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United Nations Day—October 24

We hope that the observance of United Nations Day on Tuesday, October 24, this year will be the most dramatic demonstration yet witnessed of the support of the free peoples of the world for the United Nations as an instrument for keeping the peace and advancing human welfare.

The authority of the United Nations—and the will of the free peoples which it expresses—has been challenged openly by the unprovoked aggression by the North Korean Communist forces against the Republic of South Korea. The United Nations has met this direct challenge with a decisiveness that has been acclaimed by the overwhelming majority of the peoples of the world. It is fitting, therefore, that in this period of crisis the people of the United States join the people in every corner of the globe in rededicating themselves to the mandate for peace and progress which became world law when the United Nations charter came into force 5 years ago.

The charter states clearly the goals which motivated the forming of the United Nations . . . to save succeeding generations from the scourge of war . . . to reaffirm faith in fundamental human rights . . . to promote social progress. Achieving these goals will not be easy. But, as one great American statesman has declared, the fulfillment of humanity's highest aspirations and the very survival of our civilization may well depend upon the success of the United Nations.

Though still a young organization, the United Nations can stand upon a solid record of dynamic accomplishments. It has succeeded in halting shooting wars in Palestine, Indonesia, and Kashmir. It has brought new hope and a new start to over a million refugees and other innocent victims of war. It has spearheaded a world attack on famine and hunger. In cooperation with our own Point Four program, it has embarked on a down-to-earth program of technical assistance to help the people of the underdeveloped areas.

In the Public Health Service, of course, we have been especially interested in the work of the World Health Organization in which we have participated since the formation of that specialized agency of the United Nations in 1948. The World Health Organization

is working on a day-by-day basis to guarantee better health for all people. It is conducting a world-wide offensive not only against physical illness but against the diseases of the mind and the social maladjustments that breed war. Indeed, as the constitution of the WHO affirms, the health of all peoples is fundamental to the attainment of peace and security. Already, the WHO has conducted specific aid projects in over 50 countries and territories, stopped epidemics of cholera, and successfully fought malaria in many regions. Its work is just beginning, but it has a bright future.

It has been truly said that the peoples of the world are the United Nations and it will live only as we as individuals give it our support. United Nations Day affords an opportunity to demonstrate this support. The Public Health Service welcomes this opportunity to pledge again full support of the United Nations and its ideals, as well as continued close cooperation with the World Health Organization.

LEONARD A. SCHEELE, M. D.,
Surgeon General, Public Health Service.

Saline Solution in Treatment of Burn Shock

The Surgery Study Section of the National Institutes of Health has recommended to the Surgeon General of the Public Health Service that the use of oral saline solution be adopted as standard procedure in the treatment of shock due to burns and other serious injuries in the event of large-scale civilian catastrophe.

The recommendations followed action taken at the January 1950 meeting of the Surgery Study Section, when such treatment was approved in principle. Dr. Carl A. Moyer, a member of the Study Section, was designated at that time to prepare a memorandum suitable for submission to Dr. Norvin A. Kiefer, Director, Health Resources Division (now Health Resources Office), National Security Resources Board.

Dr. Moyer's memorandum, which was submitted to Dr. Kiefer, February 15, 1950, reads as follows:

"Since the publication of the experimental work of Dr. Rosenthal, Dr. Coller, et al., orally administered salt solutions have been employed in the treatment of burns at the University of Michigan Hospital, Ann Arbor, Mich.; at the Wayne County General Hospital, Eloise, Mich.; and at Parkland Hospital, Dallas, Tex. Personal clinical experience, in the above-named hospitals, has convinced me that the orally administered salt solutions are valuable adjunctive agents in the treatment of shock incident to burns, fractures, peritonitis, and acute anaphylactoid reactions. Certain factors are important in governing the effectiveness of the oral administration of salt solutions. They are as follows:

"1. The composition of the salt solution: The most palatable salt solution is made by dissolving 3 to 4 grams of sodium chloride and 2 to 3 grams of sodium citrate in each liter of water. If sodium citrate is not available, ordinary baking soda may be substituted for it.

"2. The concentration of salt should not be in excess of 140 milliequivalents of sodium per liter. If the concentration is above this, vomiting and diarrhea become important complicating factors.

"3. Whenever profound peripheral circulatory collapse is present, the intravenous route of administration must be used until peripheral blood flow has been reestablished. The salt solutions that we have found most satisfactory for this purpose are Hartmann's solution (Lactate-Ringer's solution) or plasma. In addition to the salt solution or plasma intravenously, whole blood is given concurrently whenever peripheral circulatory collapse exists. This materially implements the effectiveness of salt solutions.

"The slightly hypotonic salt solution is the only drinking fluid permitted the injured individual until the edema of the injured parts begins to subside. Certain exceptions to this rule have to be made during the hot weather of summer when it is sometimes necessary to permit the partaking of some non-salty water.

"As much as 10 liters of the hypotonic salt solution have been drunk in the 24-hour period by adults who have been severely burned. Since salt solution has been substituted for water, as a drinkable fluid, no burned person who has lived for longer than 3 hours after being admitted to the hospital has suffered from anuria. The 'early toxemia phase' of the burns has also failed to appear and the osmotic concentration of the plasma electrolytes has been well maintained.

"We feel that much more clinical observation and actual experimental work should be undertaken regarding the effectiveness of the basic principles of the supportive therapy of burns that have been so beautifully demonstrated by Dr. Rosenthal. It is obvious that the adoption of a more active program of investigation into the relative effectiveness of simple measures to combat shock would be of extreme importance to the Armed Forces and to the civilian population in the event of another war."

Because of the sharpened national emergency that developed during the summer of 1950, the Surgery Study Section, in approving Dr. Moyer's memorandum at its meeting on September 16, changed the last paragraph to read:

"While further clinical research concerning the effectiveness of oral salt solution in the treatment of burns and other injuries is certainly in order, there is already sufficient evidence to suggest that this form of treatment should be used in any large-scale disaster involving the civilian population."

The Surgery Study Section letter to the Surgeon General, dated September 16, 1950, reads as follows:

"It is my understanding that one of the functions of the Study Sections is to offer advice to the Surgeon General in fields of medicine lying within the special competence of the Study Section members. At the January 1950 meeting of the Surgery Study Section, there was considerable discussion concerning the use of oral saline solutions in the treatment of burns and other serious injuries. It was the consensus of the Section at that time that, on the basis of the animal work which had been done by Dr. Rosenthal of the National Institutes of Health, and the clinical work which had been done by Dr. Carl A. Moyer, by the undersigned, and by others, the efficacy of such treatment had been definitely demonstrated and that, while there is need to stimulate additional research in this field, our present knowledge is sound enough so that action can be taken on this basis. Dr. Moyer was designated to draft a short memorandum expressing our point of view on this

subject. Such a memorandum was prepared and furnished to Dr. Norvin C. Kiefer, Director, Health Resources Division, National Security Resources Board, on February 15, 1950. A copy of Dr. Moyer's memorandum is attached.

"In view of the more acute national emergency that has developed since Dr. Moyer wrote this memorandum, the Study Section, at its meeting on September 16, 1950, voted to recommend that the principles of treatment outlined in his memorandum be adopted for widespread use in any large-scale disaster involving the civilian population. Because of the present emergency situation, we have modified the last paragraph of Dr. Moyer's memorandum to read, 'While further clinical research concerning the effectiveness of oral salt solution in the treatment of burns and other injuries is certainly in order, there is already sufficient evidence to suggest that this form of treatment should be used in any large-scale disaster involving the civilian population.'

"You are at liberty to transmit this recommendation of the Surgery Study Section to the National Security Resources Board or to other proper agencies, and, if you see fit, to publish it. We feel strongly that it is important for the medical profession of the country and for those planning for the handling of potential disasters to be informed of the value of this simple and easily carried out form of treatment."

The letter was signed by Frederick A. Coller, M. D., professor of surgery, University of Michigan, Chairman of the Surgery Study Section. Members of the Study Section, in addition to Dr. Coller, are: Dr. Claude S. Beck, professor of neurosurgery, Western Reserve University; Dr. Loren R. Chandler, dean, Stanford University Medical School; Dr. Lester R. Dragstedt, professor of surgery, University of Chicago; Dr. Daniel C. Elkin, professor of surgery, Emory University; Dr. Carl A. Moyer, dean and professor of surgery, Southwestern Medical School, University of Texas; Dr. Harris B. Shumacker, Jr., professor of surgery, Indiana University Medical Center; Dr. Owen H. Wangensteen, professor of surgery, University of Minnesota; Dr. Allen O. Whipple, clinical director, Memorial Hospital, New York City; Dr. H. L. Skinner, chief of surgery, Staten Island Marine Hospital; Dr. Henry Beecher, professor of anesthesiology, Harvard University Medical School; Dr. J. Gordon Lee, chief of surgery, Mount Alto Hospital, Washington, D. C.; Dr. Howard R. Lawrence, chief of surgery, Francis E. Warren Air Force Base Hospital, Wyoming; and Dr. G. Halsey Hunt, chief, Division of Hospitals, Public Health Service.

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NOTE: This does not represent a complete bibliography.

