24. Pappenheim--Verhandlung d. Deutsch Path. Gesellschaft—1907—58.
25. Adami—Prin. of Path., 1908—Lea and Febiger.
26. Stuhl—Deutsch Med. Woch.—1906; No. 16.
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28. Wolf and Milchner—Berl. Klin. Wochenschrift—XLIII; No. 23.
29. Simon—Cited by Cabot in Osler's Modern Medicine, Vol. IV.
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Discussion.

Dr. Henry Walter Gibbons: In connection with the paper of Dr. Harris, I will show three slides from cases of Hodgkin's disease, of which I made a study several years ago. At this time an important article appeared by Dr. Reed, which seemed to prove conclusively that Hodgkin's disease, tuberculosis and syphilis of the lymph glands are distinct diseases. But Dr. Reed took the view that the lesions of Hodgkin's disease are due to a reaction in the tissues in the nature of a chronic inflammatory process. This view was held by Longcope and Simmons who wrote articles confirming Reed's views. Our study led to the view that Hodgkin's disease is to be classed with malignant tumors. I have brought several slides which illustrate some of the points which lead to the conclusion that this is a malignant process. In this slide taken from one enlarged gland note the picture presented, structure of lymph gland destroyed, proliferation of connective tissue, proliferation and enlargement of the endothelial cells, the large size of the lymphocytes, and the peculiar giant cells. A picture that resembles a sarcoma much more than any of the inflammatory granulomata. This slide shows infiltration of the gland capsule by the cellular mass within, which is seen breaking through the capsule in one place. Here is seen a metastatic nodule in the periportal tissue of the liver. It is infiltrating the wall of a vein and extending into its lumen. This condition was observed by Reed and Simmons. Another section shows a metastatic nodule in the lung, of the same characteristics, and existing where no normal lymphadenoid tissue has ever been found. Since Dr. Reed's paper the pendulum has been swinging and more and more Hodgkin's disease is being regarded as a malignant disease. Coley, with his vast study of sarcomas, has come to believe this way. Banti and Dock are adherents. The recent text books are more conservative with the exception of Adami, who admits of no grounds for considering Hodgkin's disease other than an inflammatory process. The cases which we studied are clinically and histiologically Hodgkin's disease, while two had tumors of a decided malignant nature. This led to the conclusion that Hodgkin's disease and lymphosarcoma are allied, if not stages of the same process. My work did not extend to all the diseases discussed by Dr. Harris, but it is interesting to note the tendency in the classification of these diseases. Dr. Harris is to be commended upon the great amount of work he has done and the great number of authorities he has consulted in prefacing his interesting paper, and his conclusions are evidently derived from the latest and best work done upon the subject.

Dr. Hanson: I remember seeing lately that Forchheimer has written an article with regard to the treatment of this disease, which would follow out the lines under discussion. He uses four or five or six different remedies, including iron and arsenic and particularly X-ray, giving the foremost place to the X-ray treatment. In connection with this matter, he states that it has never been within his knowledge that a case of leukemia has been cured.

Dr. Harris (closing): The fact that leukemia is such a hopeless disease in itself, so far as treatment goes, is another analogous point to the malignant diseases. The other diseases are not included because they seem to be different. Pernicious anemia, both with its blood picture and changes in the marrow, has been experimentally reproduced by injections of ricin and there is a great deal to make us believe that it is an auto-intoxication. There is no essential production of new cells. The great heaping up of cells in the tissue such as we see in the spleen in leukemia is not seen in pernicious anemia. Leukanemia seems to be an atypical form of leukemia, so this classification would include them all.

THE INFLUENCE OF CLIMATE UPON TUBERCULOSIS; WITH REMARKS ON THE CLIMATE OF COLFAX, CALIFORNIA.*

By ROBERT A. PEERS, M. D., Colfax.

Mr. Chairman and Gentlemen: Your Chairman of the Committee of Arrangements, Dr. Phillip King Brown, suggested that, in addressing you on the subject of tuberculosis, I refer to our Colfax climate in such cases. It had been my intention to write upon "The Early Diagnosis of Tuberculosis," or upon "The Study and Prevention of Tuberculosis"; but after receiving his suggestion I thought perhaps it might be of interest to the members of this Association to present to them not only a few facts relative to Colfax and its climate, the inducements it presents, and also the disadvantages it offers to the tuberculous, but also to make mention of a few observations made by me during the time that I have been paying particular attention to the study of tuberculosis and the treatment of the tuberculous.

