Conjunctivitis in Southwest Georgia

By RICHARD P. DOW, Ph.D., and VIRGINIA D. HINES, B.S.

ACUTE CONJUNCTIVITIS, commonly known as "sore eyes," is endemic in various sections of the southern United States. The disease erupts seasonally, reaching high levels of prevalence each summer. Its incidence seems closely related to the seasonal and geographic abundance of "eye gnats" of the genus *Hippelates*. Because of this association, *Hippelates* is not unreasonably considered as a possible vector of conjunctivitis.

The disease occurs mostly in younger children, in uncomplicated cases without any known sequelae. In this country it does not appear to be associated with the spread of trachoma. On the other hand, in a region such as southwest Georgia, where conjunctivitis is endemic, it is a cause of much illness. Most rural preschool children have at least one case of conjunctivitis each summer, and among older children, the disease is a cause of much school absenteeism during the fall (*1*).

Studies in the Rio Grande Valley in Texas indicated that most cases of sore eyes in that area were due to *Haemophilus aegyptius*, the Koch-Weeks bacillus (*2*, *3*). Additional unpublished studies conducted by Dr. Dorland J. Davis of the Public Health Service demonstrated similar etiology in the vicinity of Thomasville, Ga. Here the Koch-Weeks organism was found to exhibit seasonal abundance corresponding to that of observed sore eyes and also to occur more frequently than *Haemophilus influenzae* in cultures of eyes having signs of conjunctivitis.

The authors are with the Communicable Disease Center, Public Health Service. Dr. Dow is a biologist at the Logan Field Station Section, Technology Branch, Logan, Utah, and Miss Hines is a nurse epidemiologist with the Leprosy Control Program, assigned to the Louisiana State Department of Health, New Orleans, La.

Collection and Analysis of Data

The present paper describes a house-to-house epidemiological study of conjunctivitis in the rural town of Barwick, Ga., near Thomasville. The field observations were made between May 17 and October 29, 1951. The study population of 486 persons included nearly every family within a mile of the Barwick railroad station and was fairly evenly distributed between white and Negro persons and between the sexes. Children less than 15 years of age included 33 white males, 49 white females, 45 Negro males, and 51 Negro females. The families were first visited in two groups: one group on May 17th and 18th and the other on June 5th and 6th. Thereafter each group was visited alternately at 2-week intervals except for one 3-week interval in October.

During the house-to-house visiting, information on eye symptoms and on cases of sore eyes was elicited for each member of the family. The informant was usually the mother or another woman tending the household. No cultures were taken, but the eyes of every available person were examined for signs of conjunctivitis.

For the analysis of the data from this study, a case of conjunctivitis is defined as an illness which was called conjunctivitis or sore eyes by either the observer or the informant. Ages are fixed at the number of whole years of age at the end of July 1951. This procedure leads to some inaccuracy but most of the observations still fall within the correct year of age. Case

attack rates are expressed as the number of cases times 100 per person-periods of experience. (The word "experience," as used here, means the sum of the unit periods of time covered by the interviewing.)

In the 11 rounds of visiting, the study population of 486 persons might have contributed a maximum of 11 times 486, or 5,346, person-periods of experience; 4,062 person-periods, or 76 percent of this maximum, were actually obtained. Fifty-six percent of the total experience was supplemented by physical examination of the eyes, the total number of examinations being 2,275. The number of eye examinations was disproportionately small for the males over 14 years old; and at the opening of the schools in September, there was a very marked drop in the number of eye examinations in the children of ages 5–14 inclusive. With these exceptions, the sampling of the study population was not unbalanced. No denominators have been adjusted to exclude either persons with chronic conjunctivitis or persons who might have acquired immunity to the disease.

Age, Race, and Sex

Preliminary analyses of the data showed no marked difference in conjunctivitis attack rates between male and female persons of all ages or between white and Negro persons of all ages. It was apparent from the start, however, that the rates were much higher in children. In fact, only 17 of all the 123 cases occurred in the persons over 9 years old who made up 70 percent of the study population.

With respect to age, the rates for white and Negro children are found to differ markedly, yet rates for both races decrease rapidly after an early peak (table 1). In the white group, the highest attack rate occurs in two separate years (ages 2 and 3). In the Negro group, the highest attack rate occurs at age 1.