Tularemia
Geographical Distribution of "Deerfly Fever" and the Biting Fly, *Chrysops discalis* Williston

By William L. Jellison*

"Deerfly fever" was described by Pearse (*1*) in 1911 as a disease entity of man in Utah where it had been recognized by physicians for several years. It is one of the many epidemiological manifestations of tularemia, an infectious bacterial disease of man and other animals, named and described by Francis (*2*) in 1920. While most cases of "deerfly fever" would be classed clinically as an ulceroglandular type of tularemia, epidemiologically, the cases are distinct in that (a) the initial lesion at the site of infection is usually on an exposed part of the body, i. e., hands, arms, face, or neck; (b) most of the cases occur in June, July, and August; (c) the disease has a rather restricted geographical distribution in contrast to tularemia in general, as shown in this study; and (d) the patient often observes being bitten by a deerfly and later recalls the incident when an initial lesion or ulcer develops at the site.

The successful experimental studies by Francis and Mayne (*3*) on the transmission of tularemia by deerflies were undertaken because, as they state, "popular belief had connected the occurrence of human cases of tularemia with the bites of *Chrysops discalis*." This species was abundant in areas where human cases were common and was known to bite man. Although it proved to be an efficient experimental vector, Francis and Mayne did not find natural infection nor did they observe the deerflies feeding on wild rabbits, a presumed source of infection in nature.

A few cases of tularemia from deerfly bites are reported nearly every year in the West. At least one epidemic occurred among Civilian Conservation Corps workers near Locomotive Springs, north of Great Salt Lake, Utah, in 1935, as reported by Hillman and Morgan (*4*).

Typical cases of "deerfly fever" appear to be confined to certain Western States and Canadian provinces in contrast to other epidemiological forms of tularemia which are widely distributed throughout the United States, and to a lesser extent in Canada. It is especially noticeable that few or no cases of "deerfly fever" are reported in States of high tularemia incidence east of the Mississippi River. This case distribution suggests a study of and comparison with the

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distribution of the deerfly, *Chrysops discalis* Williston, one of the accepted vectors of the disease.

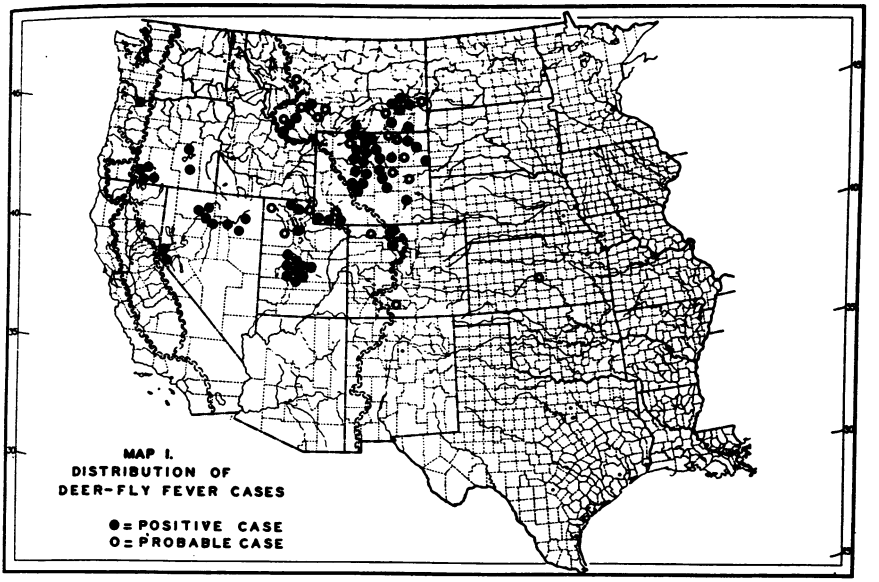
Distribution of Cases

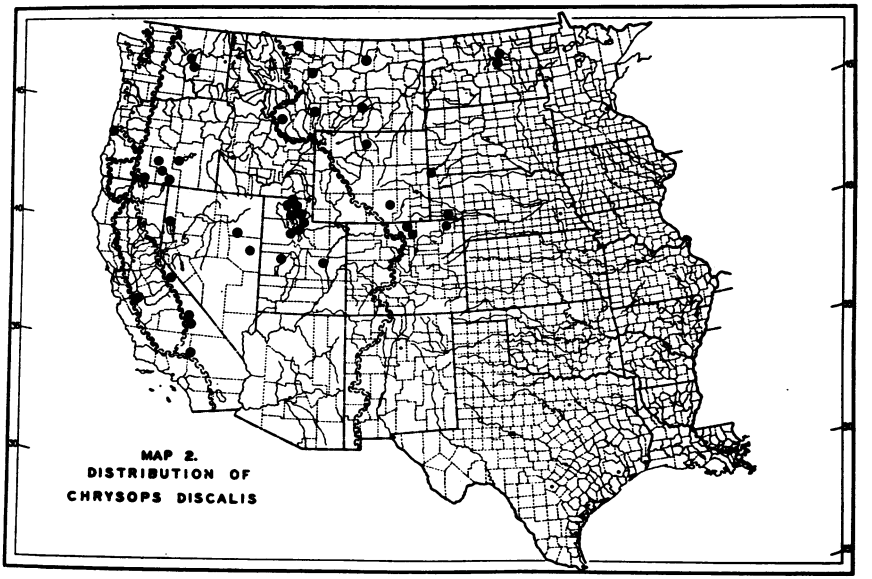
Data on the distribution of tularemia cases designated as "deerfly fever" by the reporting physician or attributed to the bites of flies have been obtained from Dr. Edward Francis (Retired) of the Public Health Service, who has supplied all records available from his files including the early cases he studied in Utah. The late Dr. R. R. Parker had made available all records and physicians' reports, published and unpublished, in the files of the Rocky Mountain Laboratory. The published literature on tularemia has been reviewed for additional cases. All cases for which the diagnosis appears positive and for which the geographical source of the infection can be located with reasonable certainty have been consolidated on map 1, Distribution of "Deerfly Fever" cases. These cases are indicated by solid black circles. Additional cases, which were reported as probably caused by deerfly bites, are indicated by hollow circles on the same map. All the cases are listed in tables 1 and 2. In only two instances, one case in Kansas and one case in southern Colorado, do the "probable cases" appear to be beyond the general range of the positive cases.

Distribution of *Chrysops discalis*

Dr. C. B. Philip, of the Rocky Mountain Laboratory, an authority on the Tabanidae, supplied the writer with records of specimens in his own collection and records of identification of this species in the collections of many institutions and entomologists. Records were received from the following: the United States National Museum through Dr. Alan Stone; the California Academy of Sciences through Edward F. Ross; Montana State College through Dr. H. B. Mills; Utah Agricultural College through Dr. George F. Knowlton; the Livestock Insect Laboratory, Kamloops, British Columbia, through George P. Holland; and from the University of British Columbia through G. J. Spencer. A few Oregon collections are recorded in a recent publication by Gjullin and Mote (*5*).

All of these collection records are consolidated on map 2 and in table 3 insofar as the places mentioned could be located. The distribution of *C. discalis* in Canada is not mapped, but it is recorded for Maple Creek in southeastern Saskatchewan and from Baldur Lake in southern Manitoba by Cameron (*6*). Its presence west of the Rockies in British Columbia is mentioned by Hearle (*7*) without giving specific localities, although he states it is especially common in the dry belt of British Columbia. Specific locality records of collections in British Columbia are listed here.





The species is known to occur in the Canadian Provinces of British Columbia, Alberta, Saskatchewan, and Manitoba, and in the States of Oregon, Montana, North Dakota, South Dakota, Washington, Idaho, Wyoming, California, Nevada, Utah, Colorado, and Nebraska. It is especially abundant in the vicinity of alkaline lakes in prairie regions.

Three cases of tularemia from Canada caused by deerfly bites are recorded by Jenkins (*8*) without details as to localities. The Rocky

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Table 1. *Definite cases of "deerfly fever"*

Case No.	Initials	Sex	Age	Date onset	Locality	Reporting physician	Source of data
1	C. E. B.	M	34	7-5-24	Idaho Falls, Idaho	D. H. Junkins	E. Francis.
2	R. W. P.	M	52	8-23	do	do	Do.
3	A. B.	M	44	7-6-23	Cowley, Wyo.	E. W. Croft	Do.
4	P. Q.	M		8-15-25	Klamath Falls, Oreg.	E. Dietsche	Do.
5	J. H. S.	M		7-1-25	do	do	Do.
6	S. S.	M		6-29-25	do	do	Do.
7	W. S.	M	17	7-26-16	Basin, Wyo.	C. E. Harris	Do.
8	J. I. B.	M		1915	do	do	Do.
9	Mrs. H.	F		7-26-16	do	do	Do.
10	E. L.	M		6-27-25	do	do	Do.
11	L. C. W.	M		8-16	do	do	Do.
12	O. O.	M	41	7-3-16	Nevada	A. J. Hand	Do.
13	D. P.	M	35	7-30-26		W. H. Hood	Do.
14	R. C. E.	M	38	7-16	Thermopolis, Wyo.	C. D. Carter	Do.
15	W. H.	M	13	7-26	Colorado	G. W. Corey	Do.
16	M. G.			8-19-26	Basin, Wyo.	C. E. Harris	Do.
17	W. W.	M			Miles City, Mont.	Andrus and Garberson	Do.
18	A. L.	M	30	9-16-26	Wyoming	J. D. Barrett	Do.
19	F. W.	F			Portland, Oreg.	J. R. Coffee	Do.
20	E. E. B.	M		7-14-28	Battle Mountain, Nev.	U. S. Navy Hospital, Mare Island	Do.
21	D. J.	M	28	7-28-32	Salt Lake City, Utah	O. A. Ogilvie	Do.
22		M	41	7-26	Simpson, Nev.		Geiger & Meyer.
23		M	39	7-27	Winnemucca, Nev.		Do.
24		M	17	7-28	do		Do.
25		M	50	7-28	Battle Mountain, Nev.		Do.
26		F	39	7-28	Ruby Valley, Nev.		Do.
27		M	44	6-15-26	Minnesota		T. B. Magath & W. M. Yater.
28-57		M			Locomotive Springs, Utah		Hillman & Morgan.
58	R. S.	M	52	7-23-19	Delta, Utah	H. L. Charles	E. Francis (1921).
59	W. E. C.	M	50	6-16-20	Holden, Utah	J. E. Fuhrer	Do.
60	J. T. G.	M	48	6-27-20	Fillmore, Utah	do	Do.
61	M. S.	M	16	6-23-20	Holden, Utah	do	Do.
62	Mrs. M.	F	41	6-16-20	do	W. B. Hamilton	Do.
63	C. F.	M	30	7-21-20	Fillmore, Utah	J. E. Fuhrer	Do.
64	J.	F	7	9-9-20	Hinkley, Utah	H. L. Charles	Do.
65	T. F.	F			Salt Lake City, Utah	T. A. Flood	Rocky Mt. Lab.
66	D. D.	M	14	8-15-35	Oregon	California State Health Department	
67	L. H.	M	29	7- 6-35	Newcastle, Wyo.	Horton & Horton	Rocky Mt. Lab.
68	J. J.	M	35	9- 1-40	Miles City, Mont.	M. D. Winter	Do.
69	J. L. M.	M			do	do	Do.
70		M	35	7——28	Sparks, Nev.		Geiger & Meyer.
71					Kansas		Brown, Lattimore & Hoffman.
72	O. S.	M	45	7-18-36	Kremmling, Colo.	R. W. Danielson	Rocky Mt. Lab.
73	J. D. C.	M	46	8- 4-43	Walden, Colo.	J. Rowlett	Do.
74	C. J.	M	16	6-20-26	Trident, Mont.	A. R. Foss	Do.
75	I. B.	M	30	8- 4-29	N. E. Dillon, Mont.	E. G. Free	Do.
76	J. B.	M	15		Grant, Mont.	do	Do.

