Pos.
30		"	1.0304	0.17	3.19	8.40	$11x10^5$	$78x10^3$	Pos.
31		Shinjuku*	1.0313	0.18	3.00	8.49	$52x10^4$	$13x10^4$	Pos.
32		"	1.0317	0.18	3.00	8.48	$15x10^4$	$50x10^3$	Pos.
33		Shinagawa*	1.0306	0.22	3.00	8.56	$16x10^6$	$13x10^5$	Pos.
34		"	1.0326	0.18	3.02	8.82	$65x10^5$	$80x10^4$	Pos.
35		"	1.0305	0.18	3.05	8.67	$38x10^5$	$86x10^4$	Pos.
36		"	1.0305	0.17	3.00	8.60	$38x10^5$	$25x10^4$	Pos.
37	Ryogoku MP	Akabane*	1.0286	0.17	3.10	8.42	$63x10^5$	$17x10^5$	Pos.
38		"	1.0296	0.17	3.16	8.06	$12x10^5$	$11x10^3$	Pos.
39		"	1.0296	0.17	3.20	8.33	$90x10^4$	$21x10^4$	Pos.
40		"	1.0289	0.17	3.20	8.39	$40x10^4$	$38x10^4$	Pos.

MP = Milk Plant
MS = Milk Store
FN = Factory No.

*Indicate train station.

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- MILK DRINK -

No.	Processor	Collecting Point	Sp.Gr.	Acidity	B-Fat	S.N.F.	Bacterial Direct	Bacterial Culture	Coli
1	Moriyama MP	Plant	1.0312	0.18	2.60	8.22	60×10^3	32×10^3	Neg.
2		"	1.0312	0.18	2.60	8.20	30×10^2	<30	Neg.
3		"	1.0312	0.18	2.67	8.18	55×10^3	<30	Neg.
4		"	1.0312	0.18	2.60	8.06	60×10^3	<30	Neg.
5		Tachikawa*	1.0286	0.18	2.80	8.00	90×10^3	<30	Neg.
6		"	1.0285	0.18	2.50	8.04	90×10^3	<300	Neg.
7		"	1.0275	0.18	2.56	7.95	12×10^4	<25	Neg.
8		"	1.0281	0.18	2.50	7.99	20×10^3	<30	Neg.
9	Kosaikai FN 2	Plant	1.0294	0.17	3.02	8.04	22×10^4	50×10^4	Pos.
10		"	1.0296	0.17	2.94	8.17	46×10^5	59×10^4	Pos.
11		"	1.0292	0.17	2.90	8.17	12×10^5	63×10^4	Pos.
12		"	1.0294	0.17	2.90	8.13	24×10^5	33×10^4	Pos.
13		Ueno*	1.0296	0.17	2.90	8.10	20×10^5	35×10^4	Pos.
14		"	1.0291	0.17	2.89	8.14	42×10^5	60×10^4	Pos.
15		Ryogoku*	1.0296	0.22	2.60	8.39	46×10^6	45×10^5	Pos.
16		"	1.0296	0.17	2.60	8.32	15×10^6	34×10^5	Pos.
17	Kosaikai FN 1	Plant	1.0198	0.11	0	4.58	27×10^4	<30	Neg.
18		"	1.0198	0.11	0	4.44	33×10^4	<30	Neg.
19		"	1.0198	0.11	0	4.27	21×10^4	<30	Neg.
20		"	1.0198	0.11	0	4.31	15×10^4	<30	Neg.
21		Ueno*	1.0198	0.11	0	6.70	22×10^4	<30	Neg.
22		"	1.0198	0.11	0	6.69	30×10^3	<30	Neg.
23		"	1.0198	0.11	0	6.52	12×10^4	<30	Neg.
24		"	1.0198	0.11	0	6.48	42×10^4	<30	Neg.
25		Tokyo Central*	1.0202	0.11	0.30	4.80	10×10^4	<30	Neg.
26		"	1.0202	0.10	0.35	4.61	50×10^3	<30	Neg.
27	Kosaikai FN 3	Plant	1.0200	0.10	1.19	5.61	69×10^5	89×10^4	Neg.
28		"	1.0198	0.10	1.19	5.40	34×10^5	14×10^5	Pos.
29		"	1.0198	0.10	1.17	4.61	65×10^5	12×10^5	Pos.
30		"	1.0198	0.10	1.20	5.70	16×10^5	47×10^4	Pos.
31		Nippori*	1.0198	0.10	1.19	4.83	11×10^5	26×10^5	Pos.
32		"	1.0198	0.10	1.12	4.97	49×10^5	33×10^5	Pos.
33		"	1.0198	0.10	1.16	4.78	51×10^5	44×10^5	Pos.
34		"	1.0198	0.11	1.19	4.53	72×10^5	38×10^4	Pos.
35		"	1.0185	0.14	1.29	4.11	25×10^5	17×10^6	Pos.
36		"	1.0195	0.19	1.30	4.23	27×10^6	20×10^6	Pos.
37	Hirza Dairy	Plant	1.0295	0.14	2.90	8.54	90×10^3	<30	Neg.
38		"	1.0295	0.14	2.90	8.31	14×10^5	<30	Neg.
39		"	1.0295	0.14	2.99	8.23	33×10^4	<30	Neg.
40		"	1.0296	0.14	2.92	7.86	12×10^4	<30	Neg.
41	Kojimaya Fact.	Plant	1.0288	0.17	0.50	7.94	20×10^4	<30	Neg.
42		"	1.0294	0.17	0.49	7.75	90×10^3	<30	Neg.
43		"	1.0294	0.17	0.50	7.84	12×10^4	<30	Neg.
44		"	1.0294	0.17	0.48	7.80	27×10^4	<30	Neg.
45		Shinjuku*	1.0288	0.17	0.50	7.83	12×10^4	<30	Neg.
46		"	1.0288	0.16	0.50	7.62	11×10^4	<30	Neg.
47		"	1.0288	0.17	0.50	8.30	90×10^3	<30	Neg.
48		"	1.0289	0.17	0.50	7.87	27×10^4	<30	Neg.
49	Kosai Factory	Tokyo Central*	1.0122	0.07	0.08	2.62	53×10^5	24×10^4	Neg.
50		"	1.0122	0.07	0.10	3.52	24×10^5	30×10^4	Neg.
51	Moriyama MP	Plant	1.0253	0.17	0.45	7.97	<60	<30	Neg.
52		"	1.0253	0.17	0.55	7.57	<60	<30	Neg.
53	Shinoya Fact.	Akabane*	1.0308	0.21	0.40	8.72	<60	<30	Neg.
54		"	1.0308	0.21	0.10	7.78	<60	<30	Neg.

MP = Milk Plant FN = Factory Number

*Indicate train station.

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-ICE CREAM PICK UP-

No.	Processor	Collecting Point	Container	T-Mark	M. Fat	Acidity	Bacteria	Coli
1	Hachioji MP	Hachioji	Box	None	3.2	0.22	1,800,000	Pos.
2	Kato Choji MP	Tachikawa	"	None	2.9	0.08	300,000	Pos.
3	Nakamura Tei	"	"	None	2.0	0.09	400,000	Pos.
4	Dai Ichi FP	Ueno	"	Yes	0.9	0.15	260,000	Pos.
5	Daini FP	"	"	"	0.15	0.14	2,200,000	Pos.
6	Daisan FP	"	"	"	2.1	0.08	27,000,000	Pos.
7	Miyamori	Akabane	"	"	0	0.07	1,000,000	Neg.
8	Kasahara	"	"	"	0	0.09	1,600,000	Pos.
9	Tsutsu, Kokhi	"	"	"	0	0.04	390,000	Pos.
10	Snow Brand MP	Shinjuku	"	"	2.1	0.18	140,000	Neg.
11	Daigo FP	"	"	"	1.5	0.10	37,000	Neg.
12	Dairoku FP	"	"	"	1.2	0.15	47,000	Neg.
13	Dai Ichi Kosai FP	Shinagawa	"	"	0	0.08	5,400,000	Pos.
14	Dai (?) Kosai FP	Tokyo	"	"	2.4	0.14	270,000	Pos.
15	Daini Kosai FP	Ryogoku	"	"	0.1	0.10	64,000	Pos.

MP = Milk Plant FP = Food Plant

Collecting Point indicate train stations.

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Vet Gen

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Public Health and Welfare Section

SURVEY OF SO-CALLED LUMBAR PARALYSIS IN THE OVINE SPECIES REPORTEDLY CAUSED BY SETARIA DIGITATA

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GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Public Health and Welfare Section

11 October 1950

SUBJECT: Investigatinn and Survey of So-Called Lumbar Paralysis in the Ovine Species Reportedly Caused by Setaria Digitata

To: Brig. Gen. Crawford F. Sams
Public Health and Welfare Section
GHQ, SCAP
APO 500

1. Review of the literature on Setaria sp. infestations has been covered. Japanese research work past and present on the matter has revealed the following:

a. Controlled research experiments were poor.

b. Optimum conditions of feeding, mutrition, lack of internal parasites were not considered and many side factors had been involved.

c. Facts were presented which had been based upon assumptions.

d. Actual cases of so-called lumbar paralysis which had been investigated were not true lumbar paralysis cases, but merely weakening of the hindquarters, resulting in "downers".

e. According to researchers who initially carried out the work: 10 of the cases recovered normally if given no medication; 70 recovered if treated; 10 of the patients did not recover and had paralysis because the nerve tissue had been destroyed; and 10 died due to secondary infection resulting from immobility and decubitis. This implies that if 70 of the cases were not treated a total of 90 of the ovine species would die.

f. Contradictions on the past research work occurs.

g. Experiments were carried out on a very limited number of animals and few controls were used.

h. A chemotherapeutic agent developed by Dr Okoshi of the Tokyo Imperial University is supposed to kill adult filaria and the microfilaria,

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h. A chemotherapeutic agent developed by Dr Okoshi of the Tokyo Imperial University is supposed to kill adult filaria and the microfilaria.

i. There is some reluctance on the part of the Japanese to carry on new research work which would eliminate side factors that influenced past experiments.