When the attack rates for white and Negro children are compared by age groups, the rate for children 1–4 years of age is found to be distinctly higher in the white population than in the Negro population (table 2). When the rates for both sexes are compared without separation as to race, the attack rates for males are higher, but only slightly so, for less than 1, 1–4, and 5–9 years.

Of course the attack rates, based on numbers of cases, are strongly influenced by the informant's definition of a case. Different individuals might count as one case, or as two cases, a single infection which had two separate periods when the signs and symptoms were more severe. In the present study as many as five cases have been reported in one individual (table 3).

Table 1. Conjunctivitis case attack rates in southwest Georgia, by age and race, May 17–October 29, 1951

Age (years)	White				Negro			
	Persons	Cases	Experience [1]	Rate [2]	Persons	Cases	Experience [1]	Rate [2]
Less than 1	7	3	62	4.8	13	4	71	5.6
1	9	7	90	7.8	11	12	88	13.6
2	7	13	60	21.7	9	6	82	7.3
3	7	13	60	21.7	12	6	94	6.4
4	8	13	74	17.6	9	1	74	1.4
5	7	4	73	5.5	7	6	65	9.2
6	6	7	50	14.0	6	1	53	1.9
7	5	3	46	6.5	2	0	17	.0
8	5	2	48	4.2	5	1	42	2.4
9	3	3	29	10.3	6	1	53	1.9
10–14	18	2	167	1.2	16	3	137	2.2
15–19	12	0	102	.0	13	0	114	.0
Over 19	182	5	1,647	.3	101	7	664	1.0
Total	276	75	2,508	3.0	210	48	1,554	3.1

[1] Person-periods.
[2] Cases × 100 per person-periods of experience.

Table 2. Conjunctivitis case attack rates and percentages of children affected in white and Negro populations, May 17–October 29, 1951

Age (years)	Case attack rates		Percentages of persons affected		
	White	Negro	White	Negro	P [1]
Less than 1	4.8	5.6	43	31	>.90
1–4	16.2	7.4	81	49	<.02
5–9	7.7	3.9	58	27	.05
10–14	1.2	2.2	11	19	>.80

[1] Probability of null hypothesis (that no difference exists between the percentages for whites and Negroes).

Since it is often a matter of opinion as to when one case has recovered and another has begun, the number of separate cases is a less objective figure than the number of persons affected by sore eyes. The numbers of whites and Negroes who were affected and the numbers who were not affected at some time in the course of the study can be compared by fourfold analysis. This method shows that the proportion of white children attacked by sore eyes is significantly higher than the proportion of Negro children in the age groups 1–4 and 5–9 years (table 2). When the numbers of male and female children affected and not affected by sore eyes are similarly compared, the results again reflect the case rates, and there is no evidence of a difference in rates between the sexes.

Duration of Illness

The finding of differences in attack rates between the white and Negro children led to a study of other differences in the two groups. Besides 11 cases of conjunctivitis for which total length was not recorded and 7 cases which may or may not have been recovered on the day of the last pertinent interview, there are 46 recovered cases and 60 cases last reported as active. In Negroes, the cases are of longer average duration whether or not they were active at the time of the last interview, and this is true even if cases of 14 or more days' duration are excluded (table 4). Moreover, 16 of the 22 cases reported to have lasted 2 weeks or longer are in Negroes.

That these figures on duration of illness are more or less typical of the disease in southwest Georgia is indicated by data on sore eyes collected in 1949 and 1950 during case history studies of diarrhea. In this study, several workers making house visits in the same general area conducted interviews at monthly intervals in 10 different communities in Thomas, Brooks, and Colquitt Counties (*4*). As in the 1951 data, the average duration of all recovered cases of sore eyes was shorter in white persons than in Negroes: 9.6 and 11.0 days, respectively. The average duration of those recovered cases which lasted less than 14 days was also shorter in whites than in Negroes: 5.0 and 6.1 days, respectively. The significance of this racial difference in reported duration of the shorter cases has a probability of less than 0.01 by the *t* test for unpaired data. The essence of the difference in both sets of data seems to lie in the much larger number of white cases said to have lasted 1 or 2 days (table 5). The basis of the difference between races need not be physiological; it may be sociologic, for example: (*a*) the degree of illness which each group accepts as a case of sore eyes, (*b*) the medical treatment given to cases by the two groups, (*c*) personal hygiene, or (*d*) some aspect of reporting, such as a tendency of white mothers to minimize the length of time their children remain ill.