77	T. G	M	25	8- 3-40	Ashland, Mont	D. J. Darius	Do.
78	G. L. W	M	32	8-12-41	N. Dillon, Mont	H. A. Stanchfield	Do.
79	V. N	M	25	1942	Forsyth, Mont	M. D. Winter	Do.
80	L. B	F	36	1944	Southeastern Mont	D. S. Leng	Do.
81	W. L	M	41	7——43	Sheffield, Mont	R. R. Randall	Do.
82	J. J	M	50	9-22-40	Garland, Mont	A. R. Varca	Do.
83	R. P			1919	Carlin, Nev	C. E. Secor	Do.
84	L. M	M	25	1928	Ruby Valley, Nev	do	Do.
85	F. R	M	40	1943	Lowen, Oreg	J. W. Weare	Do.
86	C. H	M	17	9- 3-44	N. Klamath Falls, Oreg	G. A. Massey	Do.
87	A. H	M	26	1935	Corrine, Utah	R. M. Fauch	Do.
88	R. K. S	M		1919	Great Salt Lake, Utah	Stewart	Do.
89	K. M	M	14	1944	Delta, Utah	Utah State Board Health	Do.
90	J. L	M	56	8- 6-45	Ferron, Utah	B. Turman	Do.
91	J. L. W	M	56	8——25	Lovell, Wyo	C. E. Harris	Do.
92	J. S. W	M	70	7- 2-33	Pavillion, Wyo	L. H. Wilmoth	Do.
93	W. M	M	45	1935	S. W. Rock Springs, Wyo	E. S. Lauzer	Do.
94	W. D. L	M	26	6-12-36	Lander, Wyo	P. R. Holtz	Do.
95	J. T	M	9	6-10-40	N. Lander, Wyo	do	Do.
96	I. M	M	36	7-13-42	Basin, Wyo	S. L. Myre	Do.
97	O. B	M	40	7-15-42	Hyattville, Wyo	C. Raffl	Do.
98	R. G	F	40	7-15-42	Powell, Wyo	P. J. Clark	Do.
99	J. S	M	38	8- 1-42	Lander, Wyo	F. E. Rogers	Do.
100	A. J. W	M	62	8-15-42	W. Basin, Mont	C. Raffl	Do.
101	M. B	M	19	8-15-42	Fremont Co., Wyoming	F. E. Rogers	Do.
102	R. D. K	M	49	5- 2-43	Moorcroft, Wyo	D. S. Lenz	Do.
103	L. B	M	35	6- 2-43	Gillette, Wyo	do	Do.
104	B. W	F	55	6-10-43	Laramie, Wyo	R. M. Leake	Do.
105	H. R	M	50	7——43	Hyattville, Wyo	K. A. Avery	Do.
106	H. C	M	74	7- 5-43	Recluse, Wyo	D. S. Lenz	Do.
107	C. C	M	6	7-15-43	Deaver, Wyo	W. W. Horsley	Do.
108	C. T	M	40	5-24-44	Fremont Co., Wyoming	B. Gitlitz	Do.
109	L. M	M		6-17-44	McKinnan, Wyo	K. E. Kreuger	Do.
110	A. J. M	M	72	7- 1-44	Fremont Co., Wyoming	F. E. Rogers	Do.
111	C. T. E	M	55	7-10-44	do	do	Do.
112	J. T	M	13	7-20-44	Big Horn Co., Wyoming	S. L. Myre	Do.
113	J. C	M	14	8-15-44	do	do	Do.
114	R. P	M	55	7-21-45	Hot Springs Co., Wyoming	K. G. Avery	Do.
115	J. A. B	M		7-25-45	Natrona Co., Wyoming	H. E. Stuckenhoff	Do.
116	F. P	M	71	8- 1-45	Fremont Co., Wyoming	W. F. Smith	Do.
117	J. H	M	16	8-17-45	Natrona Co., Wyoming	H. E. Stuckenhoff	Do.
118	O. S	M	53	9- 1-45	Albany Co., Wyoming	J. F. Hill	Do.
119	A. W	F		1941	Clearmont, Wyo	C. L. Rogers	Do.
120	J. S	F	60	8-18-43	Deaver, Wyo	W. W. Horsley	Do.
121	S	M	17	7-17-38	Cardston, Alberta	H. L. Seamans	Do.
122	E. C. R	M	37		Banff, Alberta	H. McKenzie	Do.
123	M. B	F	22	7-16-46	Lake Co., Idaho	Spencer & Rich	Do.
124	B. S	M	29	6-29-46	Delta, Utah	E. L. Skidmore	Do.
125	R. C	M	15	9-19-46	Salt Lake City, Utah	R. O. Johnson	Do.
126	M. T. C		36	8-10-46	Lyman, Wyo	J. S. Hellewell	Do.
127	E. L	M	20	7-21-46	Casper, Wyo	H. L. Harvey	Do.

Table 2. *Probable cases of "deerfly fever"*

Case No.	Initials	Sex	Age	Date onset	Locality	Reporting physician	Source of data
128	I. M. H	F	57	7-17-37	Montevista, Colo	J. J. Warnig	Rocky Mt. Lab.
129	R. F. K	M	2	8-21-43	Craig, Colo	J. H. Dickason	Do.
130	H. J			8-19-44	Oreana, Idaho	C. T. Horton	Do.
131	A. L	M	42	7-7-31	Wichita, Kans	Rick & Jaeger	Do.
132	G. F	M	26	7-20-35	Forsyth, Mont	J. V. Neville	Do.
133	R. G. H	M	28	8-15-39	Whitehall, Mont	A. R. Sievers	Do.
134	W. M	M	54	1939	Beaverhead Co., Montana	H. A. Stanchfield	Do.
135	E. K	F	65	7-1-40	Wilsall, Mont	W. E. Harris	Do.
136	E. M	M	17	8-29-40	Bozeman, Mont	A. D. Brewer	Do.
137	L. M	M	56	4-17-41	Forsyth, Mont	R. A. Elliot	Do.
138	B. M	M	60		Vananda, Mont	M. D. Winter	Do.
139	L. L. B	F	50	8-28-42	Miles City, Mont	W. Winters	Do.
140	H. L	M	56		Billings, Mont	W. V. Weidman	Do.
141	M. B	F	58	8-6-45	Diamond, Oreg	J. H. Weare	Do.
142	C. C	F	38	5-40	Sheridan, Wyo	C. L. Rogers	Do.
143	A. L	M	30	9-16-26	Ralston, Wyo	J. D. Barrett	Do.
144	G. L	M	20	7-1-35	Worland, Wyo	L. S. Anderson	Do.
145	A. E. S	F	42	8-1-40	Basin, Wyo	A. A. Engleman	Do.
146	J. W	F	38	5-41	Savageton, Wyo	A. G. Hoadley	Do.
147	D. A			7-41	Kaycee, Wyo	J. J. McGill	Do.
148	D. S	M	70	7-41	Midway, Wyo	do	Do.
149	C. B	F	46	7-15-41	Douglas, Wyo	F. C. Shaffer	Do.
150	T. J	M	27	7-20-41	Green River, Wyo	R. C. Stratton	Do.
151	R. W	M	17	7-25-44	Big Horn Co., Wyoming	K. G. Avery	Do.
152	O. F	M	39	7-3-49	Richland Co., Montana	R. D. Benson	Do.
153	D. L	M	9		Lewis & Clark Co., Montana	C. M. Mears	Do.
154	R. L	F	22	6-4-46	Grantsville, Utah	J. Mayo	Do.
155	E. R	F	23	7-46	Randolph, Utah	J. P. Burgess	Do.
156	V. W	M	36	7-5-49	Box Elder Co., Utah	G. C. Ficklin	Do.
157	D. C	F	20	6-25-49	Box Elder Co., Utah	H. H. Pearse	Do.
158	A. B	M	35	7-6-46	Powell, Wyo	K. G. Avery	Do.

