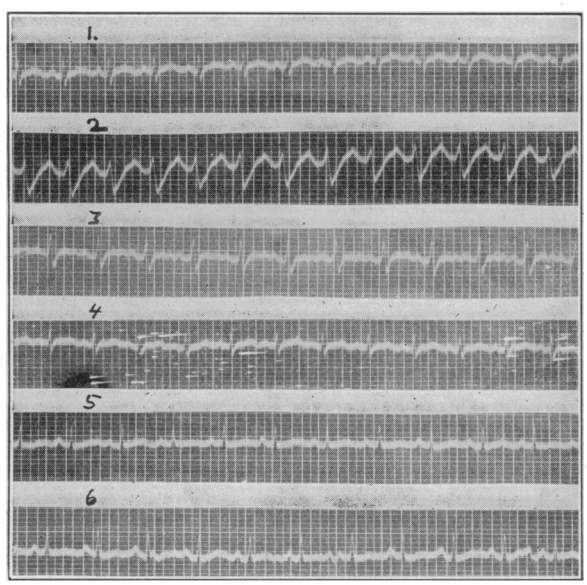

Fig. 9—Rabbits Nos. 11 and 10.

was approximately 1 mg. per pound body weight.

5. Normal record.

6. Record No. 1—immediately after seventh injection of emetin hydrochlorid. The animal received a total of 28 mg. emetin hydrochlorid.

This rabbit died twenty-four hours following the last injection. No autopsy was done, as the body was destroyed by one of the laboratory workers.

CONCLUSIONS

1. In rabbits, emetin hydrochlorid given intravenously in doses between one and two mg. per pound body weight will produce a distinct ventricular tachycardia which will revert to a normal rhythm in about ten minutes.

2. Digitalis in the form of digifolin will produce no definite change in the electrocardiogram of a rabbit even when administered intravenously in very large doses.

3. Emetin hydrochlorid given in conjunction with a relatively small amount of digitalis (digifolin 1 cc.) will not produce a definite change in the electrocardiogram unless the dose of emetin is between one and two mg. per pound body weight. In other words, digitalis will not lessen the dose of emetin required to produce definite changes in the electrocardiographic record.

4. The minimal intravenous lethal dose of emetin hydrochlorid for a rabbit is about 2 mg. per pound body weight.

5. The electrocardiogram of a rabbit receiving a lethal dose of emetin hydrochlorid shows a ventricular fibrillation from which, in our experiments, the animal does not recover.

6. Daily intravenous injections of emetin hydrochlorid approximately equivalent to 1 mg. per pound body weight, produce no marked permanent changes in the electrocardiogram of rabbits receiving a total amount of 18 mg. and 28 mg. respectively.

7. An electrocardiogram of a rabbit dying as a result of an injection of sodium cyanid is shown for comparison.

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REFERENCES

1. Young, W. A., and Tudhope, G. R.: Tr. Roy. Soc. Trop. Med. and Hyg., 1926, xx, 93.
2. Pellini, E. J., and Wallace, G. B.: Am. J. M. Sc., September, 1916, p. 327.
3. Walters, A. L., and Koch, E. W.: J. Pharmacol. and Exper. Therap., July, 1917, p. 73.
4. Vedder, E. B.: J. A. M. A., 1914, lxii, 501.
5. Levy, R. L., and Rowntree, L. G.: Arch. Int. Med., 1916, xvii, 420.

AMERICAN HEART ASSOCIATION—ITS PLAN AND WORK*

By James F. Churchill, M. D.
San Diego

MEMBERS of the Medical Section and Guests: The increasing importance of heart disease as a cause of disability and death has in recent years become common knowledge to the general public as well as to the medical profession. The study of the bare mortality figures shows a steady increase in deaths ascribed to this cause, especially in the past fifteen years.

The realization of these facts led, first to the organization of the Society for the Prevention and Relief of Heart Disease and other similar organizations of more or less local activity. More recently these have been grouped into one body—The American Heart Association. It is proposed to make the work of this association as has been done in the Tuberculosis Association, national in scope, eventually interesting laymen as well as the medical profession. The first step in broadening the scope of the work of the association has been the formation of a Heart Committee in each state. The California committee has been organized within the past year, and it has seemed fitting to the state chairman (Dr. William J. Kerr) and to the committee to present this matter to the State Medical Society at this time. To this end, this session of the General Medicine Section is being devoted to a presentation of the work and aims of the American Heart Association and to a discussion of certain forms of heart disease. It is the desire of the committee to thus furnish you information as to its plans, to arouse your interest in the work and to enlist your aid. I shall attempt to outline to you the plans of the national association and of the state committee and to present some statistics on the heart disease problem.