Table 3. Numbers of persons having indicated number of cases of conjunctivitis per individual, by age and race

Age (years)	Number of cases									
	1		2		3		4		5	
	W	N	W	N	W	N	W	N	W	N
Total	32	36	13	4	4	0	0	1	1	0
Less than 1	3	4	---	---	---	---	---	---	---	---
1	5	6	1	1	---	---	---	1	---	---
2	1	6	2	---	1	---	---	---	1	---
3	2	4	4	1	1	---	---	---	---	---
4	3	1	2	---	2	---	---	---	---	---
5	2	2	1	2	---	---	---	---	---	---
6	3	1	2	---	---	---	---	---	---	---
7	3	---	---	---	---	---	---	---	---	---
8	2	1	---	---	---	---	---	---	---	---
9	1	1	1	---	---	---	---	---	---	---
10–14	2	3	---	---	---	---	---	---	---	---
Over 14	5	7	---	---	---	---	---	---	---	---

NOTE: W—White; N—Negro.

Table 4. Average duration of cases of conjunctivitis by race, May 17–October 29, 1951 [1]

Type of case	White		Negro	
	Number of cases	Average duration (days)	Number of cases	Average duration (days)
All recovered cases	33	2. 6	13	4. 9
All active cases	37	4. 5	23	18. 1
Recovered cases of less than 14 days' duration	32	2. 3	12	4. 1
Active cases of less than 14 days' duration	32	2. 1	8	6. 4

[1] Excluded are 7 cases which may or may not have been recovered on day of last pertinent interview and 11 cases for which total duration was not recorded.

Some light is shed on the question of reported duration of conjunctivitis by analyzing the records of treatment which were obtained in 1951. There are relatively more cases in the Negro population reported as having received no treatment (10 out of 48 cases) than in the white population (7 out of 74 cases). A greater difference, however, lies in the number of cases whose treatment included an antibiotic or the care of a physician (3 out of 48 in the Negro group, 30 out of 74 in the white group). Regardless of the efficacy of any medicine used, the Negro population appears to have secured less treatment of an up-to-date nature.

Table 5. Duration of recovered cases of conjunctivitis in southwest Georgia, by race, 1949–50 and May 17–October 29, 1951

Duration (days)	Number of cases			
	1949–50		1951 [1]	
	White	Negro	White	Negro
1	30	3	11	1
2	92	35	12	1
3	121	69	5	4
4	66	43	0	1
5	36	19	1	0
6	22	16	0	3
7	185	162	3	2
8–14	145	180	1	0
15–21	46	61	0	0
22–31	34	22	0	0
32–120	26	21	0	0
Total	803	631	33	12

[1] For cases for which approximate duration was given, whole days of duration were obtained by taking the first whole number above the mean.

Seasonal Occurrence

Grouped by month of onset, the cases of conjunctivitis in the white population show a small peak in June but are much more frequent in August, September, and October (table 6). The Negro cases have two peaks, one in June and one in October. The monthly attack rates present the same picture, but here, as in the monthly totals, the numbers of cases are too small to justify any interferences.

Table 6. Month of onset of conjunctivitis cases, by race, May 17–October 29, 1951

Month	White	Negro
May	3	7
June	10	12
July	8	5
August	18	6
September	15	7
October	21	11
Total	75	48

Spread Within the Family

In spite of strong circumstantial evidence that the eye gnat is a vector of sore eyes, there is no reason to question the importance of transmission of conjunctivitis by contact, especially within the family. Opportunities for the direct transfer of infectious material from one person to another can be assumed to be more frequent between members of a family than between persons in the community as a whole, and, on the basis of this assumption, large families might be expected to have higher attack rates than small ones. For comparison with the number of observed cases of conjunctivitis in families with different numbers of children, the expected number of cases can be computed for children 0–14 years of age (table 7) by adding the number of expected cases for each child in each family. The number of expected cases for each child is the product of the person-periods of experience for each child times the age-specific

attack rate, which is based on all children of the same age and race. By thus controlling the effect of age, the effect of family size can be evaluated separately. In the white families with 1, 2, or 3 children, the observed cases are somewhat fewer than those calculated from the rate for all families, and the ratio is reversed in families with more than 3 children. In the Negro families, the relative proportions of observed to expected cases are in just the opposite sequence, there being more cases in the smaller families than the data for the whole Negro group would lead one to expect. Statistically, there is no indication that the occurrence of sore eyes differs in families according to their size.