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j. Also, there was scarcity of certain feed rations which are considered as optimum diets for the experimental animals.

k. Autopsies were not made and no reports were available on field cases.

l. Reluctance of young research veterinarians to carry out new experiments which may contradict the older research man. Drs. Iishi and Watanabe of the National Animal Hygiene Experiment Station displayed opposition and disbelief in the new experiments, as it might disprove some of their past work.

m. Very few of the ovine species are ever brought to slaughter houses due to high slaughter house fees, examination fees, taxes, and transportation fees, which greatly reduce or eliminate profits derived from small animal slaughter. These species are usually slaughtered on the farm, consequently, few autopsies are performed.

2. Population and History†

a.

Year	Goats	Sheep
1934-36 (Average 3rds)	123,000	48,000
1945	205,323	180,000
1946	221,725	196,425
1947	277,980	239,427
1948	347,807	290,987
1949	458,000	327,000
1950 (June estimate)	644,000	459,000

† The above figures were supplied by Natural Resource Section, GHQ, SCAP.

b. Ministry of Agriculture and Forestry records show that from 1937 to 1941 over 67,000 Corredale sheep were imported from Australia. From the 1949 census there were 176,094 female Corredales and 89,265 male Corredales, giving a total of 265,359. There were 35,947 Merino sheep (21,940 females and 14,007 males). Other breeds are crossbred, Corredale, Merino, Cheviot and Shropshire; these amout to 26,184 of which 17,437 are females and 8,749 are males.

c. The breeding programs which have been outlined by the Ministry of Agriculture and Forestry have stressed inbreeding among sheep. Extensive inbreeding, poor feed, anemia, and pampering have been stated to be causes of "Scrapie". Many researchers believe that extensive inbreeding is the major cause, while the other caused mentioned above contribute to it. However, a definite causative agent has not been determined.

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d. The majority of the goats in Japan are the so-called native goats which originally came from Korea and China. Records show a goat population of 30,000 45 years ago. These original breeds were crossbred so that the goats seen today are the so-called native goat. It was reported that

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pure strains of the Chinese breed are located at Kagoshima Prefecture and Okinawa.

e. More recently, British and Swiss Saanen breeds were imported into Japan and many were crossbred with the native strains. The Saanen bred was used as the basic bred for meat and milk production. Of the American types which were brought to Japan, it was planned to maintain the lines by inbreeding. Therefore, the Zubian and Tuggenburg breeds have not been bred with the native strains.

f. The largest goat breeding areas where the population is the densest are as follows:

Nagano.....	50,531
Gumma.....	35,346
Nagasaki.....	24,171
Yamanashi....	23,589
Total	133,636

g. Of the 133,636 goats, 83,167 are reported to be one-half blood Saanen, In Nagasaki, the mutton type goat predominates over the milking type, so it was reported.

3. Outline of Clinical Symptoms Seen in the Field

a. Undernourishment, even though the appetitie remains good. Disturbance in rumination may be affected and is often seen.

b. Temperature, respiration and pulse normal.

c. Bending and bowing of legs, legs spread apart, and stumbling gait.

d. Stiffness of the front legs resembling articular rheumatism.

e. Enlargement of the knee joints and beading of the ribs are seen in some animals.

f. Falling out of the hair, dullness of hair coat and general unthriftiness.

g. Marked anemia, pale to whitish mucous membranes. Anemia persisted in all animals even when wormed and placed on good feed rations. No improvemen was seen in a two months period of observation as indicated by laboratory tests.

h. Eclampsia occurred in some of the females following parturition,

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h. Eclampsia occurred in some of the females following parturition, and twins are prevalent.

i. Normal defecation and urination.

j. Atrophy of the gluteal, gastrocenemius, semitendinosis, semimembranosis, vastus lateralis, and rectus femoris muscles is seen.

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k. In some of the diseased animals, corneal opacity with corneal ulcerations was observed.

l. Tetany and nystagmus occur in the late stages and the animals succumb within a matter of hours. This is noted in both the male and female species.

m. Weakening of the hind quarters occurs so that the animal sits dog fashion. There may be los of muscular tone and twitching of the muscles. or there may be hypersensitiveness of the limbs. Animals move in short jerky steps similar to stringhalt in a horse. The hind legs will drag on the ground. Animals are unable to jumpsor clear obstacles.

n. In all of the cases observed there was feeling and a true paralysis did not exist.

o. When nurs ng ewes are afected, the kids or lambs appear to be in perfect health so long as they receive a sufficient quantity of milk.

p. The course of the disease is usually chronic and runs a course of six weeks to six months. Throughout the course there may occur occasional periods of remission.

4. Discussion of Laboratory Findings and Observations on Lumbar Paralysis Cases in the Field

a. Feeding

(1) Feed rations on Japanese farms are sub-standard and consist mostly of grass hay or genya hay or weed grass, seeds, leaves, artificial preparations or by-products of meals, bran (rice or wheat), tubers and roots, as daikons and potatoes, soup skippings, vegetable peelings. A large cuantity of corn stalks and leaves are fed during the summer and fall months. Bran (rice or wheat) is in many cases the main feed ration.

(2) Prefectural farms, in general, feed more rations than the average Japanese farmer, but not necessarily of the desired type. Large quantities of calcium preparations are fed which ma tie up the phosphorus resulting in a phosphorus deficiency.

(3) National farms undoubtedly feed the best, at least in quantity.

(4) Observation of feeding programs reveals that the best rations fed by any agency are fed to lactating cows; this ration usually contains feeds which contribute to a better balanced diet.

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b. Animal Husbandry in Relation to Goats

(1) The better does should yield about 4,000 cc of milk per day and continue to milk for seven months or more. On the basis

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of body weight and the amount of feed consumed, good milk goats are almost as efficient milk producers as are good cows. However, as would be expected, maintenance requirements for goats per 100 pounds of liveweight is considerably higher than that for cows, because of their much smaller size and consequent greater body surface in proportion to liveweight. Also, for the production of each pound of given fat content, goats apparently require more digestible nutrients above the maintenance requirement than cows. Moreover, they are able to consume much more feed per 100 pounds of liveweight than cows on high productive capacity. The cost of producing goats milk on a commercial basis is therefore much higher.

(2) In goat husbandry in Japan, the above mentioned factors are not taken into consideration insofar as lactating goats are concerned.

c. Lactation

(1) All females were yielding 2,000 - 4,000 cc of milk per day. It was reported that goats give birth to their kids from April to July and are therefore weaning their kids during the lumbar paralysis period of July to October. Then, too, feed requirements are not increased to meet the needs of animals which may be potentially high milk producers.

d. Parasitisms

(1) Preliminary observations reveal high parasite counts in the ovine species. Parasites that were found upon examination were the same as those which ruined many American ranchmen before adequate control measures were instituted. Those include;

(a) Strongyloides sp. - Infestation begins in the latter part of February and continues through June.

(b) Coccidiosis sp. - Infestation begins in early March and continues through July.

(c) Haemonchus contortus - Infestation begins the last of May and continues through January.

(d) Oesophagostomum - Infestation begins the last of June and continues through January.

(e) Monieza sp. - Infestation begins during the last of August and continues through April.

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(f) Trichostrongyles sp. - Infestation begins in May and continues through November.

(g) Bunostonum s . - Infestation begins in August and Continues through November.

The first three mentioned parasites tend to make the animals very anemic and run down. Oesophagostonum sp. produces nodular formations along the intestinal tract and interferes with digestion and absorption when the condition is extensive, while Moniezia sp. causes moderate to severe debilitation depending upon the degree of infestation. Sarcosporidiosis was not studied during this research.

e. Mineral Metabolism Disturbances and Avitaminosis:

(1) Even when soil and weather conditions are favorable, a deficiency of calcium and phosphorus in the body may be brought about by prolonged feeding with materials naturally poor in calcium and phosp orus, such as turnips, potatoes, (tubers and roots), corn, leguminous seeds, and preparations of these such as potato peelings, straw, vegetable peelings, tops, whey and similar feeds. In Japanese agrarian areas, the above foods make up the principal diet. This factor may play a part in combination with unsuitable soil conditions and prolonged drought, since in such circumstances the lack of natural food stuffs necessitates the use of the food stuffs mentioned.