Table 3. *Collection records of* Chrysops discalis *Williston*

State or province	Locality	County	Date	Source of data*
California	Bridgeport	Mono	June	USNM.
	Crescent City	Del Norte	May	CAS.
	Grand Junction		June	CAS.
	Lone Pine	Inyo	May, June	CAS & Philip.
	Los Banos	Merced	May	CAS.
	Mojave Desert			Hine.
	Olancha	Inyo	May, June, July	USNM.
Colorado	Sterling	Logan	June	USNM.
	Fort Collins	Larimer	June	Philip.
Montana		Beaverhead		Philip.
	Billings	Yellowstone	July	MSC.
		Glacier	June	CAS.
	Gallatin Mountains	Gallatin	July	Philip.
		Phillips		Philip.
	Great Falls	Cascade	July	MSC.
	Sun River Project		July	Philip.
Nebraska	Haigler	Cheyenne	July	Philip.
North Dakota	Devils Lake	Ramsey	June, July	USNM.
Nevada	Hazen	Churchill		Francis.
	Pyramid Lake	Washoe		Hine.
	Ruby Valley	Elko	August	Philip.
Oregon	Abert Lake	Lake	August	Philip.
	Klamath Falls	Klamath	July	USNM.
	Paisley	Lake	July	USNM & Philip.
	Rest Lake	Lake	August	Philip.
	Summer Lake	Lake	July	USNM & Philip.
South Dakota	Silver Lake		August	Philip.
	Tulare	Spink		Philip.
Utah	Bay River Bay		August	Philip.
	Blue Lake	Millard		Francis.
	Brigham	Box Elder	June, July, August	USNM.
	Corinne	Box Elder	July, August	USNM & Philip.
	Delta	Millard	July	USNM.
	East Promontory		August	Philip.
	Farmington	Davis	July	USNM & Philip.
	Garfield	Salt Lake	July	USNM.
	Great Salt Lake		May	CAS.
	Honeyville	Cache	May	Philip.
	Hooper	Weber	June, July, September.	USNM.
	Lampe		August	Philip.
	Mouth of Bear River	Box Elder	July	USNM.
	Penrose	Box Elder	June	USNM & Philip.
	Promonotory Point	Box Elder	July	USNM.
	Saltair	Salt Lake	June	USNM & CAS.
	Timpie		August	Philip.
	Trenton	Box Elder	June	USNM.
	Utah Public Shooting Grounds.		May	Philip.
Washington	Blue Lake	Grant	June	Philip.
	Stratford	Grant	September	USNM.
	Soap Lake	Grant	July	Philip.
Wyoming	Basin	Big Horn	August	USNM.
Alberta	Medicine Hat		July	Philip.
British Columbia	Big Bear		July	UBC.
	Chilcotin		June, July, August	UBC.
	Kamloops		June, July, August	UBC.
	Nicola		July	UBC.
	Monte Creek		July	Philip.
Manitoba	Baldur Lake		June	Cameron (1926).
Saskatchewan	Maple Creek		June	Cameron (1926).

*Legend for abbreviations:
USNM=U. S. National Museum.
CAS=California Academy of Sciences.
MSC=Montana State College.
UBC=University of British Columbia.

Mountain Laboratory has records of two Canadian cases, one from Banff and one from Cardston, Alberta, that were attributed to deerfly bites. The Banff locality, which is in the mountains, is not typical territory for *C. discalis*, but it is not far from the plains area where the species would more customarily occur. However, the species has been collected in the mountains.

Discussion

Probably rarely, if ever, has the individual fly that caused a case of "deerfly fever" in nature been captured and identified by an entomologist. However, the strong circumstantial evidence, supported by successful experimental transmission, Francis and Mayne (*3*), that *C. discalis* is a vector in nature must be accepted. The writer sees no reason to question this conclusion, but the question has been raised as to whether or not *C. discalis* is the only species of the biting fly family Tabanidae that is an important natural vector of the disease.

By comparison of maps 1 and 2, it is evident that the great majority of all cases so far diagnosed as "deerfly fever" fall within the range of the one species. Most areas of the United States have one or more species of deerfly that feed avidly on man, and in some places they are reported as extremely annoying. Philip (*9*) recognizes 68 species and 12 subspecies of the genus *Chrysops* from North America north of Mexico. It is reasonable to assume that many of these species, like *C. discalis*, feed on rabbits and other small mammals as well as on man. Tularemia and its important animal reservoirs, rabbits and rodents, are likewise widely distributed in the United States. Jellison and Parker (*10*) have presented evidence that rabbits, especially cottontails, *Sylvilagus* spp., and to a lesser degree jackrabbits, *Lepus* spp., are the most important of these reservoirs.

The total tularemia case incidence by States has been given by Francis (*11*, *12*). Of the 14,002 cases recorded up to 1942, only 1,007 cases, or 7.2 percent of the total, were reported in the six States, Montana, Oregon, Wyoming, Nevada, Utah, and Colorado, that have reported 100 percent of the "deerfly fever" cases.

"Deerfly fever" case distribution, then, does not correspond with the distribution of deerflies in general or with the distribution of the infectious agent, *P. tularensis*, or with the distribution of any one group of mammalian reservoirs of the disease.

This distribution relationship between "deerfly fever" cases and one species of deerfly suggests that there is some factor which makes *C. discalis* an especially efficient vector of the disease and that this factor is lacking in other species of *Chrysops* or *Tabanus*. This factor may be a special predilection of the species for feeding on rabbits and rodents, the principal mammalian reservoirs of tularemia.

Summary

The records of human cases of "deerfly fever," an epidemiological type of tularemia in man in North America, are summarized and localities plotted on a map. The distribution of these cases in a few Western States does not correspond with the distribution of deerflies in general, with the distribution of the infectious agent, nor with the known distribution of any of its important mammalian reservoirs. This geographical distribution does roughly correspond with the distribution of the deerfly species, *Chrysops discalis*, which has been incriminated as the vector in specific localities.

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Detection of Diabetes in a Nutrition Survey

—A Study of 550 persons in Ottawa County, Michigan—

By Elbert C. Tabor, M.S., and Keith H. Frankhauser, M.D.*

Numerous surveys to determine the prevalence of undiagnosed diabetes mellitus in a variety of population groups have been conducted in recent years (*1–8*). These surveys had as their sole objective the detection of diabetes. This paper reports the results of a diabetes detection study carried out in connection with a cooperative nutritional study conducted in 1947–48 by a Nutrition Unit of the Public Health Service (*9*) and the Ottawa County Health Department. It was recognized that, strictly speaking, diabetes does not belong within the scope of activities of the nutrition unit. However, since a large number of subjects were available for study, it was felt that this opportunity for diabetes screening should not be overlooked. The investigation was set up with these objectives in mind: (a) to demonstrate the practicability and value of obtaining more than one type of information from subjects participating in a routine nutritional or health appraisal study, and (b) to discover individuals having undiagnosed diabetes.

Study Procedure

Subjects

One thousand Ottawa County families were invited to participate in the nutrition survey. Families were selected so as to comprise an accurate cross section of the population of Ottawa County. Clinics were scheduled in various sections of the county, and the families were invited to attend at a convenient time.

Since the nutrition clinic procedure was organized for nutritional appraisal, no effort was made to obtain information from the subjects relative to their diabetic status; however, information on their dietary histories disclosed some known cases of diabetes. Such information was obtained later from subjects subsequently selected for the diabetic study.

It was decided in the planning of the nutrition survey that blood glucose determinations would be done on subjects 40 years of age and over, since it is generally recognized that diabetes mellitus is more prevalent in this age group. Furthermore, sufficient personnel were not available to include all age groups in the diabetic study.

Upon completion of the nutrition survey the results of blood glucose determinations were studied, and it was decided that follow-up studies should be done on those subjects having a nonfasting capillary

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glucose of 150 mg. per 100 ml. of blood and over. (Several subjects having a glucose level of 140–150 mg. per 100 ml. of blood 3 hours after the last meal were also included.)

Follow-up

Subjects chosen for participation in the follow-up were informed by letter that their blood glucose level was high at the time they attended the nutrition clinic. This condition in itself did not signify diabetes mellitus, but it indicated that they should be tested further either to eliminate or confirm the possibility of diabetes mellitus. These persons were asked to inform the health department of their willingness to participate in further studies. Each person replying favorably received a home visit by a public health nurse, who discussed and outlined the projected investigation. The nurse also visited the persons who had either replied negatively or not at all to the invitation to participate.

Clinics were scheduled between 8 and 10 a.m. for the collection of fasting blood and urine samples. From the results obtained on the fasting blood and urine samples, the subjects were classified as diabetics, nondiabetics, or questionable.

The questionable or borderline cases, those who had fasting glucose levels of 120–150 mg. per 100 ml. of blood or showed glycosuria, or both, were asked to take a glucose tolerance test.