In planning the organization of this association it has seemed best to the directors to cooperate with the National Tuberculosis Association to make use of the offices, nurses and clerical force of their organization, and to make each state committee the Heart Committee of the State Tuberculosis Association. I must admit that when this

* Chairman's address, General Medicine Section, Fifty-Seventh Annual Session.

plan was first brought to my notice it did not appeal to me as a good one, but on more mature consideration I feel there are many points in its favor. First, the Tuberculosis Association is a well-organized, experienced, going concern; it has the respect and confidence of the public generally; it has well-established clinics with trained social workers and nurses; it has been successful in its publicity work, and, lastly, by combining the offices and nursing force the overhead of the Heart Committee will be cut down very greatly. I cannot see that the Heart Committee will lose its identity or impair its usefulness by such a consolidation.

The details of the program for the state work have not been completed, but Doctor Kerr has arranged and published an outline which will serve as a basis for organization at this time. A large number of these pamphlets have already been distributed. Those of you who have not yet received a copy should ask for one at the heart exhibit.

The plan of the organization of the Heart Association is very simple. The directors of the American Heart Association have general supervision of the work throughout the United States, directing publicity, collecting statistics, and publishing the *American Heart Journal*. They appoint the state chairmen. The state chairman appoints the State Heart Committee, selecting one or more members from each county society. The local member of the committee, in turn, nominates the county committee of which he acts as chairman. It is planned to appoint on the county committees those physicians who are more interested in heart work—internists, pediatricians, school physicians, health officers, etc. Later, lay members will be added to the state and county committees.

One of the first things to be undertaken will be a publicity campaign; and for the present this will be confined to the medical profession. It is felt that the physicians of the state must first be thoroughly familiar with the plans of the association, and with the pathogenesis, classification and diagnosis of heart disease before any attempt is made to interest and arouse the public. There is a peculiar psychology about "heart disease." The very words themselves bring fear to the minds of the laity, and the association feels that to arouse the general public to a sense of the alarming increase in morbidity and mortality from heart disease before the profession is ready to handle the situation would be to defeat at the outset the aim of its work. It is not the desire of the association to instill into the minds of the people the fear of heart disease, making semi-invalids of many apprehensive persons, but to inform the public gradually as to the causes of heart disease (and thus aid in its prevention) and as to the care and protection of those unfortunate individuals who do have it. The publicity campaign among the physicians of the state will be carried on by means of county medical meetings devoted to the subject (Doctor Kerr has already addressed a number of such meetings), by distribution from time to time of literature to the state membership, and by exhibits such as you see here at this meeting. One of the first steps the committee is taking is to familiarize you with the standard classification of heart disease as adopted by the American Heart Association. Until all physicians use the same classification, giving the etiological, structural and functional diagnosis in each case, little or nothing can be done in the way of statistical study of our situation.

The committee plans to publish in CALIFORNIA AND WESTERN MEDICINE special articles dealing with the etiological factors of heart disease, particularly rheumatism, syphilis, and the acute infectious diseases. Through the local committees surveys will be made of the incidence of heart disease in children, both of school and preschool age, and the incidence of rheumatic fever, the acute infections and syphilis, attempting to make a comparative study. These surveys will be made through school physicians and by the collection of data from hospitals, clinics, children's homes, and the reports of physicians from their personal practice.

There is a growing realization of the importance of heart disease as an economic problem, and special attention should be given to the study of hospitalization, convalescent care and rehabilitation of heart patients. The citizens of California and the physicians of California should be particularly interested in the prevention and care of heart disease, for as I will show in the tables,

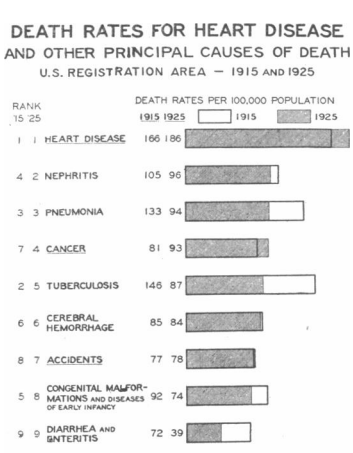

Chart 1.