(2) When the diet is poor in calcium or phosphorus, transference of phosphorus or calcium from the bones to the blood increases for the purpos e of maintaining salt equilibrium in the plasma. This is due partly to the regulatory action of the parathyroid glands. Thus, calcium is withdrawn from the bones and that absorbed from the intestines is largely retained in the blood instead of being deposited in the skeleton. The fall in the phosphorus content of the plasma, as seen here in these experiments, results in a condition of subsaturation, presumably with subsequent transference of phosphorus from the bones to the blood, and retention of much of that derives from the food which would otherwise be deposited in the bones.

(3) Moreover, rickety or osteomalacial changes may be accompanied by changes in the bone marrow which may interfere with hemopoiesis. Laboratory investigations revealed mitoses of the red cells, many juvenile cells, and also a mild leucocytosis which may be relative or absolute.

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nodular formations along the intestinal tract and interferes with digestion and absorption when the condition is extensive, while Moniezia sp. causes moderate to severe debilitation depending upon the degree of infestation. Sarcosporidiosis was not studied during this research.

e. Mineral Metabolism Disturbances and Avitaminosis:

(1) Even when soil and weather conditions are favorable, a deficiency of calcium and phosphorus in the body may be brought about by prolonged feeding with materials naturally poor in calcium and phosphorus, such as turnips, potatoes, (tubers and roots), corn, leguminous seeds, and preparations of these such as potato peelings, straw, vegetable peelings, tops, whey and similar feeds. In Japanese agrarian areas, the above feeds make up the principal diet. This factor may play a part in combination with unsuitable soil conditions and prolonged drought, since in such circumstances the lack of natural food stuffs necessitates the use of the food stuffs mentioned.

(2) When the diet is poor in calcium or phosphorus, transference of phosphorus or calcium from the bones to the blood increases for the purpose of maintaining salt equilibrium in the plasma. This is due partly to the regulatory action of the parathyroid glands. Thus, calcium is withdrawn from the bones and that absorbed from the intestines is largely retained in the blood instead of being deposited in the skeleton. The fall in the phosphorus content of the plasma, as seen here in these experiments, results in a condition of subsaturation, presumably with subsequent transference of phosphorus from the bones to the blood, and retention of much of that derives from the food which would otherwise be deposited in the bones.

(3) Moreover, rickety or osteomalacial changes may be accompanied by changes in the bone marrow which may interfere with hemopoiesis. Laboratory investigations revealed mitoses of the red cells, many juvenile cells, and also a mild leucocytosis which may be relative or absolute.

(4) Except for carnivores, a much commoner cause of reckets is a relative insufficiency of calcium or phosphorus due to an inadequate balance between earthy bases and phosphoric

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acid or in other words the acid base ratio in the diet. Thus, the value E.A.≒ (CaO +MgO) - P_2O_5 (where E.A.≒ e rthy alkalinity) may be markedly shifted either in the negative or in the positive direction and in herbivores in either case rickets or osteomalacia may develop.

(5) Foodstuffs with a negative E.A. value include all kinds of corn and seeds and artificial preparations or byproducts of these (meal, bran, malt, bran) oil cake and meat meal. Other factors involved also include:

(a) A relative insufficiency of calcium and phosphorus develops when the diet contains adequate quantities but has a negative or too low a positive alkali-alkalinity value (Na_2O + K_2O) - (Cl + SO_3). In such cases large quantities of calcium base are diverted to the purpose of ne tralising the excess of phosphoric or other non-combustible acids.

(b) In herbivorous animals, an excess of oxalic acid or any other organic acid may be a causation of rickets or osteomalacia. These are, of course, excreted as calcium salts (c lcium phosphate).

(6) Vitamin A and D deficiency s mptoms exist.

f. Paralysis

(1) Cases of paral sis investigated and observed indicate that this is not a true paralysis of the posterior extremities. Actually it is a weakening of the hind-quarters so that the animal goes down. Involvement of the hind-quarters, which is the rule, causes shortening of the forward stride, lameness, and stiffness. Hind legs may be directed forward under the body and in some cases the tarsal joint develops a permanent flexion.

(2) Atrophy or muscular trophoneurosis of the gluteal, gastrocnemus, somitendinosis, semimembranosis, vastus laterlis, and rectus femoris muscles is seen.

(3) Pinching and probing of the hind legs results in drawing the legs up indicating that conditioned motor reflexes are unimpaired. In some cases there is increased tonicity of the muscles. Convulsive s mptoms or tetany are seen in the late stages accompanied by nystagmus.

(4) Bending and bowing of the legs is seen.

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(3) Pinching and probing of the hind legs results in drawing the legs up indicating that conditioned motor reflexes are unimpaired. In some cases there is increased tonicity of the muscles. Convulsive symptoms or tetany are seen in the late stages accompanied by nystagmus.

(4) Bending and bowing of the legs is seen.

(5) Enlargement of the knee joints and beading along the ribs are seen in some cases. Creepiness of the front legs, stiffness, resembling articular rheumatism occurs. Falling out

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of hair, dullness of hair coat, unth riftiness and marked anemia are also observed depending upon the severity of the case.

(6) Defecation and urination were found to be normal in all cases observed.

(7) The majority of cases reported occur in the femals of the species.

5. Analysis of the Incidence of Lumbar Paralysis on National and Prefectural Livestock Breeding Farms and Japanese Farms Based on the Ministry of Agriculture and Forestry Animal Hygiene Section Reports.

a. National Livestock Breeding Farm - 9 Stations - 1949

		Sheep	Goats
Number of Animals		862	436
Number of Cases		14	25
Number of Deaths		3	6
Percentage:	Cases	1.6%	5.7%
	Deaths	0.3%	1.3%

b. Prefectural Livestock Breeding Farms - 64 Stations - 1949

		Sheep	Goats
Number of Animals		2389	553
Number of Cases		65	53
Number of Deaths		25	25
Percentage:	Cases	2.7%	9.5%
	Deaths	1.0%	4.5%

c. Japanese Farms - 1949 - Random Sampling of 60 Guns in the 9 Districts of Japan.

		Sheep	Goats
Number of Animals		32,385	41,557
Number of Cases		1,729	3,704
Number of Deaths		701	665
Percentage:	Cases	5.3%	4.7%
	Deaths	2.1%	1.5%

6. Analysis of Agriculture Insurance Section, Bureau of Agriculture Administration, Ministry of Agriculture and Forestry and Animal Hygiene Section, Ministry of Agriculture and Forestry Survey

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Hygiene Section Reports.

a. National Livestock Breeding Farm - 9 Stations - 1949

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Number of Animals		862	436
Number of Cases		14	25
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6. Analysis of Agriculture Insurance Section, Bureau of Agriculture Administration, Ministry of Agriculture and Forestry and Animal Hygiene Section, Ministry of Agriculture and Forestry Survey.

a. From the years 1945-49, there were no reports from the Insurance Section on sheep and goats; therefore, the Animal Hygiene Section reports of lumbar paralysis for sheep and goats during this period are not included.

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	No. of Animals for which insurance paid for on Lumbar Paralysis	Percent of Lumbar Paralysis based on total number insured	Total Insurance paid on all diseases	Total Number of animals insured
1945:				
Cattle	412	0.03	9,888	1,065,616
Horses	634	0.16	9,751	386,540
1946:				
Cattle	195	0.03	6,228	592,083
Horse	288	0.08	6,345	353,833
1947:				
Cattle	73	0.014	3,645	510,155
Horses	118	0.08	3,363	179,648
1948:				
Cattle	21	0.012	1,259	172,509
Horses	41	0.073	1,193	56,192
1949:				
Horses	107	0.012	6,326	852,970
Cattle	609	0.17	6,354	347,085
Goats	255	2.7	1,290	9,300
Sheep	645	2.4	2,550	26,599
Swine	3	0.047	837	6,266

b. The Animal Hygiene Section reports were on examinations carried out on 91,681 horses. The incidence of osteomalacia was reported to be 17.7%.

c. In areas where the incidence of osteomalacia in horses is high, the geographical distribution of lumbar paralysis in sheep and goats is significantly high. These areas are as follows:

(1) Hokkaido
(2) Gumma
(3) Miyagi
(4) Yamagata
(5) Tochigi
(6) Saga
(7) Nagano
(8) Saitama
(9) Gifu
(10) Akita
(11) Ishikawa

d. This should not be misconstrued to mean that all cases came from these areas. Sporadic cases of an epizootic or enzootic nature occur all over Japan. Goats and sheep are not the only species of animals [illegible]

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d. This should not be misconstrued to mean that all cases came from these areas. Sporadic cases of an epizootic or enzootic nature occur all over Japan. Goats and sheep are not the only species of animals affected with so-called lumbar paralysis. Osteomalacia is known and recognized apparently in the equine and bovine species but little attention is given to it in the ovine species.

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a. When it was realized that possibly a nutritional complex was involved, it was decided to set up the following experiments in an attempt to arrive at a definite conclusion as to the cause of lumber paralysis. The parasite experiments were carried out at the Chino Livestock Breeding Farm. Chemotherapeutic studies were carried out by myself over a wide area with the cooperation and aid of veterinary private practitioners and Mutural Aid Clinics.