Another approach to the problem of intrafamilial spread of conjunctivitis is to study the relative rate of transmission within family groups by computing secondary attack rates. For diseases in which one case confers lasting immunity, the denominator of a secondary attack rate is simply the total number of family members less the number of primary cases. Because a case of sore eyes may not confer immunity for even a single season (note the large number of multiple cases in table 3), the denominator must be corrected to include only the persons actually at risk. The situation is similar to that studied by Badger and associates in an investigation of respiratory illness in Cleveland, Ohio (*5*, *6*). This group calculated secondary attack rates by studying selected units of family experience called episodes. An episode is defined as a period of 10 days which (*a*) follows a period of 10 days without reported illness of the type under study, (*b*) starts with the day of onset of the index case (or cases), and (*c*) continues for 9 more days. Index cases are defined as all cases with onset on the first day of an episode.

Table 8. Number of episodes of conjunctivitis in southwest Georgia, grouped by numbers of index and secondary cases, May 17–October 29, 1951

Number of index cases	Number of secondary cases				Total episodes
	0	1	2	3	
1	63	6	1	2	72
2	4	1	0	0	5
3	2	0	0	0	2
4	2	0	0	0	2
Total episodes	71	7	1	2	81

In applying these definitions to the data on sore eyes, 12 cases were excluded, 3 because they were recurrences of another case in the same episode. Of the remaining 111 cases, only 15 were secondary, and of the 96 index cases, 63 occurred with no other cases in the same episode (table 8). The small number of secondary cases precludes obtaining satisfactroy secondary attack rates but does suggest that there is little spread within the family, at least after the first day of an episode. The fact that many families which had not had any previous or recent cases reported multiple cases with the same date of onset might

Table 7. Distribution of cases of conjunctivitis in southwest Georgia,[1] by number of children in family, May 17–October 29, 1951

Number of children 0–14 years old	White [2]			Negro [3]		
	Number of families	Number of cases		Number of families	Number of cases	
		Observed	Expected		Observed	Expected
1	17	8	12.96	5	3	1.60
2	9	13	14.61	5	5	4.93
3	5	16	18.75	11	18	15.47
Over 3	5	33	23.69	9	16	19.98

[1] Based on families with children under 15 years of age.
[2] The value of chi-square is 6.1 (d. f. 3, $P>0.1$).
[3] The value of chi-square is 2.4 (d. f. 3, $P>0.4$).

be the result of failure to recognize an initial case, but this is not necessarily so. Sore eyes will incubate in less than 24 hours, at least under artificial conditions (7); therefore, the spread from an original infection might be rapid enough to result in apparently simultaneous cases. Another possible explanation of the numerous cases occurring on the first day of an episode is that they might all be contracted from a source outside the family, perhaps even from eye gnats. If the infections are acquired through intrafamilial contact with an initial case, they are properly considered as secondary. If they are acquired, along with the initial case, from a source outside the family, they are indeed multiple index cases and their origin is a matter of real importance.

Diagnostic Symptoms

Whether or not a person was believed to have conjunctivitis, the record of the interview includes observations on all eye conditions of possible diagnostic value. These are reported as signs if observed during the physical examination, and as symptoms if included in the history. During the field work, bulbar hyperemia and purulent exudate were used to diagnose cases of sore eyes, and in consequence, these conditions may have been reported more completely than the rest. In other respects as well, the information on signs and symptoms must be interpreted with caution. One reason is that "sore eyes" is so common a disease in southwest Georgia that many informants would take little notice of the exact signs or symptoms in a particular case. Another reason for careful handling of the data is that many cases were very mild. Though provision was made to grade both signs and symptoms in three degrees of intensity—mild, moderate, or severe—"moderate" was used only five times in the records, and "severe" not at all.