Diagnostic Criteria

At present there seems to be some degree of variability in the standards used in the diagnosis of diabetes mellitus. Most authorities agree that a fasting glucose level below 120 mg. per 100 ml. of blood and no evidence of glycosuria in a fasting urine sample would indicate the individual to be a nondiabetic. On the other hand, a fasting glucose level of 140 mg. or more per 100 ml. of blood with glycosuria in a fasting-urine sample is sufficient evidence to indicate that diabetes mellitus exists in that individual. In setting up our diagnostic criteria the above facts governed, but with some variations. Our criteria for diagnosing diabetes mellitus were as follows:

1. A subject showing a fasting glucose of less than 120 mg. per 100 ml. of blood and no fasting glycosuria was classified as nondiabetic.
2. A subject showing a fasting glucose of over 150 mg. per 100 ml. of blood and positive glycosuria was classified as diabetic.
3. Subjects having a fasting glucose of 120–150 mg. per 100 ml. of blood and/or glycosuria were classed as questionable and given a glucose tolerance test.
4. Subjects whose 2-hour venous blood glucose level in the glucose tolerance test failed to fall to approximately the fasting capillary blood level and who showed glycosuria were classed as diabetics.
5. Subjects whose 2-hour venous blood glucose level fell to the

fasting capillary level or below and who failed to show glycosuria when given the 2-hour glucose tolerance test were classed as non-diabetics.

Laboratory Procedures

Capillary blood obtained from finger pricks was used in the routine nutrition clinic. This sample was also used for the first blood sugar test. In the diabetic follow-up work, capillary and venous blood samples were used.

The blood sample (20 cu. mm.) was taken up in a Sahli pipette and transferred to 2 ml. of tungstic acid solution in a 5 ml. centrifuge tube. The samples were then stored in a portable ice box until the end of the clinic session, when they were stored in a deep freeze at −30° F. For the glucose determination the samples were thawed out, centrifuged, and a 1 ml. aliquot of the protein free solution was used in a modified Folin-Malmros procedure. The results were measured by means of a Coleman Junior Spectrophotometer.

The urine glucose was detected by use of Benedict's Qualitative Test. The amounts of glucose in the urine were indicated by the color changes; 1+ for green, 2+ for yellow, 3+ for orange, and 4+ for red or complete reduction.

Fasting-blood and urine samples were obtained between 8 a.m. and 10 a.m. before the subjects had ingested any food.

The glucose tolerance tests were done in the morning after 12- to 14-hour fast. A 2-hour glucose tolerance test was used as a matter of convenience for the subjects involved. Since most of them lived several miles from the clinic, it was considered advisable to shorten the procedure in order to inconvenience them as little as possible. It is commonly accepted that the 2-hour venous glucose should be at the fasting level or below following a glucose tolerance test. The fasting level was determined on capillary blood, as it is generally recognized that the fasting levels for capillary and venous blood are approximately the same. On this basis, we felt that a 2-hour tolerance test would be valid if a 2-hour venous sample were collected. A sample of capillary blood was taken; then the subject was given a pint of glucose solution containing 100 grams of glucose to drink. Samples of capillary blood were taken at the end of 1 and 2 hours. A sample of venous blood was also taken at the end of 2 hours. A sample of urine was collected also at the end of the test.

Single determinations were done on the nonfasting samples because of lack of time and assistance, while the fasting samples and glucose tolerance test samples were done in duplicate or triplicate.

Results of Study

Blood glucose determinations were done on 550 of 2,551 persons taking part in the nutrition survey. A total of 89 individuals had

nonfasting, capillary glucose levels above 150 mg. per 100 ml. of blood. Of this number 77 participated in the follow-up and provided fasting blood and urine samples. Six persons with previously diagnosed diabetes were found in this group. From the data obtained on the fasting blood and urine, 6 others were classed as having diabetes and 51 were classed as nondiabetics. Glucose tolerance tests were given to 14 individuals who showed borderline values on the fasting samples. Ten new diabetics were discovered with the aid of these tests, making a total of 16 newly discovered diabetics in the survey. Detailed laboratory findings for the 16 newly discovered diabetics are shown in table 1. The prevalence of diabetes by age and sex is shown in table 2.

The height and weight determinations (table 1) when compared with Metropolitan Life Insurance tables indicate that about 50 percent of those having diabetes were of normal weight (assuming overweight as 15 percent or more above the values in the height-weight tables).

Discussion

There is no one method which will adequately screen out diabetics. Had a fasting urinalysis alone been done, six individuals who presumably had diabetes mellitus would have been overlooked (cases Nos. 871, 1146, 1183, 2197, NS–116 and NS–169). Conversely, had only fasting blood glucose determinations been done, one individual having diabetes mellitus (No. 1551 whose blood sugar was 116 mg. per 100 ml. of blood) definitely would have been overlooked and another possibly overlooked (No. NS–169 whose blood sugar was 120 mg. per 100 ml. of blood).

Newly discovered diabetics were informed of the diagnosis by means of a personal visit of a public health nurse. These individuals were referred to their private physicians for treatment. The private physicians were given, by letter, the details of the laboratory tests. Individuals who were diagnosed as nondiabetics were informed by letter that at the present time they did not have diabetes mellitus. Their private physicians were also advised by letter of the details of the laboratory tests.

In the minds of many, diabetes is usually associated with overweight. It is noteworthy that 50 percent of the newly discovered diabetics of this survey were within 15 percent of the average weight for persons in their age category.

The value of obtaining more than one type of data from subjects participating in a routine health appraisal study would seem to be a point for little argument. In the nutrition survey, the effort required to obtain additional information of a non-nutritional nature was not great, and it certainly produced material of value to all concerned.

Table 1. *Laboratory findings for 16 newly discovered diabetic* cases

[Diabetic Study in Ottawa County, Michigan, 1947–48]

Subj. No.	Sex	Age	Height (inches)	Wt. (lbs.)	*Percent overweight (O) or underweight (U)	History D. M. in family	Non-fasting blood glucose	Fasting blood glucose	Urine	Glucose tolerance test blood glucose mgs. per 100 ml.				Urine
							Mgs. per 100 ml.			Fast.	1 hr.	2 hr.	2 hr. ven.	
104	F	75	60	131	2 (U)		140	160	4+					
156	F	59	63	179	25 (O)		189	137	1+	119	294	288	281	3+
188	F	70	62	162	16 (O)	1 cousin	293	316	4+					
871	M	63	66	163	6 (O)	Father, mother, sisters, aunts, uncles	160	132		103	249	178	196	3+
905	F	65	60	149	11 (O)	Mother, aunts, cousins	310	198	2+					
1146	F	53	67	176	12 (O)	Mother	146	183		202	330	350	325	4+
1183	F	50	68	166	2 (O)		154	155		144	244	247	214	2+
1199	F	47	62	147	8 (O)		186	182	2+					
1478	F	46	63	167	20 (O)	Mother, 3 aunts	198	139	1+	126	226	181		3+
1493	M	68	70	173	Normal		190	220	4+					
1551	M	44	65	173	18 (O)	Grandfather	170	116	1+	114	221	177	129	4+
2180	F	60	61	139	1 (O)		250	192	3+					
2197	M	68	70	203	17 (O)		164	130		131	246	156	138	1+
NS-116	F	60	65	195	30 (O)		207	142		119	204	174	129	Trace
NS-121	F	69	66	210	37 (O)		191	130	1+	151	328	302	308	4+
NS-169	F	70	63	197	38 (O)		415	120		111	170	183	161	1+

*Percent above or below normal for that age group based on Metropolitan Life Insurance tables—ages 55 and over considered as in 55–59 group.

Table 2. *Prevalence of diabetes by age and sex*

[Diabetic Study in Ottawa County, Michigan, 1947–48]

Age in years	Total			Male			Female		
	Number tested	Diabetic		Number tested	Diabetic		Number tested	Diabetic	
		Number	Percent		Number	Percent		Number	Percent
All ages	550	22	4.0	217	6	2.8	333	16	4.8
40–49	269	5	1.9	105	2	1.9	164	3	1.8
50–59	144	3	2.1	58	0	0	86	3	3.5
60–69	90	11	12.2	38	4	10.5	52	7	13.5
70 and over	47	3	6.4	16	0	0	31	3	9.7

Summary

1. The prevalence of diabetes mellitus among 550 persons 40 years of age and over was determined.

2. A total of 22 cases of diabetes was discovered. This included 6 previously known and 16 newly discovered cases.

3. This number represents an incidence of 4 percent among this age group, which is similar to the 4.5 percent incidence in 1,456 individuals above the age of 35 years reported by Wilkerson (*8*).

4. The findings indicate there are a great many undiscovered diabetics among the general population.

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Dental Caries in Morphine Addicts

—As Determined by Clinical and Radiographic Examination—

By Frank E. Law, D.D.S., and James W. Ruble, D.D.S.*

The relationship of dental conditions and addiction to morphine has been reviewed in a treatise by Chompret and Dechaume (*1*). Their findings were based on the treatment of "several morphine addicts" and indicate an adverse effect of morphine addiction on dental health. Kobayashi (*2*) concluded that excessive occlusal attrition was associated with drug addiction and believed it due to increased brittleness of the tooth substance. Recently, Hecht and Friedman (*3*) pointed out a high incidence of cervical dental caries among female drug addicts confined in the House of Detention for Women, New York City. By comparison with a control group, they isolated cervical caries as one distinguishing oral characteristic of the drug addict.

The purpose of the present study was to determine the relationship, if any, between morphine addiction and dental caries experience through an analysis of observations on the dental condition of a group of white male morphine addicts. The subjects were patients in the Public Health Service Hospital at Lexington, Ky. Carious lesions detected by clinical examination and additional carious areas discovered radiographically were recorded.

During the period of the study—January to June 1945—two groups of men were examined. The first group was made up of 129 patients who were selected by examining every third white male morphine addict among those registered in the hospital. The second group comprised 176 addicts who were admitted to the hospital during the study period. The case histories of the individuals in these groups indicated that residence, during the first 8 years of life, covered 35 States, but tended to be concentrated largely in the eastern half of the United States.