7. Outline of the Research Project.

a. Mosquite Breeding Studies - Aedes togoi

b. Mosquito Feeding Studies - Aedes togoi

c. Mosquito Transfers of Infective Seteria digitata Microfilaria from the Bovine to the Ovine Species.

d. Direct Microfilarinemia Transfer Studies.

e. Microfilaria Studies in Technique, Staining, Diagnosis, etc.

f. Blood Studies

(1) Red Blood Cell Counts

(2) White Blood Cell Counts

(3) Differential Counts

(4) Hemoglobin Studies

g. Blood Chemistry Studies on Serum Calcium and Phosphorus.

h. Fecal Sample Studies on Internal Parasites.

i. Chemotherapeutic Studies

(1) Antimonials

(2) Arsenicals

(3) Calcium, Phosphorus, Magnesium and Dextrose Therapy.

j. Feed Studies

(1) Rations

(2) Cobalt, Iron, Copper

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(1) Rations

(2) Cobalt, Iron, Copper

k. Histopathological Studies on the Bone

l. Brain and Cord Inoculations and Cultures

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(1) Listerellosis - in vivo and in vitro.

(2) Streptocoocus caprinus - in vivo and in vitro

(3) Virus or ultramicroscopic factor - in vivo

The above experiments began before it was possible to put the animals in condition. Preliminary clinical observations and laboratory findings were as follows:

(1) Undernourishment

(2) Heavy internal parasitism

(3) Marked anemia

(a) Red blood cell counts: Minimum - 920,000
Maximum - 1,720,000

(b) Hemoglobin: Minimum - 43%
Maximum - 75%

(4) All the animals were purchased from nearby farms at Chino village, Nagano Prefecture. These animals were mostly weanlings and some had not been weaned. The majority of the animals had Haemonchosis.

(5) Optimum feed requirements were not avaiable, and substitutes had to be used to try to maintain optimum nutritional standards.

(6) All animals were wormed and put on diets which were as near optimum as possible. After two months observations, the animals still maintained the same low red blood cell counts and hemoglobins.

8. Results of the Research Investigations on Setaria digitata and Other Experiments as Outlined in Paragraph 7a through 7l.

a. Aedes togoi mesquitoes were caught, successfully bred in numbers and used in the feeding and transfer studies, 7a through 7e. The results of the experiments were negative in that 6, digitata did not produce lumbar paralysis when side factors present in past studies were eliminated.

b. Blood studies revealed anemia in all animals tested; many juveniles cells, and a slight leucocytosis was evident.

c. Blood chemistry studies in determining serum calcium and serum

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b. Blood studies revealed anemia in all animals tested; many juveniles cells, and a slight leucocytosis was evident.

c. Blood chemistry studies in determining serum calcium and serum phosporus were done on 314 sheep and goats in the Kanto area. Of the 314 samples, 205 proved to be satisfactory, 109 of the samples were either broken or hemolysed. 143 of the 205 samples analysed revealed subnormal or low serum phosphorus levels in the range of 2 plus to 5 plus mg. %. Thus 69% of the animals definitely had low serum phosphorus levels. Serum phosphorus ranges

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were 2.3 to 14.7 mg & whi le serum calcium levels ranged from 8.4 to 13.3 mg %. Concentrations of blood serum phosphorus is low or below normal while the rachitic process is advancing.

d. Moreover, of the 314 cases from which samples were taken, 344 of the cases were under surveillance and valuable information was collected on them.

e. Among the goats and sheep umder observation, 181 females (74%) and 63 males (26%) had lumbar paralysis, Among the goats 141 were female goats (92%) and 11 were males (5%). For sheep the number of females were 40 (43%) and the males numbered 52 (47%). When these figures were broken down into age groups, it was found that 53% of the cases were in the two and three year old bracket. The total number of cases within this age group was 131. Ranges in age in which cases occur were from one year to 10 years of age. As to severity if the disease. there were more severe cases among goats than there were in sheep.

f. Chemotherapeutic studies using antimonals and arsenicals did not affect the course of the S. digitata infestations, and all experiments connected with this parasite were negative. Calcium. phosphorus, and magnesium therapy proved to be of value in over 100 treatment. Tetany and nystagmus were eliminated almost immediately following this treatment. Many of these cases, if caught early, responded in 15 to 20 mimutes, and the animals would rise to their feet and begin to eat.

g. Histophthological studies on bone tissue were not carried out due to the limited two months period of time in which to conduct this experiments.

h. Fecal sample studies are reported under 4c (1)(a) through (g).

i. Feed studies are long range studies but when optimum or better and more desirable types of food were given the animals, lumbar paralysis did not develop, However , the anemic conditions did not improve during the two months observation period.

j. Brain and cord inoculations from macorated brains and cords of lumbar paralysis cases proved to be negative "in vivo" in four different species of animals. "In vitro" studies for bacteria (Listerellosis and Streptococcus) likewise proved to be negative. Viruses could not be isolated from brain and cord material in "in vitro" studies on four different species of animals.

9. Discussion

a. All researches with the S. Digitata parasite were negative in that it was impossible to produce lumbar paralysis. Thirty goats were inoculated with infective microfilaria from Aedes togoi. The filaria dies in the

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9. Discussion

a. All researches with the S. Digitata parasite were negative in that it was impossible to produce lumbar paralysis. Thirty goats were inoculated with infective microfilaria from Aedes togoi. The filaria dies in the body of the ovine species at the end of a one month period as the parasite shows species specificity. During its wanderings throughout the tissues, the parasite may blunder into the eye or nervous tissue, but there appears to be no affinity of this parasite to nerve tissue.

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b. In some cases there is a general resemblance of this disease in its entirety to that of Scrapie (English, LaTremblante (French) or Traberkrankheit or Grubberkrankheit (German). However, a constant symptom noted in Traberkrankheit or Scrapie is intense itching or pruritis which is noted over the sacral, lumber, or glutel regions and the animal gnaws itself until the area is denuded of hair. Moreover, the age groups in which the disease attacks is usually over 1½ years of age. The marked anemic conditions, time of year when cases occur, excessive inbreeding, pampering (keeping the animals stalled) and poor feed, which are believed to be the cause of Scrapie are also seen in Japan. However, the causative agent of Scrapie has never been determined although the above mentioned factors, and extensive imbreeding, is believed to be the primary cause.

c. The anemic condition seen in weanling goats and sheep or any weanling animal is understandable. However, in the older age groups the anemia persists even though the adults are wormed using phenothiazine on one group and copper sulfate and nicotine mixture on the other group. This anemia continued throughout the two months observation period.

d. Time did not allow for breeding studies or genetic work as this is a long-range project.

e. The anemia seen in adults could be the result of osteomalacia and damage to the bone marrow tissue. Also, cobalt deficiency could play a part. This study is underway and results should be available about the first of November.

10. Diagnosis

a. Based upon the clinical symptoms, laboratory and research findings, a diagnosis of osteomalacia is made. When such a high percentage (69%) of the animals had low serum phosphorus levels, the findings are quite definite. Moreover, feeding and handling methods support the diagnosis Then too, the disease usually occuro after pregnancy and parturition, and the goats are in a high level of lactation. See 8a through 8j.

b. The results obtained here are the same that Klobouk, Pribyl, Schermer, and Hofferber, Krable, Bongartz and Rudofaky found in their experiments. However, their experiments were with a smaller number of animals.

c. Osteomalacia is predominately a disease of herbivorus animals and occurs in areas where soil conditions are unsuitable and after dry years, but it is also seen in other circumstances often assming an enzootic or epizootic character which may cause one to suspect that the etiologic agent is of an infective nature. This has been noted in districts of Beigium, Germany, France, Austria, Hungary, and in parts of Asia, Africa, North America and Australia.

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d. Enzootic outbreaks of osteomalacia in flocks of sheep and goats have been noted as early as 10 weeks after they were transferred to pastures, especially in areas where the soil is poor in calcium or phosphorus and the

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upper strata is composed of gneiss, granite, quartz or is bogey or peaty and volcanic in character.

e. Differences in susceptibility of different breeds plays a part in the incidence of this disease.

f. In general, the areas where many cases of osteomalacia in horses and cattle occur (reported by the Agriculture Insurance Section, Bureau of Agriculture Administration, Ministry of Agriculture and Forestry) there are corresponding cases of lumbar paralysis in the ovine species as reported by the Ministry of Agriculture and Forestry, Animal Hygiene Section. Reports of osteomalacia in horses and cattle for the period 1945 to 1949 inclusive were studied. Records on sheep and goats were surveyed for the period of 1949. The area relationship where the greatest number of osteomalacia cases are reported in horses and cattle and causes posterior paralysis corresponds to the areas where the greatest number of lumbar paralysis cases of the ovine species is reported. Although the disease is prevalent in the equine, bovine and ovine species all over Japan, certain areas appear to have more cases than others. The disease of sheep and goats is not a reportable disease to the Animal Hygiene Section. These areas are reported under Paragraph 6c.

g. The incidence of lumbar paralysis (osteomalacia)reported for the bovine, ovine, and equine species by the Animal Hygiene Section of the Ministry of Agriculture and Forestry is high for all three species as indicated under Paragraph 5a through 5c and 6a through 6d.