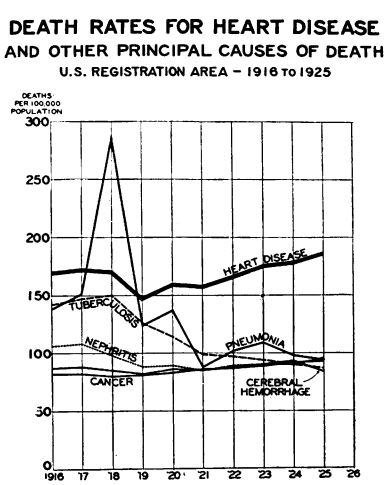

Chart 2.

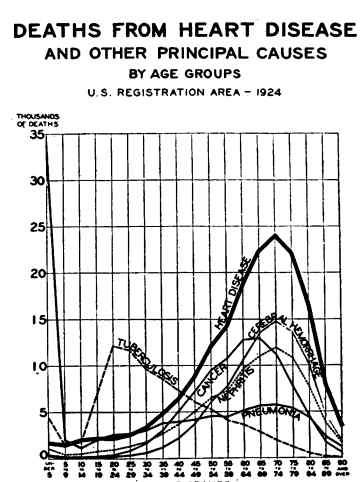

Chart 3.

DEATHS FROM HEART DISEASE COMPARED WITH DEATHS FROM ALL CAUSES BY AGE GROUPS

United States Registration Area, 1924

Age-Groups	Heart Disease	All Causes	Per cent of total
All ages	176,671	1,173,980	15.0
Under 5	1,643	220,122	7.5
5 - 9	1,414	22,827	6.2
10 - 14	1,973	17,834	11.1
15 - 19	2,164	29,068	7.5
20 - 24	2,179	38,819	5.7
25 - 29	2,550	39,715	6.5
30 - 34	3,306	40,954	8.1
35 - 39	4,634	47,960	10.1
40 - 44	6,461	51,380	12.6
45 - 49	8,608	57,331	15.4
50 - 54	11,998	67,273	17.8
55 - 59	14,167	70,786	20.0
60 - 64	18,694	84,974	22.0
65 - 69	22,276	95,051	23.9
70 - 74	23,931	93,964	25.5
75 - 79	22,146	83,830	26.4
80 - 84	16,538	63,975	25.9
85 - 89	8,062	33,067	24.4
90 and over	3,387	16,417	20.4
Unknown	180	1,545	11.7

Table 4.

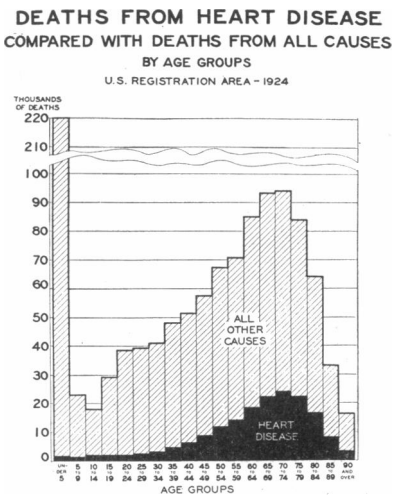

Chart 5.

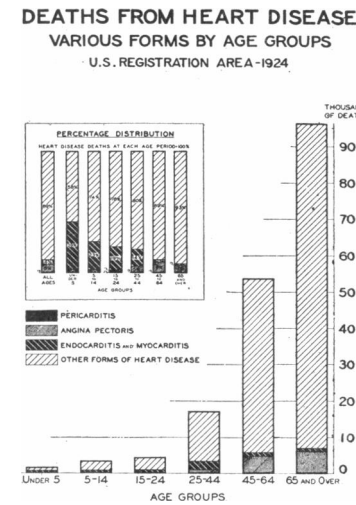

Chart 6.

California is fifth among the states in the percentage death rate from heart disease.