Both groups included prisoners as well as voluntary patients. The average period of hospitalization has been shown (*4*) to be relatively short for both types of patients, 9 to 10 months for prisoners and 2 months for voluntary patients. The age distribution of both groups was similar, ranging from 20 to 60 years, the average age being 42 years. The average age of initial addiction for the combined groups

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was 25 years. No marked differences were found in the dental conditions of these two groups, and the data for all those examined were combined in this presentation.

The teeth of each patient were examined, using mouth mirror and explorer with compressed air available for use as required. Bite-wing or periapical radiographs were made of all patients and carious lesions found radiographically which had not been detected on clinical examination were recorded. The patient supplied information on the drug to which he was addicted, the year addicted, and the time periods that he had not used the drug since the initial addiction.

Dental Caries and Addiction Period

If morphine addiction has an effect on the incidence of dental caries, the length of time the drug has been used should influence the prevalence of the disease. Table 1 shows for each given age range the dental caries prevalence (DMF rate) by the time period for which each individual stated he had used the drug. This time period is derived by deducting time off the drug from the time elapsed since first addicted. Examination of the data clearly indicates that length of addiction has had no effect, in this group of men, on dental caries prevalence.

Table 1. *Average number of decayed, missing or filled (DMF) teeth, per man, according to time the drug was actually used* as stated by each individual, among 305 men hospitalized for morphine addiction, by age*

Age	DMF rates, per man, by time intervals the drug was actually used				
	Less than 5 years	5–9 years	10–19 years	20–29 years	30 years and over
20–29	15.9	14.6			
30–39	19.8	20.8	18.5		
40–49	25.0	23.8	25.6	26.2	
50–59	27.8	27.9	28.1	27.0	28.5

*Time interval since initial addiction less time the drug was not used.

Comparison of DMF Rates

Relatively few statistical studies measuring the extent of dental caries in adult groups have been published. Those that are comparable in method of measurement and in age with this study group of morphine addicts are presented in table 2. While these population groups may not be directly comparable, they are presented to illustrate that the difference in rate between the morphine addicts and other study groups is not of a very high order of magnitude.

The basis of comparison utilized is the decayed, missing, or filled tooth rate per man, by age group. Teeth both decayed and filled are counted only once in determining this rate. DMF rates in this study

Table 2. *Average number of decayed, missing or filled (DMF) teeth, per man, among 305 men hospitalized for morphine addiction as compared with the experience in other adult groups, by age*

Age	Number morphine addicts examined	Average number DMF teeth per man			
		Morphine addicts	Tennessee industrial workers (6)	Metropolitan Life Insurance Company workers (5)	Army men (7)
20–29	36	15.5	8.8	16.4	9.7
30–39	86	19.7	12.3	19.8	12.4
40–49	113	25.4	16.0	21.0	----
50–59	73	27.7	27.3	22.0	----

have been based on 32 teeth in order that comparisons may be drawn with published studies.

The first of the comparative groups comprises 148 male textile workers examined in a Columbia, Tenn., knitting mill (*5*). In the second group (*6*), data for routine annual dental examinations among 2,736 Metropolitan Life Insurance Company male employees considered to be "a reasonably satisfactory cross-section" of the New York City population are presented.

The Army data (*7*) were derived from the dental examinations of 22,117 men at Camp Edwards, Mass. These records were selected to approximate proportionate population distribution by State.

The prevalence of dental caries was somewhat higher on the whole for the group addicted to the drug than for the Tennessee industrial workers or for the Army men for ages 20 through 49, although the rates approximated one another for the group aged 50 through 59. The rates for Metropolitan Life Insurance Company workers on the other hand more nearly equalled those of the group of morphine addicts.

It is realized that the results of a comparison of dental caries prevalence rates for groups in various sections of the country may be influenced by several important factors such as actual geographic differences, and differences in methods of selection and diagnostic criteria. The Tennessee industrial workers were selected from an area in which the caries prevalence rate is below the average for the country. The Metropolitan Life Insurance Company workers were selected from an area of the country where the DMF rate is probably above the average. The Army men represent a highly selected group from which dentally unacceptable men had previously been rejected.

Hecht and Friedman (*3*) concluded that there was a high prevalence rate of cervical caries in the group of drug addicts which they studied. This was based on a comparison of the findings in a control group of which 70 percent were Negro patients, with the findings in an addicted group, only 27 percent Negro. Necessarily, there is some

question as to the direct comparability of these groups. Cervical caries is shown to be 58 times the proportion of total dental caries in the study group than in the control group. It is doubtful that cervical caries can be expected to constitute as large a proportion of total caries in a low caries group as in a high caries group.

The amount of cervical caries in the Hecht and Friedman study group was high with 5.0 cervical lesions per individual at an average age of 34.7 years. In the present study, data on cervical caries are not available, as this was not recorded separately from other lingual and buccal surface caries. The total number of lingual and buccal carious surfaces (including cervical) per individual was 2.6 at an average age of 42 years, and 3.0 when ages above 50 were excluded, thus reducing the average for the group to 38 years.

In the textile workers examined in Tennessee, the average number of buccal and lingual carious surfaces per individual was 2.2, and the average age of the group was 33 years.

It is of interest to compare additional carious tooth surfaces detected by radiographs in this study with the findings of other authors.

Arnett and Ennis (*8*), in a study of 883 college students ranging in age from 16 to 21 in Drexel Institute, Philadelphia, reported that without the aid of radiographs 40.6 percent of the total number of carious teeth would not have been detected. Burket (*9*), in a study made on 460 human teeth obtained at necropsy, pointed out that the presence of caries was more often detected by a careful clinical examination than by the use of radiographs. White (*10*), in a study of Naval Aviation cadets, examined 800 who had previously been dentally rehabilitated and concluded that bite-wing radiographs located 4.4 carious areas per patient over and above those that had been clinically rehabilitated.

In this study, the radiographs were read individually by each author and additional carious areas which had not been apparent on

Table 3. *Additional newly carious tooth surfaces disclosed by radiograph as compared with number of decayed or filled (DF) surfaces found through clinical examination, among 305 men hospitalized for morphine addiction, by age*

Age	Number decayed or filled (DF) tooth surfaces found clinically*	Number of additional tooth surfaces found by radiograph to be carious	Percent of total tooth surfaces found to be carious by clinical examination and radiograph that were found by radiograph alone
20–29	506	20	4.0
30–39	1,063	57	5.4
40–49	924	23	2.5
50–59	304	7	2.3
	2,797	107	3.8

*By mouth mirror and explorer.

clinical examination were indicated on the record cards. As shown in table 3, there were 107 additional carious lesions found by radiographs.

Summary

A group of 305 white males addicted to morphine, hospitalized in the Public Health Service Hospital at Lexington, Ky., was examined to determine dental conditions. Information was also obtained relative to period of addiction and geographic origin of the patient.

The findings of the study indicate that in this group of men there was no apparent relationship between length of time the patient had used morphine and the prevalence of dental caries. Neither the level of dental caries prevalence nor of cervical caries prevalence in this group of morphine addicts appear to be unduly high.

Further examination of the data shows that the number of carious tooth surfaces that were detected by radiograph, but not by clinical examination, comprise only 3.8 percent of total carious tooth surfaces. It is indicated that in this study group, the use of radiographic examinations disclosed relatively little additional dental caries over that found by clinical examination.

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A New Coli O-Antigen Group

By W. H. Ewing, Ph. D. and F. Kauffmann, M. D.*

The systematic studies of Kauffmann (*3, 4*) and collaborators (*5, 6, 7, 8*) on the antigens of *Escherichia coli* cultures make it possible to differentiate 111 O-antigen groups. Further analysis of the antigens of *E. coli* cultures depends upon the determination of K and H antigens, utilizing the procedures outlined by Kauffmann (*4*). The purpose of this communication is to report the establishment of a new *E. coli* O group and to describe the relationship of the bacterium designated *Shigella guanabara* by de Assis (*1*) to the new coli O group.

Culture 1411/50 isolated from feces was received from Massachusetts in April 1950. The biochemical reactions of culture 1411/50 are those of typical *E. coli* types. Acid and gas are formed from lactose within 24 hours. The IMVIC reactions are ++−−, urea is not hydrolyzed, and the bacterium is motile. Adonitol and inositol are not acidified. The writers are indebted to Dr. de Assis for the guanabara cultures employed in the study. The 15 cultures of this type are biochemically and serologically alike. They are anaerogenic and nonmotile, but otherwise are like typical *E. coli* cultures as regards their biochemical reactivities.

Heated (100° C., 1 hr.) suspensions of both 1411/50 and guanabara cultures were tested in all of the coli O antiserums (01–0111) with negative results. Similarly, the suspensions did not react with O antiserums prepared with the eight members of the Alkalescens-Dispar group (*2*).

Antiserums were prepared by injecting rabbits with heated (100° C., 2½ hrs.) suspensions of cultures 1411/50 and guanabara (1685). These antiserums were tested with suspensions made from cultures of all known *E. coli* groups (01–0111) and of the Alkalescens-Dispar group. No significant serological relationships were established by these tests.

The results of cross agglutination and reciprocal absorption tests (table 1) indicate that culture 1411/50 and the guanabara type are very closely related but not identical. The cultures share a common antigen, *a*, and each contains an antigenic fraction which is not shared. The unrelated antigen in culture 1411/50 may be designated as *b* and in guanabara as *c*. The somatic antigens may be recorded as follows:

1411/50	0112*a*, 112*b*
Guanabara	0112*a*, 112*c*

*From the Laboratory Services, Communicable Disease Center, Public Health Service, Atlanta, Ga., and State Serum Institute, Copenhagen, Denmark.