11. Prognosis

a. Guarded and unfavorable.

b. When the animals remain down for more than five to eight days and when the first attempts to make it rise are unsuccessful, there is little hope of recovery. Moreover, if three successive attempts fail and if after the animal has been induced to rise no improvement follows in three days, the prognosis is unfavorable.

c. The death rate in Norway given by Krabbe is 8.6%. Bongartz in Germany as 75-80% and Rudofsky in Moravia is 16%, reports from other countries are as variable.

d. Untreated cases of osteomalacia are usually chronic with a period of several months elapsing between the onset of symptoms and death from exhaustion or recovery. In rare cases in which nervous disturbances are present the cases are more rapidly fatal. Relapses may occur after the disease appears to have become stationery or to have begun to improve. These relapses are often brought about by pregnancy, parturition, and lactation. The disease may remain latent for lengthy periods of time and then become manifest as a result of some factor of this nature.

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e. It is believed that the reason so many LARA goats died in Japan is due to the variability of susceptibility or resistance to attacks of

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osteomalacia and other contributing causes which have previously been mentioned. Parasitology and proper feeding play no small part.

12. Recommendations

a. Studies should be carried out by animal nutritionists to determine satisfactory indigenous feeds which may be fed so that malnutrition may be eliminated. This is a long term experiment.

b. The feeding of steamed bone meal should be encouraged.

c. Stimulate interest among livestock feed manufacturers to produce a feed concentrate which contains all the minimum daily requirements of minerals, vitamine, protain, carbohydrates, etc. which when blended in the correct proportions will furnish the optimum diet needed for animal maintenance and high production. These rations should be "open formula rations" stating what the ration contains. It is believed that some of the large fish companies might be interested in this project inasmuch as large quantities of usable waste exists at the present time in many of these industries. Rations for livestock similar to those prepared by Ralston Purins Products, etc. could be scientifically blended. However, they would have to be inexpensive so that the average farmer could afford them. Supplemental mineral mixtures in proper proportions should also find a place in the livestock industry.

d. Improved animal husbandry practices should be put into effect. Reference was made to the above in the Chugoku Region Monthly Activities Report (Veterinary Affairs) for the months of April and June 1950: also in a special report CCAR 484, 31 July 1950, Paragraph 13(c) entitled "Livestock Industry with Special Reference to Livestock Hygiene Service Centers, Artificial Insemination Stations, Mutual Aid Clinics, and Veterinary Medicine."

e. Experimental feeding to sheep and goats of cobalt and copper at all National Animal Hygiene Experiment Stations should be carried out to determine if cobalt deficiency areas exist in Japan. The following formula is recommended:

(1) 1 ounce of cobalt chloride

(2) 800 milligrams of copper sulfate

(3) Dissolve the above in 4000 cc of water

(4) Feed 10 cc every other day per animal for 1 month to six weeks. This may be given orally or on the feed.

(5) Hemoglobin samples should be done weekly and recorded.

b. The feeding of steamed bone meal should be encouraged.

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(4) Feed 10 cc every other day per animal for 1 month to six weeks. This may be given orally or on the feed.

(5) Hemoglobin samples should be done weekly and recorded.

(6) Weight gains should be recorded.

(7) If cobalt deficiency areas exist, marked gains in weight and increased hemoglobin values will occur.

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f. Die-hard Professor cling to their belief that lumbar paralysis of the ovine species is caused only by Setaria digitata. This belief is held by many Ministry officials, Prefectural officials, and private practitioners connected with veterinary medicine. This has been taught in the colleges to all veterinary students for over 12 years. The belief is nearly universal over Japan. There are many causes of posterior paralysis or lumbar paralysis, but it is believed that the main cause of this malady has been and is caused by nutrition deficiencies in Japan.

g. Extensive information and education programs sponsored by the Ministry of Agriculture and Forestry must be developed and followed through on the above mentioned problems.

h. An active anti-parasitic control program should be outlined and carried out with reccomendation for veterinarycolleges, agricultural cooperati cooperative associations, livestock cooperative associations, poultry cooperative associations, and the Japan Farmers Union.

i. Imported sheep should come from flocks free of Scrapie (English), La Tremblants (Franch), Traberkrankheit or Gnubberkranheit (German), Furthermore, there should be no history of this disease within the flocks. 80% of the sheep in Japan are Corredales which initially come from Australia and New Zealand where Scrapie has been reported at onetime or another.

j. Importations of large animals should be substituted by semen importation from purbred stock. In the latest shipment to Japan, 90% of the female cattle became pregnant by artificial insemination. As it usually requires 1.8 services to impregnate female cattle, the results were very good considering the transportation involved and the poor management in handling once it landed in Japan. Animals which were in heat were not located until after the semen arrived in Japan, and much time was wasted. These animals could have been located beforehand and everything arranged for a smooth operation. If this program should be carried out in relation to cattle, that is of flying semen to Japan from purebred stock rather than buying expensive animals to build up populations, great reductions in overhead costs, handling, time element, and labor would result. However, imported purebred animals are not exposed to the hasards of indigenous livestock diseases, natritional deficiencies which exist in a food stuff hungry country, poor handling and housing facilities, insufficient land area for pasture, and soil deficiencies. Indigenous livestock have resistance to the above mentioned items while there is a marked degree of susceptibility among American cattle.

K. At the present time, semen importations for small animal improvement is not deemed advisable.

13. Reference

a. Dakes - Physiology of Domestic Animals

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on the above mentioned problems.

h. An active anti-parasitic control program should be outlined and carried out with reccomendation for veterinary colleges, agricultural cooperative associations, livestock cooperative associations, poultry cooperative associations, and the Japan Farmers Union.

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13. Reference

a. Dakes -. Physiology of Domestic Animals

b. Ucall - Practice of Veterinary Medicine

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c. Hagan - Infectious Diseases of Domestic Animals

d. Coffin - Veterinary Clinical Pathology

e. Bunnells - Animal Pathology

f. Eddy, Dalldorf - Avitaminosis

g. Meyor, Bodansky - Biochemistry of Disease

h. Morris, Young - Inorganic Chemistry

i. Youmans - Nutritional Deficiencies

j. Monning - Veterinary Helminthology and Entomology

k. Morrison - Feeds and Feeding

l. Faust - Human Parasitology

m. Craig and Yaust - Clinical Parasitology

n. Strong's Stitts - Diagnosis, Prevention, and Treatment of Tropical Diseases

o. Vaughn - Type and Classes of Livestock

p. Simmons, Gantskow - Laboratory Methods of the U.S. Army

q. Duncan - Diseases of Metabolism

r. Hutyra, Marek, Manninger - Special Pathology and Therapeutics of Diseases of Domestic Animals

s. Hegner, Root, Augustine, Huff - Parasitology

t. Yorke, Maplestone - Nematode Parasites of Vertebrates

u. M.Maven, Lemaine - Traite D'Helminthologic Meciale et Veterinare

v. Manson, Brahn - Manson's Tropical Diseases

w. Still, Clough, Braham - Practical Bacteriology, Hematology, and Parasitology

x. Chandler - Introduction to Parasitology

y. Balding - Textbook of Clinical Parasitology

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h. Morris, Young - Inorganic Chemistry

i. Youmans - Nutritional Deficiencies

j. Monning - Veterinary Helminthology and Entomology

k. Morrison - Feeds and Feeding

l. Faust - Human Parasitology

m. Craig and Yaust - Clinical Parasitology

n. Strong's Stitts - Diagnosis, Prevention, and Treatment of Tropical Diseases

o. Vaughn - Type and Classes of Livestock

p. Simmons, Gantskow - Laboratory Methods of the U.S. Army

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v. Manson, Brahn - Manson's Tropical Diseases

w. Still, Clough, Braham - Practical Bacteriology, Hematology, and Parasitology

x. Chandler - Introduction to Parasitology

y. Balding - Textbook of Clinical Parasitology

z. Sisson, Grossman - Anatomy of Domestic Animals

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aa. Milks - Veterinary Pharmacology, Materia Medica and Therapeutics

bb. Edelmann, Mohler, and Richborn - Meat Hygiene

cc. Hawkins - Veterinary Helminthology

dd. Journal of American Veterinary Medical Association: Vol. CXIV, No. 864, March 1949; Vol. CXIV, No. 865, April 1949: Vol. CXVI, No. 875 February 1950; Vol. CXVII, No. 862, September 1950

ee. Materina Medica

ff. North American Veterinarian, Fall 1949, 1950

gg. MSC Veterinarian, Vol. 10, No. 1, Fall 1949

hh. Allied Veterinarian, Fall 1948

ii. Veterinary Medicine - August 1950, September 1950

jj. Personal Communications:

(1) Ministry of Agriculture and Forestry Officials

(2) National Animal Hygiene Experiment Station Officials

(3) Civil Affairs Veterinarians

(4) Japanese Veterinary Private Practitioners

(5) Major Burns - 406th Laboratory

(6) Dr. Ritchie - 406th Laboratory

(7) Japanese Veterinary Medical Association National Chapter and some Region Chapters

(8) GHQ FEC Economics Personnel

(9) Dr. C. T. Beechwood, GHQ, SCAP, Chief of Veterinary Affairs Division

(10) The author expresses appreciation especially to Dr. Pegg, Kanto Civil Affairs Veterinarian, for his aid and cooperation during these experiments

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Setaria Digitata によって起ると言われている
緬山羊の腰麻痺に関する調査

中国地方民事部
ドナルド L. ブッシュ
(Donald L. Bush)