But before speaking of the climate of Colfax and vicinity, I would like to say a few words as to the part climate plays in the treatment of tuberculosis. For centuries certain localities were supposed to possess almost specific curative powers for the tuberculous and from very early times patients with consumption were sent to such localities; and even to-day among the laity, and also a large part of the medical profession, the first thought when it is discovered that a patient has tuberculosis is, "Where shall he be sent?" On the contrary, there are many men who would go to the other extreme and claim that a tuberculous patient will do as well in one locality as in another. It is but another case of the pendulum having swung too far in the other direction. Most men, however, who have studied the question of climate in its relation to the treatment of tuberculosis are agreed, I think, that, while climate plays an important part, it is really secondary to other considerations, and that its value should not be allowed to overshadow other and more important factors, as, for example, a well-regulated daily routine and competent medical supervision. Speaking on this subject, Knopf[1] of New York says: "I do not deny the beneficial influence of certain climatic conditions on the various forms of phthisis, but I do not believe that there exists any climate with a specific curative quality for any kind

* Read before the Pacific Association of Railway Surgeons.

of pulmonary tuberculosis. Climate can be considered only a more or less valuable adjuvant in the treatment of consumption, but not a specific."

Sir Hermann Weber,[2] in an address before the Tuberculosis Congress at Berlin in 1899, after giving numerous indications as to choice of climate for pulmonary invalids, remarked: "The cure of tuberculosis during the early stages is possible in all climates. But climate itself, without careful medical supervision, is generally insufficient. The patient's blind reliance on the climate often leads to errors, to aggravation of the disease, and to death."

Dr. Lawrason Brown, of Saranac Lake, quotes Sandwich,[3] who says: "Every man who lives in a health resort becomes early inoculated with the microbe—I do not know its Latin name—but it means the microbe of universal belief in the place in which he lives." Lawrason Brown [4] himself says: "There is no specific climate for pulmonary tuberculosis, and a good climate alone is of no avail. . . . Without doubt many of the effects attributed to climate can be ascribed to change of climate. Change from a 'good' to a 'bad' climate often produces excellent results." He also says: "The ideal place for a patient with pulmonary tuberculosis should possess purity of air, a dry, porous, salubrious soil, good potable water in sufficient quantities, good sewage disposal, relative protection from winds, and such a temperature that a patient can spend hours out of doors without discomfort. Abundant sunshine, infrequence of fogs, the peristence of snow, if it occur throughout the winter, are all of value."

Burton Fanning,[5] in his work on "The Open Air Treatment of Pulmonary Tuberculosis," writes: "The exact regulation of the patient's daily life is the essential point in treatment, and the precise climatic conditions under which the proper life is led are a consideration of secondary importance." He is led to make the above remarks after telling that "the most diverse climatic conditions are recommended for the same form of the disease, and the curious spectacle is witnessed of the patient from the East being sent to the West, and the dweller in the West being ordered to the East."

Latham,[6] in his work on "Diagnosis and Modern Treatment of Pulmonary Consumption," quotes Osler, who points out that "in the Blood Indian Reserve of the Canadian Northwest Territories there were, excluding diseases of infancy, 127 deaths —or 23 per cent of the total rate—from pulmonary consumption during six years in a population of about 2,000, and that in a tribe living in one of the finest climates of the world—at the foothills of the Rocky Mountains." If your time and patience would permit I might quote you many others who agree with those already quoted that climate, while a valuable adjunct, must not be allowed to usurp the place rightly held by hygiene, diet, teaching and supervision.

But while granting other measures their proper place, we must not deny that climate, or change of climate, if you will, does have a marked effect upon tuberculous patients. "To the observer in the health resort," says Minor,[7] "the evidences of the beneficial effects of climate are so many and so apparently irrefutable; he so constantly has occasion to see them and to be convinced of their reality, that he has difficulty in understanding how they can be doubted." And again, speaking of the effect of climate on advanced cases and those with mixed infections, he says: "They far surpass the very best results obtainable in similar advanced cases in our cities on porches or roof gardens, and the rapid relapses which in such advanced cases follow their return to ordinary climates are only another testimony in the same direction." That the above remarks are true has been proven to me many times by cases coming under my personal supervision. It is a not infrequent occurrence to see a patient who, at home with good medical attention, was going down hill steadily, come to the foothills and commence at once to gain both appetite and weight; while the manner in which the cough and expectoration lessen, the night sweats cease, and the patient takes on a feeling of general wellbeing seems at times almost marvelous. Only too many of them, however, either against advice or without it, return to their old environment and climate only to relapse sooner or later.