The following charts and tables will, I think, serve better than any other method to impress upon you the growing importance of heart disease in this country. These tables are taken from a recent publication of the American Heart Association, "Heart Disease Mortality Studies," compiled for the United States Registration Area by Miss Jessamine Whitney.

Chart 1 shows the relationship between the leading causes of death and the changes which have occurred in that relationship in the years 1915 and 1925. As you see, heart disease led each time. Tuberculosis dropped from second to fifth place. The change in nephritis is more apparent than real, due to the change in classification of nephritis as a cause of death.

Chart 2 is a graph showing death rates for the six principal causes of death for the decade, 1916-1925. All have tended downward except heart disease and carcinoma. The 1918 peak for pneumonia was due to the influenza epidemic. The 1919 dip for heart disease was undoubtedly due to the fact that so many heart patients had died the preceding year of influenza.

Chart 3 shows the distribution of deaths by age groups (five-year periods). As would be expected, the peak for heart disease occurs at the 70 to 74 year period, with the cerebral hemorrhage and nephritis peaks at the same point. Pneumonia has a double curve, under 5 years and again at about 70. Tuberculosis coming at 20 to 24 years stands out notably from the others.

Table 4 shows the relationship of the mortality from heart disease to the mortality from all causes in each five-year age period. Heart disease causes 15 per cent of all deaths each year. The most important figure in this chart is the percentage for the period 10 to 14 years. You will note that this is given as 11.1 per cent, which is very high for a period in which the general mortality is low, and emphasizes better than anything else the rôle played by the infectious diseases of childhood in the production of heart disease.

Chart 5 shows graphically the figures of the preceding table.

Chart 6 shows the deaths from various forms of heart disease by age groups. This chart was chosen to show the necessity for a more exact and uniform classification of heart disease. Under the present system the census bureau recognizes only endocarditis and myocarditis, pericarditis, angina pectoris and "other forms of heart disease." You will see that "other forms" make up 89 per cent of the total. If a standard classification were used we would be able to separate the 89 per cent into the proper divisions, and thus gain some idea of the relative frequency of the various forms of cardiac affections for different ages.

Table 7 is probably the most significant one of this series. It shows the changes in heart disease death rates by age groups for the years 1914 and 1924. Note that the total deaths show an increase of 12 per cent, while the groups up to 15 years show a remarkable decrease. This must be due to better care of infants and of children of the grade schools, and represents the result of control of infectious diseases and of health inspections in the schools. Apparently young people take fewer precautions as to their health when

REDUCTION IN HEART DISEASE DEATH RATES BY AGE GROUPS

United States Registration Area, 1914 and 1924

Age-Groups	Rate per 100,000 population		Per cent change
	1914	1924	
All ages	159.3	178.4	+12.0
Under 5	20.6	15.8	-24.0
5 - 9	20.0	13.6	-32.0
10 - 14	25.0	20.5	-18.0
15 - 19	24.6	26.7	+ 8.5
20 - 24	26.0	26.6	+ 2.3
25 - 44	62.8	57.1	- 9.1
45 - 64	304.1	312.3	+ 2.7
65 and over	1640.2	1941.3	+18.4

Table 7.

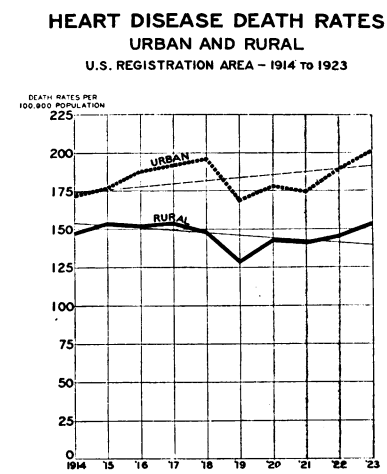

Chart 8.

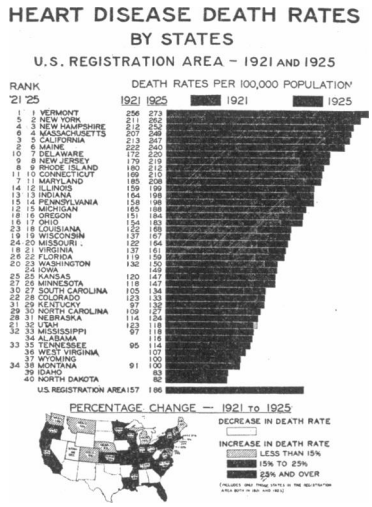

Chart 9.