1. 文献の検討
2. 緬山羊の頭数と歴史
3. 農家においてみられる病例の臨床的症状の概要
4. 腰麻痺に関する研究室的成績報告と農家における観察事項の検討
   a. 飼養
   b. 山羊の飼養管理
   c. 泌乳
   d. 寄生虫
   e. 鉱物質新陳代謝障害及びヴィタミン欠乏症
   f. 麻痺
5. 農林省衛生課の報告に基く、種畜牧場、県種畜場、農家における発生状況の分析
   a. 種畜牧場 — 9場 — 1949年
   b. 県種畜場 — 64場 — 1949年
   c. 農家 — 1949年 — 9地方の60郡についてのランドム・サムプル調査
6. 農林省農政局農業保険課及び畜産局衛生課の調査の分析
   a. 保険家畜総数に対する腰麻痺家畜の割合 (1945—1949年)
   b. 馬の骨軟症発生率 (1948年衛生課調査)
   c. 日本の骨軟症地帯
7. 研究プランの概要
8. 前項にかかげたセタリヤ・ジギタータに関する研究及びその他の試験の結果
9. 意見
10. 診断
11. 予後
12. 勧告
13. 参照文献

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1. セタリヤ属による発病に関する文献を検討した。過去及び現在の研究報告から次のことがわかつた。

a. 人工的環境下における実験は貧困である。

b. 飼養・栄養の最適條件、内寄生虫がいないことなどの條件を考慮に入れていないし、多くの雑要素が入り込んでいる。

c. 事実の採上げ方が想定に基いたものである。

d. 調査研究された所謂腰麻痺の諸病例は真の腰麻痺ではなくて、単なる後駆の衰弱で、その結果"downers"になつたものである。

e. 始めて研究を行つた研究者達に依れば、10%は手当しなくても治つた。70%は手当の結果治つた。10%は治らず、神経組織が破壊された為に麻痺状態を続けた。残りの10%は動けないことゝ蓐瘡とからの二次的な感染のために斃死した。これから見ると、病例の70%に手当を加えなければ、全部で90%は斃死したであらう。

f. 過去の研究には予盾点がある。

g. 試験に用いられた頭数は非常に限られており、対照畜も余り用いていない。

h. 東大の大越博士の創つた薬はフィラリヤ及びミクロフィラリヤの成虫を殺すものと想像されている。

i. 過去の試験において含まれる雑要素を除いて、新しい研究をしようとすることに、日本の学者は余り熱意を示していない。

j. 試験動物に対する最適な飼料の配合だと考えられるもの。飼料の[illegible]

10%は治らず神経組織が破壊された為に麻痺状態を続けた。残りの10%は動けないこと、摩擦とからの二次的な感染のために斃死した。これから見ると、病例の70%に手当を加えなければ、全部で90%は斃死したであろう。

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j 又、試験動物に対する最適な飼料の配合だと考えられるような、飼料のやり方をした場合が極めて少ない。

k 農家における病例については死体解剖が行われず、報告がない。

l 日本の若い研究獣医達は、以前の研究者達と衝突するかもしれない新しい試験をやる気が余りない。石井、渡辺両博士(家畜衛生試験場)は新しい研究に対する反対と不信を表明した。彼等の過去の研究を間違いだとするかも知れないからである。

m 屠場の料金、検査料金、税金、輸送料金が高くて、中小動物からの利益を大きく殺いだり、或は無にするから、綿・山羊で屠場にもって行かれるものは極く少い。大抵農家で殺すから、死後剖検が行はれることは殆んどない。

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2. 綿·山羊の頭数と歴史

a.

年次	山羊	綿羊
1934－36（3ヶ年平均）	123.000	48.000
1945	205.323	180.000
1946	321.725	196.425
1947	277.980	239.427
1948	347.807	290.987
1949	458.000	324.000
1950（6月の推定）	644.000	459.000

（天然資源局提供のもの）

b. 農林省の記録によると、1937年から1941年の間に67.000頭以上のコリデール綿羊が濠洲から輸入されている。1941年の一斉調査に依れば、コリデール牝羊176.094、同じく牡羊89.265合計265.359頭であった。メリノー種が35.947（内、牝 21.940、牡 14.007）その他は

コリデール、メリノー、チェヴィオット、シュロップシャー などの雑種である。これらは26.184頭で、その中17.437が牝、8.749頭が牡である。

c. 農林省の繁殖計画では、綿羊が近親繁殖に陥っていることを強調している。強い近親繁殖、低質な飼料、食細及び舎飼、が"Scrapie"の原因だと云はれている。

b. 農林省の記録によると、1937年から1941年の間に62,000頭以上のコリデール綿羊が豪洲から輸入されている。1941年の一斉調査に依れば、コリデール牝羊176,094、同じく牡羊89,265合計265,359頭であつた。メリノー種が35,947(内、牝21,940、牡14,007)その他は

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c. 農林省の繁殖計画では、綿羊が近親繁殖に陥っていることを強調している。強い近親繁殖、低質な飼料、貧血及び舎飼が"Scrapie"の原因だと云はれている。
多くの研究者は中でも、強い近親繁殖が主因で、その他がそれを助ける原因になっていると信じている。が、はっきりした原因はつかめていない。

d. 日本の山羊の大部分は所謂在来種山羊で、もとは朝鮮、支那から来たものである。
45年前には30,000頭だったと記録にある。これらの在来種は相互の間で交雑し、現在みられる所謂在来種山羊になつている。報ぜられるところによれば、鹿児島及び沖縄に支那山羊の純粋なものがいるそうである。

e. 比較的最近になって、英国とスイスのザーネン種が日本に輸入され、在来種系のものと交雑した。
ザーネン種は乳用肉用を目的としたものを造る基礎種畜に用いられた。米国からもつて来られた諸系種は近親繁殖で維持する計画になつているから、ヌビヤンやトッケンブルグ種は在来種に交雑されていない。

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f. 頭数分布の最も密な、最大の山羊生産地は次の通り。

(縣)	(飼養頭数)
長野	50.531
群馬	35.346
長崎	24.171
山梨	23.588
計	133.636

g. 133.636頭の山羊のうち、83.167頭は50%ザーネン種と云はれる。
長崎では乳用よりも肉用のもの、方が優勢だと云うことである。

3 農家において見られる病例の臨床的症状の概要

a. 栄養不良、但し食慾だけはある。反芻作用が障げられるらしく、事実そういう場合が多い。

b. 体温、呼吸、脈搏は正常

c. 肢の彎曲、開張、蹌跟とした歩様

d. 前肢の関節リュウマチスに似た強直

e. 膝関節の膣大及び肋骨の　浮腫　の見られる場合もある。

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c. 肢の彎曲、開張、蹌踉とした歩様.

d 前肢の関節リュウマチスに似た強直.

e. 膝関節の腫大及び肋骨の 瀦腫 の見られる場合もある。

f 毛の脱落、被毛の光沢衰失、全般的な元気衰失。

g 著しい貧血、粘膜の蒼白化、貧血は寄生虫を駆除し、良好な飼料を与えた場合でも現はれる。
研究室の試験で2ヶ月観察したが少しもよくならなかつた。

h. 牝では分娩後子痫を起すものがあり、双生仔が多い。

i. 脱糞、排尿の状態正常

j 臀筋、腓腸筋、半腱様筋、半膜様筋、外股筋、 直股筋の萎縮が見られる。

k. 潰瘍を伴つた角膜の混濁を示すものがある。

l 病氣の後期になると、強直痙攣と眼球震盪が起り、数時間にして死ぬ。牡は牝牡同様である.

m. 後躯が弱くなつて、患畜は大生する。此筋肉の力が失くなり、筋の收縮力がなくなるか、又は
肢の過剰鋭感性によるものであらう。患畜は鶏跛になつた馬の様に、狭い歩幅で.

3.

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歩を運ぶのに肢を早く動かす。後肢はひきづる。跳んだり、障碍物をよけたり出来ない。

ね 観察したあらゆる病例について、それらしい感じはしても、真の麻痺というべきものはなかった。

の 仔付きの牝が罹った場合でも、仔山羊又は仔綿羊は充分な量の乳を与えられている限り、完全に健康に見えた。

は 病気の経過は普通慢性で6週間乃至6ヶ月の経過を出る。その全経過期間を通じて、一時的に軽くなる時期が出て来ることがある。

4 腰麻痺に関する研究室的成績報告と農家における観察事項の検討

a. 飼養

(1) 日本の農家の飼養状態は標準以下で、大抵は野乾草、雑草、種子、葉、農場残滓、米糠、麹、根菜類(大根や馬鈴薯など)、残り汁、野菜の皮などを与えている。夏と秋には大量の玉蜀黍の茎葉を与える。米糠、麹が主な濃厚飼料の給源である場合が多い。

(2) 一般に繁種畜場では、一般の農家よりは飼料を余計やるが、必ずしも配合は好ましいものではない。カルシウムを含んだものを大量に与えるから、却って燐の不足を来すことがある。

(3) 国立の種畜牧場の飼養状況は一番よい。少くも量の点に於ては、飼料について見ていると、何処でも泌乳中の乳牛に一番よいものをやる。

(1) 日本の農家の飼養状態は標準以下で、大抵は野乾草 雑草 種子 葉、農場残滓 米糠 麸 根菜類(大根や馬鈴薯など)、残り汁 野菜の皮などを与えている。夏と秋には大量の玉蜀黍の茎葉を与える。米糠 麸が主な濃厚飼料の給源である場合が多い。