Granting, then, that although certain climates exert a favorable influence upon the course of tuberculosis, they are really of secondary importance, we will proceed to discuss some of the favorable and unfavorable features of Colfax as seen by me. I intend to discuss the unfavorable features, because no climate or location is ideal, and I think that a fairminded portrayal of the climatic conditions (so far as one can do so) is the only course open to any member of the profession, and it is only by giving you complete details that you are enabled to decide whether or not you wish to send your tuberculous patients to such a climate and location.

Colfax is a town of about 500 or 600 inhabitants, situated in the foothills of the Sierras, in Placer county, on the main line of the Southern Pacific Railroad, 144 miles east of San Francisco, and is a junction town, being one of the termini of the Nevada County Narrow Gauge Railroad to Grass Valley and Nevada City. It has a postoffice, express, telegraph and long distance telephone stations, and has as good railroad facilities as any town between Sacramento and Reno, all trains being required to stop for inspection. It has a good public school of nine grades with three teachers. There are two churches, Roman Catholic and Methodist Episcopal, a bank, three general stores, two dry goods stores, a good butcher shop, and a first class drug store. There are three good hotels, all lighted by electricity, where rooms can be obtained with baths, hot and cold water, call bells, and all serving good wholesome meals at reasonable rates. The charges range from $8.00 to $17.00 per week. I make mention of the telephone, telegraph, express and railroad facilities, together with facts relative to bank, churches, and schools because they all have their bearing upon the subject. They may seem but small details but it is the attention to the small

details and the little conveniences that frequently makes the difference between success and failure in the treatment of tuberculosis. The importance of good stores, butcher shop, and drug store is obvious. I mention the hotels because it is necessary that the tuberculous patient and his friends should have somewhere to stay while looking for more permanent quarters. As permanent quarters for the tuberculous, hotels, as a general rule, are unsatisfactory, there being too much noise, too many temptations to relax on discipline, and an inability to supervise the menu to the extent possible in private houses. Hotels are primarily for the well and for these Colfax possesses first-class accommodations.

The elevation of Colfax is 2422 feet, practically the same as Tucson, Arizona, and Liberty, N. Y. It is high enough to escape fogs, there being very few days in the year that are foggy, so that nearly every day when rain is not falling is a day of sunshine. It is also below the snow line, very little snow falling during the year. This, of course, is not so important as the absence of fog.

The climate itself is such that one can live the out-door life during the entire year without discomfort. That, in my mind, is of more importance than exactly how warm or how cold the weather is, or the presence of fog, snow, rain or sunshine. While there is no doubt that patients can spend the entire day out of doors even during the rigorous Eastern winters, the many discomforts attached thereto and the precautions to be taken render such a life one requiring much self-denial. The climate, which allows the maximum number of hours in the open air, with the least physical discomfort approaches, I think, all other things being equal, more nearly the ideal than any other. In order to be able to speak positively on the matter I have prepared a table showing the average temperature of Colfax at 2 p. m. during a period of seven years, and also the average temperature for 7 a. m., and 9 p. m. for a period of three years. These tables are based on calculations made from records taken by Mr. Morris Lobner, Southern Pacific agent at Colfax, being collected by him for the State of California. Glancing at the table we see that the average temperature for the three years was at 7 a. m. 54.6° F.; for seven years at 2 p. m. it was 69.1°, and for three years at 9 p. m. it was 57.6°. Lack of time prevented me from making all calculations for a period of seven years.

Table No. 2 shows the relative humidity calculated from readings in the dry and wet bulbs at 2 p. m. for a period of one year. Owing to the great amount of labor involved in personally figuring out the relative humidity by aid of Glaisher's table and the table of Tensions I can give you the humidity for only one year and for one reading only during the day. According to the table presented the average relative humidity was 47.7%. I have here also table No. 3, which gives the rainfall during a period of seven years and shows the annual precipitation to be 47.062 inches.

Any place where invalids are sent to recuperate should have plenty of good water for domestic and other purposes. Being situated in the Sierras with two large ditches bringing water from the mountains, and with a number of local companies supplying water, obtained from tunnels which tap a mountain behind the town, Colfax has plenty of water for domestic purposes. There is in contemplation at the present time, the construction by the South Yuba Company, of a large reservoir behind and above the town which when completed will give Colfax a most abundant supply of water for all purposes.