Table 1. *The relationship of* E. coli *0112 and the guanabara type*

100° C. test cultures	O-Sera			
	Guanabara		1411/50 (0112)	
	Unabsorbed	Absorbed by 1411/50	Unabsorbed	Absorbed by guanabara (1685)
1411/50 (0112)	*2, 560	†0	20, 480	5, 120
Guanabara (1685)	20, 480	5, 120	20, 480	0

*Reciprocal of highest dilution in which agglutination occurred
†0 equals no reaction in lowest dilution tested (1–100)

Kauffmann (*5*) proposed a new classification of the family Enterobacteriaceae in which the bacterial types known as *Shigella alkalescens* and *Shigella dispar* are excluded from the genus *Shigella* and placed in a new group called the Alkalescens-Dispar group. The new group is included in the tribe Escherichieae. The decision to make these changes is based logically upon the results of studies upon the relationship of members of the Alkalescens-Dispar group to known *E. coli* (see *2* for references). Serologically, members of the Alkalescens-Dispar group are related closely to, or are identical with, certain *E. coli* O groups. Thus, it would be permissible to include the alkalescens and dispar types in the coli group as anaerogenic, nonmotile, coliform bacteria. This was not done at this time because it was thought that for practical purposes of reporting results to clinicians it would be preferable to establish a special group composed of these microorganisms.

Since the guanabara cultures are anaerogenic coliform bacteria similar to dispar cultures, it would be possible to include them in the Alkalescens-Dispar group. However, the writers do not recommend the enlargement of the Alkalescens-Dispar group beyond 01–08. The Alkalescens-Dispar group contains members with names which are familiar to laboratory workers and to clinicians. Newer types that are entirely unfamiliar may logically be included with the *Escherichia coli* types as members of the O group to which they are related. The guanabara type therefore is included in the new *E. coli* O group as O112*a*, 112*c*.

Summary

A new *Escherichia coli* O group is established. The O antigens are 112*a*, 112*b*.

The relationship of the guanabara type of de Assis to the new coli O group is described. The O antigens of the guanabara type are 112*a*, 112*c*.

The position of the Alkalescens-Dispar group is discussed.

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Incidence of Disease

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

Reports From States for Week Ended September 23, 1950

New cases of acute poliomyelitis reported in the United States during the current week numbered 2,170, a 1.5 percent increase over the 2,138 cases reported for the preceding week. This is the eighteenth consecutive week for which an increase has been reported. For the corresponding week in 1949, 2,187 cases were reported. The peak incidence of this disease is occurring later in 1950 than at any time during the past 20 years, with the exception of 1932.

The cumulative total (18,403) reported cases of poliomyelitis for the current "disease" year remains well below the corresponding total (30,350) for last year, the highest on record. However, this total is higher than it was in all other years during the past decade. The "disease" year for this disease begins with the twelfth week of the calendar year. Because of the unusually late peak incidence this year, the total number of cases reported in 1950 will probably exceed those of all other years except 1949 and 1916.

Comparative Data for Cases of Specified Reportable Diseases: United States

[Numbers after diseases are International List numbers, 1948 revision]

Disease	Total for week ended		5-year median, 1945–49	Seasonal low week	Cumulative total since seasonal low week		5-year median 1944–45 through 1948–49	Cumulative total for calendar year		5-year median, 1945–49
	Sept. 23, 1950	Sept. 24, 1949			1949–50	1948–49		1950	1949	
Anthrax (062)	2	-----	(1)	(1)	(1)	(1)	(1)	32	40	(1)
Diphtheria (055)	136	173	204	27th	890	1,303	1,644	4,018	5,070	7,941
Acute infectious encephalitis (082)	24	23	23	(1)	(1)	(1)	(1)	679	533	455
Influenza (480–483)	1,105	812	812	30th	6,570	4,808	4,808	252,829	80,675	145,475
Measles (085)	534	464	540	35th	1,558	1,377	1,569	289,729	589,895	553,666
Meningococcal meningitis (057.0)	51	48	48	37th	51	48	48	2,850	2,564	2,686
Pneumonia (490–493)	674	870	-----	(1)	(1)	(1)	(1)	64,167	59,731	-----
Acute poliomyelitis (080)	2,170	2,187	1,425	11th	[2]18,403	30,350	16,739	[2]19,537	31,265	17,206
Rocky Mountain spotted fever (104)	14	11	11	(1)	(1)	(1)	(1)	420	521	495
Scarlet fever (050)	456	454	584	32d	1,857	1,780	2,464	42,027	59,446	64,567
Smallpox (084)	-----	1	1	35th	-----	2	4	26	43	149
Tularemia (059)	13	18	17	(1)	(1)	(1)	(1)	721	905	748
Typhoid and paratyphoid fever (040, 041)[3]	82	105	105	11th	2,078	2,487	2,487	2,588	2,975	2,975
Whooping cough (056)	1,792	1,477	1,862	39th	117,101	55,214	100,165	95,565	45,181	74,147

[1] Not computed.
[2] Deductions: Michigan, week ended Aug. 12, 2 cases; North Carolina, week ended Sept. 9, 1 case.
[3] Including cases reported as salmonellosis.

The cumulative total cases of poliomyelitis to date in the current calendar year is 19,537, compared with a total of 31,265 for the corresponding period in 1949. The 1950 total is the highest figure reported during the past 20 years, except 1949.

Compared with the preceding week, substantial increases in the incidence of poliomyelitis were reported for the East North Central States (473 to 533), West North Central (249 to 290), and South Atlantic (287 to 314). Significant decreases were reported for the New England States (132 to 99), Middle Atlantic (570 to 517), and Mountain (44 to 31). Little change occurred in the East South Central States (97 to 96), West South Central (131 to 132), and Pacific (155 to 158).

The States reporting the largest numbers of cases of poliomyelitis for the week were: New York (336), Ohio (143), Michigan (139), and Iowa (137).

The number of reported cases of diphtheria increased over the preceding week (97 to 136), but the cumulative total for the current calendar year (4,018) is well below all previous years. Reported cases of acute infectious encephalitis numbered 24, of which 13 were reported in California and 6 in New York. The cumulative total for the current calendar year is 679 cases, the highest during the past 5 years.

For the current week, 456 cases of scarlet fever were reported compared with 344 last week and 454 for the corresponding week in 1949. The 5-year (1945–49) median was 584. The cumulative total number of cases of this diasese reported for the calendar year to date was 42,027 compared with 59,446 for the corresponding period last year. The 5-year median was 64,567.

One possible case of psittacosis, diagnosis doubtful, was reported in New York City. Two cases of anthrax were reported, one each in Maryland and New Jersey.

Deaths During Week Ended September 23, 1950

	Week ended Sept. 23, 1950	*Corresponding week, 1949*
Data for 94 large cities of the United States:		
Total deaths	8, 637	8, 640
Median for 3 prior years	8, 201	----------
Total deaths, first 38 weeks of year	348, 883	349, 323
Deaths under 1 year of age	637	709
Median for 3 prior years	651	----------
Deaths under 1 year of age, first 38 weeks of year	23, 574	24, 857
Data from industrial insurance companies:		
Policies in force	69, 578, 997	70, 247, 170
Number of death claims	11, 769	11, 448
Death claims per 1,000 policies in force, annual rate	8. 8	8. 5
Death claims per 1,000 policies, first 38 weeks of year, annual rate	9. 3	9. 2

Reported Cases of Selected Communicable Diseases: United States, Week Ended Sept. 23, 1950

[Numbers under diseases are International List numbers, 1948 revision]

Area	Diphtheria (055)	Encephalitis, infectious (082)	Influenza (480–483)	Measles (085)	Meningitis, meningococcal (057.0)	Pneumonia (490–493)	Poliomyelitis (080)
United States	**136**	**24**	**1,105**	**534**	**51**	**674**	**2,170**
New England	**2**			**27**	**2**	**22**	**99**
Maine	1			1	1	5	6
New Hampshire					1		
Vermont				1			6
Massachusetts	1			18			48
Rhode Island						1	7
Connecticut				7		16	32
Middle Atlantic	**6**	**6**	**4**	**101**	**7**	**165**	**517**
New York	5	6	(1)	50	3	110	336
New Jersey			4	21		25	65
Pennsylvania	1			30	4	30	116
East North Central	**6**	**2**	**27**	**141**	**9**	**51**	**533**
Ohio	1		3	25	1		143
Indiana	3					3	42
Illinois				37	5	31	132
Michigan	2	1	1	25	3	13	139
Wisconsin		1	23	54		4	77
West North Central	**6**		**16**	**28**	**4**	**68**	**290**
Minnesota	3		1	5	1	44	40
Iowa				1		2	137
Missouri				6		3	37
North Dakota				1		12	2
South Dakota	2			8	2		16
Nebraska			13	2	1	2	30
Kansas	1		2	5		5	28
South Atlantic	**45**	**1**	**273**	**21**	**3**	**83**	**314**
Delaware							4
Maryland	1			2	1	8	71
District of Columbia	1					13	16
Virginia	9		230	11		28	75
West Virginia	10		11	1	2	7	31
North Carolina	14	1		2			53
South Carolina	6		24	3		8	17
Georgia	3		6			6	30
Florida	1		2	2		13	17
East South Central	**28**	**1**	**24**	**26**	**10**	**29**	**96**
Kentucky	3			19	4		40
Tennessee	7	1	14	6	2		27
Alabama	16		8	1	4	16	7
Mississippi	2		2			13	22
West South Central	**28**	**1**	**647**	**71**	**8**	**207**	**132**
Arkansas	6		45	24	1	17	21
Louisiana	2			7		18	21
Oklahoma	6		45	3		4	16
Texas	14	1	557	37	7	168	74
Mountain	**11**		**91**	**49**	**2**	**23**	**31**
Montana	3			3			3
Idaho			20	9			7
Wyoming				2		1	
Colorado	1		10	22		9	5
New Mexico				4		10	3
Arizona	6		61	2	2	1	7
Utah	1			7			6
Nevada						2	
Pacific	**4**	**13**	**23**	**70**	**6**	**26**	**158**
Washington			2	7			33
Oregon	2		21	8	1	6	40
California	2	13		55	5	20	85
Alaska						3	3
Hawaii			28				1

[1] New York City only.