(2) 一般に繁種畜場では、一般の農家よりは飼料を余計やるが、決しも配合は好ましいもので

はない。カルシウムを含んだものを大量に与えるから、却って燐の不足を来すことがある。

(3) 国立の種畜牧場の飼養状況は一番よい。少くも量の点に於ては。

(4) 飼料のやり方を見ていると、何処でも泌乳中の乳牛に一番よいものをやる。

いづれも割合にバランスのとれた配合になっている。

6 山羊の飼養管理

(1) 比較的良い牝山羊は1日に約4000ccの乳を出し、7ヶ月以上搾乳出来る。

体重と消費飼料量についてみると、良い乳用山羊は殆んど良い乳牛と変らぬ位の能率的な乳生産を行う。けれども、体重100ポンド当りの維持飼料必要量は乳牛よりも相当高いことは想像出来る。なんとなれば、体がずっと小さくて、体重に比べて体表面積が大きいからである。また乳脂1ポンドの生産についても、山羊は体重100ポンド当り能力の高い乳牛よりは明らかに多くの飼料を必要とする。だから購入飼料に換算すれば、山羊乳の生産費はずっと高くなる。

(2) 日本における山羊の取扱は、少くも泌乳中の山羊については上記のような要件を考慮に入れていない。

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c. 泌乳

全ての牝は1日2.000乃至4.000ccの乳を出していた。報告されているところによると、山羊が分娩するのは4月から6月頃であって離乳は7月から10月の腸麻痺の季節に当る。この頃にもやはり山羊の必要を満たすだけに飼料を増加しない。與えれば沢山の乳を出す筈なのだが。

d. 寄生虫

(1) 予備的観察によって、細山羊には非常に多くの寄生虫がいることがわかった。検査の結果発見された諸寄生虫は、嘗て未だ充分な駆除法の確立されなかった時分、多くのアメリカの牧場主をひどい目に合はせたものと同じであった。

(a) Strongyloides 属（糸状虫）　寄生は2月後半に始まり6月一杯続く
(b) Coccidiosis 属（コクシジーム）　〃　3月始め　〃　7月　〃
(c) Haemonchus contortus（捻転胃虫）　〃　5月終り　〃　翌1月　〃
(d) Oesophagostomum columbianum（コロンビヤ腸結節虫）　〃　6月終り　〃　翌4月　〃
(e) Moniezia 属（條虫）　〃　8月終り　〃　翌4月　〃

(f) Trichostrongyles 属（毛様線虫）　〃　5月　〃　11月　〃
(g) Bunostomum 属（十二指腸虫）　〃　8月　〃　11月　〃

(c) Haemonchus contortus (捻転胃虫) 〃 5月終り 〃 翌1月 〃

(d) Oesophagostomum columbianum (コロンビヤ腸結節虫) 〃 6月終り 〃 翌4月 〃

(e) Moniezia 属 (縲虫) 〃 8月終り 〃 翌4月 〃

(f) Trichostrongyles 属 (毛様線虫) 〃 5月 〃 11月 〃

(g) Bunostomum 属 (十二指腸虫) 〃 8月 〃 11月 〃

最初の3種は貧血を起させ元気を失わせる. Oesophagostomum 属は腸管内に結節をつくり、ひどくなると消化吸收を妨げる. Moniezia 属はその寄生の程度によって、軽い或は激しい衰弱をひき起す. Sarcosporidiosis (住肉胞子虫類症) については本研究においては触れなかつた.

e. 鑛物質新陳代謝障害及びヴイタミン欠乏症

(1) 土壌及び天候の條件のよい時でも、燕菁、馬鈴薯(根菜類)玉蜀黍、莢科の種子とか、蕃の皮、藁、野菜の皮、tope、ホエイー その他のような充実カルシウームと燐の少ないもので長い間飼養すると体内にカルシウームと燐が不足することがある。 日本の農村では、上の様な飼料が主なものになつている。 この様な條件が良好でない土壌條件並びに長い單天と結びついてよりカルシユームと燐が不足する。

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(2) 飼料にカルシウム又は燐が不足すると、血漿中の塩の平衡を保つ為に、骨から血液に移行する燐又はカルシウムの量が増加する。これは副甲状腺の規律作用によるものでもある。かくてカルシウムは骨から脱出し、一方腸から吸収されたカルシウムは大部分血液中に残って骨に入らない。史等の実験で見た様に、血漿中の燐の量の減少は飽和不全の状態を来す。恐らくそれで、燐の骨から血液への移行並びに骨迄又は骨に入るべき食物から吸収された燐の大部分の血液中への停滞がおこるのであらう。

(3) その上、佝僂病又は骨軟症的変化には、骨髄の変化が伴って造血機能障害が起こるようである。研究室的に調べたところによると、赤血球、多くの若い細胞に有糸核分核が認められまた稍、白血球増多症の傾向が見られた。これは比較的増多の場合と絶対的増多の場合とあらう。

(4) 肉食動物は別として、佝僂病の比較的一般的原因はカルシウム又は燐の比較的な不足であり、これはアルカリと燐酸との間の平衡、つまり食物中の酸とアルカリの比率がうまくゆかないことによるものである。このようにて E.A 價 $=(CaO-MgO)-P_2O_5$ (E.A. = アルカリ價) が正になったり

負になったりするとそれに伴って草食動物においては佝僂病又は骨軟症が起きる。

(5) アルカリ價の負の食物には各種の玉蜀黍、種子、調理殘滓又は副産物(粉麭、麦芽、稻油粕、肉粉などがある。その他の要素としては次の通り。

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(4) 肉食動物は別として、佝僂病の比較的一般的原因はカルシウム又は燐の比較的な不足であり、これはアルカリと燐酸との間の平衡、つまり食物中の酸とアルカリの比率がうまくゆかないことによるのである。このようにて E.A 價 $=(CaO-MgO)-P_2O_5$ (E.A. =アルカリ價) が正になったり負になったりすることそれに伴って草食動物においては佝僂病又は骨軟症が起きる。

(5) アルカリ價の負の食物には各種の玉蜀黍、種子、調理殘滓又は副産物(粉麩、麦芽粕)油粕、肉粉などがある。その他の要素としては次の通り。

(a.) 食物量が充分量あっても、アルカリ價が負であったり、又は正であっても價が非常に少い場合 $(Na_2O-KO)-(Cl-So)$ には、カルシウム及び燐の比較的な欠乏が起きる。

このような場合には大量のカルシウムが過剰な燐酸又は他の不燃性酸を中和させるために使はれるのである。

(b) 草食動物では燐酸又は他の有機酸の過剰な存在は、佝僂病又は骨軟症の発生の原因となることがある。これらは勿論カルシウム塩として(燐酸カルシウム)排泄されるのである。

(6) ヴィタミンA及びDの欠乏症状が存在する。

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f. 麻痺

(1) 麻痺と云はれる諸病例を調査観察したところでは、これは後肢の真の麻痺ではないことがわかった。実際は、それは後躯の衰弱でそのために患畜が坐りこむのである。後躯が工合悪くなるので、前への運歩の歩幅が狭くなり跛行し、関節をピンと伸ばしたきりにする。後肢は体の下に前を向いて置かれ、亦場合によつては跗骨関節が永久に曲ってしまうことがある。

(2) 臀筋、腓腸筋、半腱様筋、半膜様筋、外転筋、　直腹筋の萎縮又は栄養神経症がみられる。

(3) 後肢をつまんだり、さわってみたりすると、肢をもち上げるから運動神経の反射作用は傷われていないことがわかる。　場合によると筋肉の強壮さが増大していることがある。
痙攣の症状は後期に見られ、眼球振盪を伴う。

(4) 肢の弯曲がみられる

(5) 膝関節の腫大と肋骨にそって　浮腫　がみられることがある。
前肢の這う様なソロソロした運歩の仕方、関節をリュウマチの様に伸ばしきりにすることが起きる。
病気の重さによって、被毛脱落、元気衰失及び著しい貧血がみられることがある。

(6) 脱糞、排尿は観察した全ての病例において正常であった。

(7) 報告された大部分の病例は牝である。

(4) 肢の彎曲がみられる

(5) 膝関節の腫大と肋骨にそって 浮腫 がみられることがある。
前肢の這う様なソロソロした運歩の仕方、関節をリユウマチの様に伸ばしきりにすることが起きる。
病気の重さによって、被毛脱落、元気衰失及び著しい貧血がみられることがある。

(6) 脱糞、排尿は観察した全ての病例において正常であった。

(7) 報告された大部分の病例は牝である。

S 農林省衛生課の報告に基く種畜牧場、繁種畜場、農家における発生状況の分析

a 種畜牧場 9場 —1949—

		綿羊	山羊
頭数		362	436
発病頭数		14	25
斃死頭数		3	6
割合	発病率	1.6 %	5.7 %
	斃死率	0.3 %	1.3 %

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b. 縣種畜場 …… 64場 —1949—

		緬羊	山羊
頭数		2389	553
発病頭数		65	53
斃死頭数		25	25
割合	発病率	2.7%	9.5%
	斃死率	1.0%	4.5%

c. 農家 ……9地方の60郡についてのランドム・サムプル調査 —1949—

		緬羊	山羊
頭数		32,385	41,557
発病頭数		1,729	3,704
斃死頭数		701	665
割合	発病率	5.3%	4.7%
	斃死率	2.1%	1.5%