Every climate and location has its disadvantages and Colfax is no exception. Those that I would mention are four in number: first Colfax is not an incorporated town. This, of course, is a disadvantage in the matter of enforcing health laws; but we have carried on such a campaign of education in the matter of tuberculosis that any patient suffering from that disease seen expectorating in forbidden places would very soon be enlightened as to his duty toward his fellow men. As to the activity of our health officer along other lines I can refer you to Dr. N. K. Foster.

Second: Colfax has no town sewer system. This is to be regretted but it is expected that with incorporation, which we look forward to within the next year, that we will also have proper sewerage.

Third: We have no herd of tuberculin-tested cows. This will come as a result of further education of the people on these matters and with the passage of State laws. However, I will say the cattle are in the open air practically all of the time, that the dairies are well kept, and the milk supplied is of excellent quality.

Fourth: There is no boarding-house under the care of a person experienced in cooking for and caring for tuberculous patients. We need more people to cater to the wants of the tuberculous who understand thoroughly and practice daily the gospel of fresh air, hygiene, proper diet, rest, and other essentials for the cure of tuberculosis. To overcome this difficulty I have secured permission from the owner of a tract of fifteen acres, to erect cottages which can be leased to patients for $10.00 per month. The location of these grounds is on the edge of the town, protected on the north by a high mountain and commanding a beautiful view of magnificent mountain scenery. For any one who has a nurse, or relative, to cook for and wait on him, and who is willing to place himself under direct medical supervision, the owner of the land will build a model cottage according to plans furnished by me and copied from similar buildings observed by me at Saranac Lake, Gravenhurst, and other places. We have two such cottages at present and we expect to add more in the near future.

Before closing I would like to make a statement regarding the freedom of the townspeople from tuberculosis. In the past twenty-two years there have been but three deaths from tuberculosis among the regular inhabitants of Colfax. This I gained from the records of the undertaking establishment. You may say that many deaths may have been wrongly registered but I can state positively that

in the nine years in which I have lived in Colfax there has been but one death from tuberculosis among those who were permanent residents, and had lived in Colfax for five years prior to death.

In closing I would like to enumerate a few points that have been forced upon me during my residence in Colfax.

First: With proper care as to hygiene, diet, rest, and supervision, patients with incipient tuberculosis will, in the majority of cases, recover in almost any climate. Such a case will, however, make more rapid recovery if sent to some health resort, where the above-mentioned care can be obtained, and not a little of the benefit thus derived is due to the change of surroundings, instead of to the climate itself.

Second: You had better keep your tuberculous patient at home, under your own care, no matter how unsatisfactory the climate, rather than send him to the best climate in the world and allow him to shift for himself. Every tuberculous patient requires medical care as much as a case of typhoid fever. Many cases of typhoid would recover without a physician, but that is no argument in favor of neglecting to furnish a typhoid patient medical attendance. The same holds good for tuberculosis. That the patient is without means to employ a physician is no excuse, because any doctor will take care of such an one free of charge if he has but a word from the family physician.

Third: Never send a patient to a health resort who has not sufficient means to support himself without work or worry for several months. Your patient would be better at home in a trying climate with the little luxuries and comforts that could perhaps be purchased, than to be sent to an ideal climate and not have sufficient means to live comfortably.

Fourth: Never send a tuberculous patient to the mountains with advice to "Get out in the open air and rough it." That advice is daily given to such patients and is daily killing them.

Fifth: Never send your tuberculous patient away with the idea that he has stomach trouble, bronchitis, throat trouble, or even weak lungs. Tell him he has tuberculosis of the lungs, that it is a preventable disease, and frequently curable if taken early and proper measures adopted. If you do that you will not scare your patient to death and you will prevent his hating you when he finds out the real trouble. It will also increase his chances of recovery fifty per cent.

Sixth: Never send a patient with fever to a resort without sending a nurse or attendant with him, because a fever patient should be in bed the same as a patient with pneumonia or any other febrile disease. Better still, keep your patient in bed at home until his temperature drops before sending him away. I have at the present time two patients with tuberculosis, one of whom has been in bed four months, and the other three months. They were both advanced cases with persistent fever. The temperature of one is now normal and he is taking carefully regulated exercise. The temperature of the other still persists and I shall keep him in bed till Christmas if necessary or until there seems to be no hope of recovery. These, of course, are extreme cases, and the temperature usually drops in from one to four weeks.