Despite the character of the data, it is possible to compare some of the signs and symptoms in persons reported as having conjunctivitis with those in persons not reported as ill (table 9). This comparison shows that two eye conditions, palpebral hyperemia and palpebral crusts, are not reliable in the diagnosis of conjunctivitis. Palpebral hyperemia was found as a sign 50 times in persons believed to have, or to have had, sore eyes and 78 times in persons believed not to have the disease. Palpebral crusts were seen 31 times in persons counted as having or having had sore eyes, and 41 times in persons counted as negative. No other sign, except colds and nasal conditions, was noted more times outside the group affected by sore

Table 9. Frequency of signs and symptoms of conjunctivitis in southwest Georgia, May 17–October 29, 1951

Sign or symptom	Current cases 0–4 days old [1]		All current and recovered cases [2]		Persons not having conjunctivitis [3]	
	Times physically observed	Times reported in histories	Times physically observed	Times reported in histories	Times physically observed	Times reported in histories
Bulbar hyperemia	20	22	36	61	0	0
Purulent exudate	10	13	15	43	1	0
Palpebral hyperemia	12	3	50	7	78	1
Palpebral crusts	13	5	31	10	41	1
Nasal symptoms; cold	4	9	12	23	13	11
Increased lacrimation	1	4	1	9	0	0
Adherent lids	9	26	1	66	0	1
Photophobia	1	12	1	20	0	0
Palpebral edema	1	3	3	10	0	0

[1] 33 interview-examinations.
[2] 117 interview-examinations.
[3] 2,036 interview-examinations of persons without reported conjunctivitis in 2-week period preceding interview.

NOTE: This table is based entirely on interviews which included physical examination of the eyes. It does not include 122 interview-examinations in which the type of hyperemia was not specified.

eyes than within this group. Palpebral hyperemia and crusts are therefore of dubious use in diagnosis. As a matter of fact, palpebral hyperemia was often difficult to recognize with assurance, and the presence of crusts may be in part related (inversely) to the availability of a water source and the frequency of washing the face.

The use of histories in the diagnosis of sore eyes seems to be justified on the basis of one very characteristic symptom, adherent lids, usually observable only when the individual awakes in the morning and therefore rarely seen by a person doing interviews. This symptom is mentioned in the history of 2 out of every 3 current cases; it is the symptom most frequently reported; it is recorded as a symptom more often than any sign; and finally, it is cited only once in the entire study in a person without reported sore eyes.

Discussion

To consider conservatively the results and possible implications of the present investigation, it is well to review its limitations. In line with the original purpose of investigating possible contacts between persons who had acquired cases of conjunctivitis, the study population was concentrated in one small area. It therefore cannot be considered a satisfactory sample of any larger group, and its comparatively small size is another disadvantage.

The lack of bacteriological culturing, which might seem an insuperable handicap, was unfortunate, but it did not seriously affect the study of illness as distinguished from infection. Actually, illness due to conjunctivitis cannot be measured by routine bacteriological culturing because infection with one or another species of *Haemophilus* (*aegyptius* or *influenzae*) has been found to persist in essentially asymptomatic persons for several months, according to unpublished observations of Dr. Dorland J. Davis.

Another limitation is a deficiency in the information on duration of illness, which resulted from failure to obtain the date of recovery for some cases. Another difficulty is the lack of basic data on immunity and the resulting problem of calculating satisfactory case attack rates. Because the denominators cannot be corrected to exclude persons who were not at risk, the ratios do not represent an expression of the probability of infection and, accordingly, cannot be compared by means of the usual tests of significance.

In spite of all these drawbacks, several aspects of conjunctivitis observed in this study may well be characteristic of the disease over a much larger area. These findings are all concerned with differences between the white and Negro groups but are not dependent on the fact that the attack rates in the white group are higher than in the Negro group. First, the reported duration of acute cases is much shorter in the white group, and chronic cases (lasting 2 weeks or more) are much more common among the Negroes. Second, the records show that the white population took a more modern and more aggressive attitude toward the treatment of conjunctivitis. Third, in the white population there are more instances of multiple cases occurring in one individual. Fourth, the white age-specific attack rates decline more slowly with increase in age than do the Negro's.

These findings show that any attempt to measure the incidence of conjunctival disease should take into account the racial distribution of the population as well as its composition by age. They also indicate that much work needs to be done on the problem of susceptibility. Future studies of *Haemophilus* conjunctivitis should deal with the immunity conferred by previous cases, both treated and untreated, and should also explore the relation of overt illness to infection. With information on these aspects of the disease, it might be possible to show that, in areas where there are frequent opportunities for infection, the occurrence of new cases is closely related to losses in immunity.