6. 農林省農政局農業保険課及び畜産局衛生課の調査の分析

a. 1945年から1948年までの分については、緬山羊について保険課から報告がないので、この期間の緬・山羊の腰麻痺は省いた —衛生課の報告はあるが—

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発病頭数		1,729	3,704
斃死頭数		701	665
割合	発病率	5.3%	4.7%
	斃死率	2.1%	1.5%

6. 農林省農政局農業保険課及び畜産局衛生課の調査の分析

a. 1945年から1948年までの分については、綿山羊について保険課から報告がないので、この期間の綿山羊の腸麻痺は有いた－衛生課の報告はあるが－

		腸麻痺によって保険金の支払われた頭数	総保険頭数に対する腸麻痺頭数の割合 %	病気による支払保険金総額	保険総頭数
1945	牛	412	0.03	9.888	1,065,616
	馬	634	0.16	9.751	386,540
1946	牛	195	0.03	6.228	592,083
	馬	288	0.08	6,345	353,833
1947	牛	73	0.014	3.645	510,155
	馬	118	0.06	3.363	179,608
1948	牛	21	0.012	1.259	172,501
	馬	41	0.073	1,193	56,192

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1949	馬	107	0.012	6,326	852,970
	牛	609	0.17	6,354	347,085
	山羊	255	2.7	1,290	9,300
	緬羊	645	2.4	2,550	26,599
	豚	3	0.047	837	6,266

b. 衛生課の報告は 9,681 頭の馬について行った検査についてであった。
骨軟症は 1.7 % と報告されている。

c. 馬の骨軟症の発病率の高い地域では、緬山羊の腰麻痺の分布度も著しく高い。
それは次の通り。

(1) 北海道	(4) 山形	(7) 長野	(10) 秋田
(2) 群馬	(5) 栃木	(8) 埼玉	(11) 石川
(3) 宮城	(6) 佐賀	(9) 岐阜	

d. 但し、此は、全ての病例がこれらの地域にあると云うのではない。流行病的性状の散発的病例は本国中にある。所謂、腰麻痺におかされるのは緬山羊だけでない。骨軟症は明らかに馬と牛に起ることが認められているが、緬山羊については殆ど

それは次の通り。

(1) 北海道	(4) 山形	(7) 長野	(10) 秋田
(2) 群馬	(5) 栃木	(8) 埼玉	(11) 石川
(3) 宮城	(6) 佐賀	(9) 岐阜	

d. 但し、此は、全ての病例がこれらの地域にあると云うのではない。流行病的性状の散発的病例は日本国中にある。所謂、腰麻痺におかされるのは緬山羊だけでない。骨軟症は明らかに馬と牛に起ることが認められているが、緬山羊については殆ど注意されていない。

e. 栄養的要件が問題に関係あるだらうと思はれたので次の様な諸試験を行い、腰麻痺の原因について明確な結論を与えようと試みた。

寄生虫の試験は、長野県種畜場で行われた。

化学療法的研究は私自身、民間の獣医師と共済組合病院の共同を得て、広い地域に亘って行った。

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7. 研究プランの概要

a. 蚊の増殖試験 — Aedes togoi

b. 蚊の飼養試験 — Aedes togoi

c. Setaria Digitata ミクロフィラリアの蚊による媒介接種（牛から綿山羊へ）

d. 同上ミクロフィラリアの直接接種

e. ミクロフィラリアに関する研究（技術、standing、診断等）

f. 血液の研究

(1) 赤血球数

(2) 白血球数

(3) Differential counts

(4) ヘモグロビンの研究

g. 血清中のカルシウム及び燐に関する血液化学的研究

h. 内寄生虫に関する糞のサムプル調査

i. 化学療法的研究

(1) アンチモン制剤

(3) Differential counts
(4) ヘモグロビンの研究

g. 血清中のカルシウム及び燐に関する血液化学的研究

h. 内寄生虫に関する糞のサムプル調査
i. 化学療法的研究
(1) アンチモン製剤
(2) 砒素製剤
(3) カルシウム、燐、マグネシウム及び葡萄糖療法
j. 飼料の研究
(1) 飼料配合及量
(2) コバルト、鉄、銅
k. 骨の組織病理学的研究
l. 脳及び神経索指種及び培養
(1) Listerellosis —— 生体内及び試験管内
(2) Streptococcus caprinus —— 仝上
(3) 遺過性病毒 —— 生体内

(10)

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上述の諸試験を始める迄に動物を充分な準備状態におき得なかつた。
予備的な臨床的観察結果及び実験室的研究成績下の通り。

(1) 栄養不良

(2) 内寄生虫の甚しき寄生

(3) 著しい貧血状態

(4) 赤血球数　最低 —— 920,000
　　最高 —— 1,720,000
　(ヘモグロビン)　最低 —— 43%
　　最高 —— 75%

(4) 動物は全て長野県某部落のあちこちの農家から買つたもので、大抵は離乳を終つたものだつたが、離乳前のものもあつた。大部分のものはヘモンクス属の寄生があつた。

(5) 最適な飼料が手に入らぬため、最適飼養標準を維持するため代用品を用いざるを得なかつた。

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(4) 動物は全て長野県等野村のあたりの農家から買つたもので、大抵は離乳を終つたものだつたが、離乳前のものもあつた。大部分のものはヘモンクス属の寄生があつた。

(5) 最適な飼料が手に入らぬため、最適飼養標準を維持するため代用品を用いざるを得なかつた。

(6) 全動物について寄生虫駆除を行い、出来るだけ最適な飼養條件に近くした。2ヶ月の観察の後でもなお、相変らず低い赤血球数とヘモグロビン量を示していた。

前項のセメリア・ゲギターメに関する研究及びその他の試験の結果

a. Aedes togoi 蚊をつかまえて、これを増殖するに成功し、これと飼養並びに感染試験（前項aからeまで）に使つた。結果は、過去の研究において混じていた雑條件を除去したら、セメリア・ゲギターメは腰麻痺と引起さなかつた。

b. 血液の研究によつて、試験に用いた動物全部に貧血のあることがわかつた。また、やゝ白血球増多症の傾向がみられた。

c. 関東において細岸314頭について血清中のカルシウム及び燐の量を知るた

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めに血液化学的研究を行った。その314のサムプルのうち205は満足に使えたが109は壊したり、又はヘモリーゼをおこして使えなかった。205のサムプルを分析した結果そのうち194は燐の量は正常量以下或は著しく低く、2プラスmg%から5プラスmg%の範囲であった。つまり動物の69%は明かに低い血清燐含有量を示した。血清燐含有量は2.3乃至14.7mg%で、一方カルシウムは8.4乃至13.3mg%の範囲を示した。血清中の燐の濃度は正常以下であり、一方佝僂病的経過は進行しつゝある。

d. 更に此サムプルをとった314頭のうち244頭は之を常に観察を続け、それによって彼等に関する価値ある知見を得た。

e. 観察した猟山羊のうち181頭の牝(74%)及び63頭の牡(26%)が腰麻痺であった。山羊のうち141頭が牝(92%)で11頭が牡(8%)だった。綿羊では牝40頭(43%)、牡52頭(47%)であった。年齢別にわけると53%は2~3才の区分に入った。その病例実数は131頭であった。病気のおこったのは1才から10才までの範囲であった。病気の軽重についていうと、山羊の方が綿羊に比して重いものが多かった。

痺であった。山羊のうち141頭が牝(92%)で11頭が牡(5%)だった。綿羊では牝40頭(43%)、牡52頭(47%)であった。年齢別にわけると53%は2~3才の区分に入った。その病例実数は131頭であった。病気のおこったのは1才から10才までの範囲であった。病気の軽重についていうと、山羊の方が綿羊に比して重いものが多かった。

f. アンチモニー剤及び砒素剤を用いた化学療法の研究はセメリア・ゲギメーの寄生に何等の影響を与えなかった。またこの寄生虫に関する全ゆる試験はその結果が陰性だった。カルシウム、燐及びマグネシウム療法は100例以上について価値があった。強直及び眼球振盪は殆んど直ちに消えた。病例の多くは初期ならば15~20分で効果が出て来、動物は立上って飼料を食べ始めた。

g. 骨組織の組織病理学的研究は行わなかった。この試験研究を行うために与えた2ヶ月の期間に合わなかったからである。

h. 糞のサムプル調査については4で(a)から(g)迄に述べた。

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i. 飼養に関する研究は長い時間を要するものである。が、最適餌又はより良い或はより好ましい飼料を与えたところが、腰麻痺は進行しなかった。が、貧血状態は2ヶ月の観察期間内には改善しなかった。

j. 腰麻痺にかかった動物の脳及び神経索をmacorateしたものの脳及び神経索接種は、4つの異った動物種につき生体試験を行った結果は陰性であった。細菌(Listerellosis及び連鎖状球菌)の生体内試験も同様陰性の結果だった。ヴィールス(濾過性病毒)については、4つの異った動物種について試験管内試験を行ったが、脳及び神経索材料からヴィールスを分離することは出来なかった。