Seventh: Patients with the disease so far advanced as to be practically hopeless should not be sent away at all. Many cases are sent from home to whom the railroad journey and the separation from friends and home is a positive cruelty and only hastens the end. On the other hand, many advanced cases and cases with mixed infection find the trip to a health resort a means of prolonging their lives several years and enabling them to live in comparative comfort.

Eighth: If you have a patient who will not conform to discipline, or who is too lightminded to understand the serious nature of the disease and the necessity of a carefully regulated life, do not send him to an open health resort, but to a sanatorium where he will have to do as he is told, whether he wishes to or not, and whether or not he realizes the necessity of proper living.

And finally, I would say that in the fight against the great white plague, one of the most potent—perhaps I would not be far wrong if I said the most potent—of all factors is money. The old saying that "A rich man may recover from consumption, a poor man never," is no longer true, thanks to better means of diagnosis, better methods of treatment, and the aid of many State and charitable institutions; but, nevertheless, what is needed most is money—money for sanatoria and dispensaries for the poor, money for educational purposes, and money for the individual patient to carry him over the period of forced inactivity, and without which climate or the other aids will be of little avail.

References.

1. Knopf, Twentieth Century Practice of Medicine, p. 330, Vol. XX.
2. Weber, quoted by Knopf, Twentieth Century Practice of Medicine, p. 331, Vol. XX.
3. Sandwich, Lawrason Brown—Osler's Modern Medicine, Vol. III, p. 391.
4. Lawrason Brown—Osler's Modern Medicine, Vol. III, p. 392.
5. Burton Fanning—The Open Air Treatment of Pulmonary Tuberculosis, p. 159.
6. Latham—Diagnosis and Modern Treatment of Pulmonary Consumption, p. 167.
7. Report of the Committee on the Influence of Climate in Pulmonary Tuberculosis—before the National Association for the study and prevention of Tuberculosis, Washington, D. C., 1905.

Average daily temperature of Colfax, California.

Taken at 7 a. m. and 9 p. m. for a period of 3 years.

Taken at 2 p. m. for a period of 7 years.

Month	7 a. m.	2 p. m.	9 p. m.
Jan	42.5	52.7	45.9
Feb.	41.7	51.9	43.2
March	44.3	55.7	46.8
April	48.6	64.0	53.5
May	59.4	72.6	58.1
June	67.8	82.6	68.6
July	72.4	89.7	75.9
Aug.	71.8	89.2	74.1
Sept.	62.2	82.9	66.9
Oct.	55.0	73.9	59.5
Nov.	45.6	59.8	48.9
Dec.	42.3	53.9	45.2
Average	54.5	69.1	57.6

From readings taken each day at 2 p. m. from the dry and wet bulbs, calculated by aid of Glaisher's Table and Table of Tensions.

Mean Relative Humidity by Months for Colfax.

	Per ct.
January	60.4
February	67.8
March	61.1
April	51.8
May	53.1
June	32.3
July	28.4
August	24.9
September	30.9
October	34.4
November	57.4
December	69.5
Average	47.7

Rainfall during year, 44.425 inches.—Average, 47.062

From records in possession of Mr. Morris Lobner, S. P. Co.'s agent at Colfax.

Mean Temperature of Colfax, Taken at 2 p. m., for Months and Years.

Month.	1870	1871	1872	1873	1874	1875	1876	Avr.
Jan. ..	not obt'n'ble	55.6	54.0	57.9	49.9	51.9	47.1	52.7
Feb. ..	52.2	50.7	53.0	46.8	49.6	57.5	53.9	51.9
Mar. ..	52.3	56.5	58.4	63.6	48.6	56.5	54.3	55.7
Apr. ..	64.1	66.6	59.6	64.1	62.6	68.6	62.6	64.0
May ..	70.2	69.9	76.6	74.1	70.9	74.8	71.5	72.6
June ..	79.8	86.2	81.6	83.6	79.7	79.8	87.5	82.6
July ..	89.3	90.0	89.7	91.2	90.3	91.1	86.0	89.7
Aug. ..	87.1	94.9	92.1	89.7	85.3	89.5	85.9	89.2
Sept. .	79.4	85.0	82.4	85.7	84.0	84.9	79.5	82.9
Oct. ..	71.5	76.5	75.9	75.1	67.5	82.6	67.9	73.9
Nov. ..	61.5	58.2	60.8	66.5	56.2	55.7	not obt'n'ble	59.8
Dec. ..	52.4	55.0	56.6	46.9	55.6	57.0	not obt'n'ble	53.9

Average daily temp. at 2 p. m. for 7 years, 69.1.