Summary

An epidemiological study of conjunctivitis conducted in a rural town in southwest Georgia was based on interviewing and eye examinations without bacteriological culturing. Cases of conjunctivitis were less frequent and of longer duration in the Negro population than in the white population. There was no distinct

difference in incidence with respect to sex, but the incidence by age group was highest in children 1–4 years of age, decreasing rapidly in the age groups 5–9 and 10–14 years. This decline, which was more rapid in the Negro group, is discussed in addition to other racial differences. A study of intrafamilial spread showed that multiple index cases are very frequent and secondary cases relatively scarce. Palpebral hyperemia and palpebral crusts were of little or no use in visual diagnosis, but adherent lids, reported as a symptom by informants, were strongly indicative of conjunctivitis.

REFERENCES

(*1*) Davis, D. J., and Hines, V. D.: Conjunctivitis in elementary schools. Pub. Health Rep. 67: 145–149, February 1952.

(*2*) Davis, D. J., and Pittman, M.: Acute conjunctivitis caused by *Hemophilus*. Am. J. Dis. Child. 79: 211–219, February 1950.

(*3*) Pittman, M., and Davis, D. J.: Identification of the Koch-Weeks bacillus (*Hemophilus aegyptius*). J. Bact. 59: 413–426, March 1950.

(*4*) Lindsay, D. R., Stewart, W. H., and Watt, J.: Effect of fly control on diarrheal disease in an area of moderate morbidity. Pub. Health Rep. 68: 361–367, April 1953.

(*5*) Badger, G. F., Dingle, J. H., Feller, A. E., Hodges, R. G., Jordan, W. S., Jr., and Rammelkamp, C. H., Jr.: A study of illness in a group of Cleveland families. II. Incidence of the common respiratory diseases. Am. J. Hyg. 58: 31–40, July 1953.

(*6*) Badger, G. F., Dingle, J. H., Feller, A. E., Hodges, R. G., Jordan, W. S., Jr., and Rammelkamp, C. H., Jr: A study of illness in a group of Cleveland families. IV. The spread of respiratory infections within the home. Am. J. Hyg. 58 (No. 2): 174–178, September 1953.

(*7*) Davis, D. J., and Pittman, M.: Effectiveness of streptomycin in treatment of experimental conjunctivitis caused by *Hemophilus* sp. Am. J. Ophth. 32: 111–118, June 1949, pt. II.

Departmental Announcements

John Alanson Perkins, Ph.D., was sworn in as Under Secretary of Health, Education, and Welfare on April 5, 1957, to succeed Dr. Herold C. Hunt. Dr. Perkins has been president of the University of Delaware since 1950.

He was president of the American Society of Public Administration in 1953 and since that date has been a member of the Executive Board of the United Nations Educational, Scientific, and Cultural Organization. He has also served as a member of the Social Science Research Council's Committee on Organization for Research. He served as secretary to the late Senator Arthur H. Vandenberg and has been a teacher of political science both at his alma mater, the University of Michigan, and at the University of Rochester.

Dr. Perkins became budget director of the State of Michigan in 1946 and in 1948 was appointed controller of the department of administration. He has served as a member of the State planning commission and of the Educational Policies Commission of Michigan.

Edward Foss Wilson, a Princeton graduate, was sworn in as Assistant Secretary of Health, Education, and Welfare (Federal-State relations) April 5. Former president and chairman of the board of Wilson & Co., Inc., Chicago, he has been active in civic affairs and in various voluntary organizations.

Mr. Wilson has been director of the Presbyterian-St. Luke's Hospital for the past 20 years and of the Illinois Division of the American Cancer Society for the past 9 years. He is a member of the Council on Medicine and Biology of the University of Chicago.

For his many services in the field of health and welfare, a citizen fellowship was conferred upon him by the Fellows of the Institute of Medicine in Chicago on December 4, 1956.

Katherine Brownell Oettinger has been appointed chief of the Children's Bureau to succeed Dr. Martha M. Eliot, who recently resigned to become professor of public health at the Harvard School of Public Health.

Prior to her previous post as dean of the Boston University School of Social Work, which she assumed in 1954, Dean Oettinger was a division chief in the bureau of mental health, Pennsylvania Department of Welfare. Before that she was engaged in psychiatric social work at a children's treatment center in Scranton, Pa., and in child guidance and family welfare work in New York City.

Dean Oettinger has been on the board of directors of the Massachusetts Association for Mental Health and on the Advisory Committees of the Child Guidance Foundation and the Massachusetts Society for Crippled Children. She is currently a member of a number of organizations concerned with social work.