Anthrax: New Jersey and Maryland, 1 case each.

Reported Cases of Selected Communicable Diseases: United States, Week Ended Sept. 23, 1950—Continued

[Numbers under diseases are International List numbers, 1948 revision]

Area	Rocky Mountain spotted fever (104)	Scarlet fever (050)	Smallpox (084)	Tularemia (059)	Typhoid and paratyphoid fever [1] (040, 041)	Whooping cough (056)	Rabies in animals
United States	**14**	**456**	----	**13**	**82**	**1,792**	**90**
New England	----	**30**	----	----	**5**	**305**	----
Maine	----	----	----	----	----	56	----
New Hampshire	----	----	----	----	----	1	----
Vermont	----	1	----	----	----	45	----
Massachusetts	----	23	----	----	2	78	----
Rhode Island	----	----	----	----	----	69	----
Connecticut	----	6	----	----	3	56	----
Middle Atlantic	**1**	**56**	----	----	**13**	**399**	**33**
New York	----	[2] 23	----	----	3	153	26
New Jersey	----	10	----	----	1	131	----
Pennsylvania	1	23	----	----	9	115	7
East North Central	**3**	**94**	----	**3**	**10**	**378**	**11**
Ohio	----	34	----	----	4	67	3
Indiana	----	9	----	2	1	27	----
Illinois	2	18	----	----	4	33	3
Michigan	1	23	----	----	1	122	5
Wisconsin	----	10	----	1	----	129	----
West North Central	----	**22**	----	----	**7**	**105**	**3**
Minnesota	----	4	----	----	----	19	----
Iowa	----	1	----	----	----	18	3
Missouri	----	3	----	----	6	11	----
North Dakota	----	----	----	----	----	19	----
South Dakota	----	----	----	----	----	7	----
Nebraska	----	8	----	----	----	3	----
Kansas	----	6	----	----	1	28	----
South Atlantic	**10**	**94**	----	**3**	**7**	**193**	**12**
Delaware	----	----	----	----	----	----	----
Maryland	1	4	----	----	----	38	----
District of Columbia	----	2	----	----	----	5	----
Virginia	2	20	----	2	----	44	1
West Virginia	----	3	----	----	1	35	----
North Carolina	7	40	----	----	1	56	----
South Carolina	----	10	----	----	1	4	5
Georgia	----	14	----	1	4	5	6
Florida	----	1	----	----	----	6	----
East South Central	----	**99**	----	**1**	**9**	**43**	**13**
Kentucky	----	30	----	----	----	9	7
Tennessee	----	42	----	1	5	18	1
Alabama	----	18	----	----	4	7	5
Mississippi	----	9	----	----	----	9	----
West South Central	----	**21**	----	**5**	**18**	**136**	**17**
Arkansas	----	3	----	4	7	12	1
Louisiana	----	2	----	----	2	7	----
Oklahoma	----	8	----	----	1	6	4
Texas	----	8	----	1	8	111	12
Mountain	----	**7**	----	**1**	**3**	**99**	----
Montana	----	----	----	1	----	23	----
Idaho	----	1	----	----	----	10	----
Wyoming	----	----	----	----	----	----	----
Colorado	----	1	----	----	1	16	----
New Mexico	----	1	----	----	2	18	----
Arizona	----	3	----	----	----	28	----
Utah	----	1	----	----	----	4	----
Nevada	----	----	----	----	----	----	----
Pacific	----	**33**	----	----	**10**	**134**	**1**
Washington	----	5	----	----	----	37	----
Oregon	----	1	----	----	----	22	----
California	----	27	----	----	10	75	1
Alaska	----	----	----	----	----	----	----
Hawaii	----	----	----	----	----	----	----

[1] Including cases reported as salmonellosis.
[2] Including cases reported as streptococcal sore throat.
Rabies in man: Arizona, 1 case.

FOREIGN REPORTS

CANADA

Reported Cases of Certain Diseases—Week Ended Sept. 2, 1950

Disease	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Brucellosis					1						1
Chickenpox				1	8	62	9	3	21	18	122
Diphtheria				1	3		1				5
Dysentery, bacillary					18	4	2			2	26
Encephalitis, infectious							1				1
German measles			3		2	36		2	6	10	59
Influenza			8				1	14			23
Measles	2		3		41	70	5		7	14	142
Meningitis, meningococcal				1		2				1	4
Mumps			1		25	50	3	22	44	26	171
Poliomyelitis				3	3	15		14	16	1	52
Scarlet fever					12	7	6	1	9	5	40
Tuberculosis (all forms)	16		4	1	99	21	15	6	89	29	280
Typhoid and paratyphoid fever	1				11			1			13
Venereal diseases:											
Gonorrhea	4		3	3	118	73	31	23	67	101	423
Syphilis			1	2	46	21	2	14	6	6	98
Whooping cough				86	52	67	10		4	24	243

CUBA

Reported Cases of Certain Diseases—4 Weeks Ended Aug. 26, 1950

Disease	Pinar del Rio	Habana		Matanzas	Santa Clara	Camaguey	Oriente	Total
		Habana City	Total					
Cancer	4		17	18	19		24	82
Chickenpox					1		1	2
Diphtheria			1	2				3
Leprosy			4		1		3	8
Malaria							11	11
Measles		1	1	1	3	6	5	16
Poliomyelitis							2	2
Tuberculosis	3		16	17	11	3	12	62
Typhoid fever	8	5	13	3	23	10	29	86
Whooping cough			32				1	33

JAMAICA

Reported Cases of Certain Diseases—4 Weeks Ended July 22, 1950 [1]

Disease	Kingston	Other localities	Total
Chickenpox	3	39	42
Dysentery	1		1
Leprosy		2	2
Poliomyelitis	1		1
Puerperal sepsis	1		1
Scarlet fever		1	1
Tuberculosis, pulmonary	34	62	96
Typhoid fever	10	34	44
Typhus fever (murine)	5		5

[1] Report for week ended July 29, 1950, not received.

MADAGASCAR

Reported Cases of Certain Diseases and Deaths—July 1950

Disease	Aliens		Natives	
	Cases	Deaths	Cases	Deaths
Bilharziasis	1		71	
Diphtheria			4	
Dysentery, amebic	7		106	3
Erysipelas			17	
Influenza	155	9	11,620	105
Leprosy	3		26	
Malaria	244	8	38,374	79
Measles	12		116	
Meningitis, meningococcal			8	
Mumps			127	
Plague			3	3
Pneumonia (all forms)	27		1,166	159
Puerperal infection			5	
Relapsing fever			1	
Trachoma	1		1	
Tuberculosis, respiratory	8	2	90	16
Typhoid fever	2	1	2	1
Whooping cough	5		196	4

REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

The following reports include only items of unusual incidence or special interest and the occurrence of these diseases, except yellow fever, in localities which had not recently reported cases. All reports of yellow fever are published currently. A table showing the accumulated figures for these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

Cholera

India (French). Cases of cholera have been reported in Pondicherry in recent weeks as follows: Weeks ended—August 19, 1950, 96; August 26, 58; September 2, 26.

Indochina. In South Viet Nam one fatal case of cholera was reported during the month of June 1950, and two cases during the month of July. During the week ended September 9, one case was reported in the Longxuyen area.

Plague

Ecuador. During the month of July 1950, 11 cases of plague were reported in Loja Province, distributed as follows: In Cerro Blanco Locality 2 cases, El Salado Locality 2 cases, 1 death, La Ollada Locality 2 cases; in Cariamanga Parish 2 cases in Algodonera Locality and 1 case in Chuchunga Locality; in Pindal Parish 1 case; in Las Huacas Locality, Alamor Parish, Puyango County, 1 case.

Smallpox

Cameroon (British). During the week ended August 12, 1950, 42 cases of smallpox, with 7 deaths, were reported in the provinces of British Cameroon.

India (French). Reports of smallpox in the ports of French India for the current year have been received as follows: January 1–April 1, Karikal 1 case, Pondicherry 12 cases, 6 deaths; April 2–July 1, Karikal 1 case, Pondicherry 59 cases, 29 deaths; July 2–29, Pondicherry 99 cases August 6–26, Pondicherry 34 cases, 7 deaths; week ended August 26, Yanaon 9 cases; week ended September 2, Pondicherry 18 cases.

Indonesia. Smallpox has been reported in Surabaya, Java, as follows: Week ended September 2, 1950, 151 cases; week ended September 9, 174 cases.

Yellow Fever

Gold Coast. The fatal suspected case of yellow fever reported July 28, 1950, in the port of Accra (see PUBLIC HEALTH REPORTS, September 15, 1950, p. 1200) has been confirmed.