Highest temp. in 7 years, 107.5—July, (2 p. m.)

Lowest temp. in 7 years, 32—Dec. (2 p. m.)

Number of times temp. reached 100 or over—26 times or 3.7 each year.

(From records in possession of Mr. M. Lobner, Colfax.)

Precipitation in Colfax.

Month	1870	1871	1872	1873	1874	1875	1876	Total	Average
Jan.	11.646	14.670	20.520	2.870	10.630	12.320	8.870	81.526	11.646
Feb.	8.450	3.145	13.680	9.620	5.720	0.190	6.800	47.605	6.801
Mar.	5.410	4.305	4.690	1.240	8.920	3.030	12.090	39.685	5.669
Apr.	5.100	4.030	3.400	1.810	3.430	0.000	3.230	21.000	3.000
May	.250	2.855	0.610	2.040	1.310	1.220	1.020	9.305	1.329
June	0.020	0.130	0.400	0.000	0.000	1.900	0.000	2.450	0.364
July	0.000	0.000	0.000	0.000	0.000	0.000	0.460	0.460	0.066
Aug.	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.020	0.003
Sept.	0.010	0.000	0.000	0.000	0.000	0.000	7.980	7.980	1.140
Oct.	1.210	0.620	0.520	0.580	3.360	0.950	1.207	8.447	1.207
Nov.	3.790	4.870	3.990	2.270	13.790	14.840	7.258	50.808	7.258
Dec.	7.435	9.800	10.460	15.640	1.120	7.100	8.592	60.147	8.592
Average	43.321	44.425	58.280	36.070	48.280	41.550	57.507	329.433	47.062

(From records in possession of Mr. Morris Lobner, S. P. Co.'s Agent at Colfax.)

Discussion.

Dr. Keys: There have been two points of which I want to speak, and one is the matter of not sending a patient to a resort with the idea of having him rough it, and the other thing is the matter of absolute rest for these tuberculous patients. I have just received a letter from a patient, unfortunately taken with tuberculosis, now in Switzerland, and he writes that the patients there are put to bed after a thorough examination, and are told that their clothing is locked up and that they will not be allowed to see it until their temperatures are within one-half a degree of normal. The main features of the treatment are food in plenty, an absolute out-of-doors life although in bed, and absolute rest. These things are essential to the tuberculous patient.

Dr. Peers, closing: In conclusion, I will cite one case, showing how some patients are wrongly sent to health resorts. A young fellow last fall came to my office with an advanced tuberculosis. He said that he had been sent from Pennsylvania, that he had no money except a few dollars, and that he had been sent away from Pennsylvania, where he could have been lodged in a free sanatorium and have been kept by the state, and where he could have recovered his health. He lived in my neighborhood a few weeks, when I told him that he would do just as well with his sister, where he could go to bed and have some attention. If this had been done in the first place it might have been sufficient. It shows you how some people place a blind reliance on climate and location, where really the change with the idea of roughing it and working their way, really means their death.

WAXED SILK AS A SUTURE.*

By C. E. THOMPSON, M. D., Dunsmuir.

I wish very briefly to present for your consideration a method of preparing silk which in my hands has proven highly satisfactory.

The value of waxed silk for suture purposes, was first brought to my attention about ten years ago by a brief statement in a medical journal, so I do not claim originality in this method; but as I have not found any other surgeon using such sutures as a routine nor have I heard the subject brought up in a society, I thought a few remarks regarding it might prove of interest and bring to your attention a very useful preparation in suture work.

The technic of waxing the silk is not of very great importance so long as the silk is perfectly sterile and is thoroughly saturated with sterile wax, the melting point of which is considerably above the temperature of the body.

My usual procedure is to drop the card of silk into boiling water to sterilize both the silk and card; they are then taken out, lightly dried on a towel and then dropped into a boiling mixture of equal parts of white wax and paraffin, containing one per cent each of carbolic acid and salicylic acid. I do not know that the acids are combined in the best proportions or that they are of any great importance in the wax but theoretically they ought to inhibit the development of any germs that might be in the silk or wax or in the tissues with which they are in contact.

In a perfectly sterile field of operation the wax alone might be less irritating, but in very few cases do we find ideal conditions and I have always added the acids on this account.

After boiling a few moments all the moisture contained in the silk and card are driven off and replaced by the wax, the card is then removed and, when cold, is placed in an envelope where it remains until wanted.

* Read before the Pacific Association of Railway Surgeons.