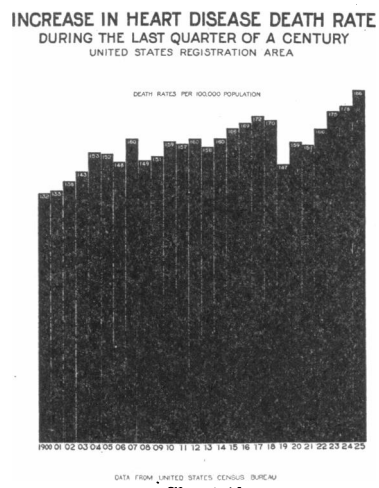

Chart 10.

they reach the age of personal independence, as shown by the increase from 15 to 24 years.

Chart 8 shows heart mortality rates for the urban and rural (under ten thousand) population over the decade, 1914-23. The urban rate is higher throughout, but the curves are fairly parallel.

Chart 9 shows the heart death rate by states in 1921 and again in 1925. There has been some increase in the rate in nearly every state. With the exception of California, the higher percentages are all found in the New England states which have a larger proportion of elderly people than the western and midwestern states. California has come from third down to fifth place. Of course our very high percentage is due to the large numbers of health seekers and aged persons who come to us each year. In other words, the percentage figures hardly represent the true state of affairs for California. At that, our heart death rate is much too high.

Chart 10 shows the increase in the heart death rate in the first quarter of the present century. The trend has been rather steadily upward, the only break being in the three or four years following the influenza epidemic, the explanation of which has already been given.

The Heart Committee through your section officers hopes to present each year to this section some phase of heart disease. This year the papers will deal largely with the rheumatic heart; next year we hope to take up the consideration of syphilis in its relation to heart disease. Reports on research, bearing on the etiology and prevention of heart affections, will be made as the work appears.

It would not seem too much to hope that in the next ten or twenty years a change as great may be brought about in the heart disease death rate as has been done in the past twenty years in the death rate for tuberculosis.

To bring this about, the medical profession and health organizations should concentrate their efforts on preventable heart disease, particularly on the prevention and treatment of rheumatic fever and syphilis. The public must be taught that rheumatic fever is a communicable disease and should be isolated as such. Recent work serves to renew the hope that a specific antitoxin for rheumatic fever will be available in the near future.

Less brilliant results are to be expected from study and treatment of the degenerative lesions. Progress with this group can only come slowly through education of the public as to the effects of work and worry, bad habits, obesity, foci of infection, et cetera.

The committee is asking the interest and coöperation of every physician in the state in this fight. The problem is a more serious one for us at this time than is tuberculosis. It should be our task to reduce the number of cases of heart disease occurring in California, and to learn better how to care for those which do occur and those which come to us from other sections. The only way we can do this is by an organized, sustained movement in which we all take part.

1310 Medico-Dental Building.

AURICULAR FIBRILLATION—A REVIEW OF A SERIES OF CASES*

By Donald J. Frick, M. D.
AND
Robert H. Kennicott, M. D.
Los Angeles

Discussion *by James E. Churchill, M.D., San Diego; William J. Kerr, M.D., San Francisco.*

THIS paper presents a review of fifty-one cases of chronic auricular fibrillation. These cases were selected from seventy which have been seen in private practice. Nineteen of the original cases have been dropped from this investigation because of inability to follow them to their termination, or to date. We realize that a series of fifty-one cases is not large, but, having noted the paucity of statistics on this subject, we submit the findings derived from a study of this group.

SUMMARY OF CASE REPORTS

The patients are divided below into groups depending on their age. These groups each comprise a span of ten years. There are no patients in this series under twenty years of age.

The Third Decade—Among the eight patients in the third decade, who have fibrillated for periods ranging from eight months to twelve years, there have been two deaths, both from embolism. Seventy-five per cent of these patients are living. One has regained normal rhythm after quinidin, and is living an active life, as a clerk in the Navy.

The Fourth Decade—In the fourth decade there are nine patients who have fibrillated over

* Read before the General Medicine Section, California Medical Association, at the Fifty-Sixth Annual Session, April 25-28, 1927.