selves as deeply impressed with its value as a therapeutic agent.

Dr. F. C. Shattuck followed with an exceedingly interesting and scholarly paper upon the home treatment of consumption.

The morning session on the 28th was opened by a paper from Dr. Ch. Dennison of Denver, Col., upon a rule for the even division of climate. The ground was taken that dryness and elevation are the most important elements of climate in the treatment of consumption.

'The problem of acclimatization' was the title of a paper read by Dr. I. H. Platt of Brooklyn. The question of acclimatization, although a long-vexed one, had never been satisfactorily dealt with, partly, no doubt, because most of the discussion antedated the advances of recent years in the sciences of biology and anthropology, especially as developed by the great principle of evolution. Facts were adduced to show the perfect adaptation of races to climates widely differing from their own, and which are at first injurious to them. The acclimatization of the Spanish race in Peru, and of the French in Algiers, were cited as examples. The whole subject was but an application of the fundamental law of biology enunciated by Herbert Spencer, — that of adaptation to environment. In the adaptation of a race to new surroundings, the principle of natural selection would play an important part. And the author took the ground, that, even in the acclimatization of an individual, the same law would find application, as the protoplasmic elements of the body would be subject to it in their growth and development. The author called attention to the exceedingly complicated nature of the problems presented by the action of the many elements of climate upon the human organism, and the modifications and reactions effected therein, and the importance of their more thorough and systematic study.

The public session in the afternoon was opened by Dr. J. C. Wilson of Philadelphia, with a paper upon the climate of Florida; and Dr. Keating, also of Philadelphia, followed with a paper upon the same subject. Both gentlemen took substantially similar views, Dr. Keating dwelling principally upon the climate of southern central Florida. This region is characterized by sandy soil, pine woods, and continual sunshine. The climate is more equable than that of the northern portion of the state. The counties of Orange and Orlando are the most favorable spots. There are good hotels, fine drives, and all the facilities for comfortable living. The summer as well as the winter climate is desirable. The doctor much preferred the central portion of the peninsula to either coast as a health resort.

Dr. E. Darwin Hudson, jun., treated of the results of the home treatment of consumption, contrasted with those of changed residence and climate, and presented cases in his own experience in which he had obtained favorable results where, for some reason, change of climate was inadmissible.

'Hay-fever and allied affections' was the title of the contribution of Dr. F. H. Bosworth of New York. A brief sketch was presented of the history of the various theories in regard to the causation of hay-fever, — first, that it is caused by the pollen of ragweed and other plants; second, Dr. Beard's theory of a nervous tendency, which he claimed was hereditary; third, the theory of Dr. Daily of Pittsburgh, that it was caused by hypertrophy of the nasal mucous membrane. Neither of these elements alone is capable of producing the disease: it is the effect of all three acting together; and the removal of any one is sufficient to cure the disease. The most practical and radical method, however, is by attacking the hypertrophied mucous membrane. The doctor explained the action of the hypertrophied membrane in causing the disease by its tendency to cause partial occlusion of the anterior nasal passages, in consequence of which the effort of inspiration produces a rarefaction of the air behind the partially occluded portion of the passage, thus, by a process analogous to dry-cupping, producing turgescence of the local blood-vessels.

Dr. D. M. Cammann closed the proceedings with a history of the stethoscope, and the presentation of a modification of the Cammann stethoscope devised by himself.

A reception was given in the evening by the New-York members to the non-resident members. The papers read before the association will be published in full at an early date in the *New-York medical journal*.

The following officers were elected for the coming year. President, Dr. William Pepper of Philadelphia. First vice-president, Dr. Frank Donaldson, Baltimore. Second vice-president, Dr. Beverly Robinson, New York. Secretary and treasurer, Dr. J. B. Walker of Philadelphia. Council, Dr. E. D. Hudson, jun., New York; Dr. E. T. Bruen, Philadelphia; Dr. J. H. Tindale, New York; Dr. J. C. Wilson, Philadelphia; Dr. F. H. Bosworth, New York.

CURVED BACILLI IN AIR AND WATER.

MR. J. HERICOURT (*Comptes rendus*, 1885, p. 1027) gives some interesting results of his investigations on the nature of curved bacilli, and their presence in the atmosphere. The researches were made during the recent cholera epidemic; and the following are his results: —

1°. In all water, no matter what its source (spring-water, from cisterns, running, or stagnant), there are curved bacilli of varying form and size, among which those of the same type as the cholera bacillus are constantly found.

Of the various waters examined, some were taken from localities absolutely free from cholera; others were examined very lately, when the disease no longer existed; and most of them were used for drinking-purposes, and were of perfect quality.

2°. The constant presence of these micro-organisms in all kinds of water can only be explained by supposing the existence of their germs in the air; and to test this, atmospheric dust was collected from dif-

ferent places, as from gardens, rooms, barracks, sick-chambers, stables, and out-houses. With this dust was sown neutral *bouillon* sterilized by heat, and cooked potato, with the result of finding many curved bacilli in all the cultures.

3°. The curved bacilli do not exist in their characteristic form in 'atmospheric dust:' they are there present in the germ or spore condition. In fact, if this 'dust' be examined immediately after dilution with sterilized distilled water, very few curved bacilli can be made out; and these are hardly recognizable as such, being changed in appearance by the development of one or more spores at their ends, or somewhere in the middle of the rod. This sort of change is precisely what is seen in cultures. If what happens in these drops of diluted dust be observed from day to day, the number of curved bacilli will be seen to vastly increase until the third or fourth day, when the spore formation recommences.

4°. The presence of curved bacilli in water, and of their spores in the air, furnishes a sufficient explanation of the presence of these organisms wherever air or water can penetrate.

Intestinal dejections in simple diarrhoea, as well as in dysentery and typhoid-fever, broncho-pulmonary secretions in all diseases of the lungs, from simple catarrh to advanced tuberculosis, pus exposed to the air, the saliva of a sick or well man, — all substances, in fact, which can nourish the germs of bacteria, contain the curved bacilli, and oftentimes in much greater number than the other bacteria, which are also found in such culture-media. The mud of the streets, made up of dust and water, can also be considered to be a favorable medium in which they are numerous and active.

5°. These micro-organisms are decidedly *aérobie*, and only flourish on the surface of liquids. They are mobile, moving with the rapid oscillations of vibrios, and very refractive. They are easily colored by methyl violet in watery solution, and, thus stained, show all the described forms, — commas, curves, omega, S, spirals, etc. In general, they are from one-half to two-thirds as long as the bacillus of tuberculosis, but are thicker and less regular than these: in fact, no peculiarity of form or staining distinguishes them from the bacilli found in cholera dejecta. Sowing the *bouillon* with dust proves that the spores, whose formation was observed as above, are their *resting* stage: moisture seems to be the condition indispensable to their perfect development.

6°. Collected first on *bouillon* or cooked potato, and then cultivated on nutrient gelatine, these curved bacilli form rounded colonies with serrated edges composed of highly refractive granules. These colonies, kept at 20°–22° C., grow in the gelatine, and liquefy it, finally producing a colony of the shape of a glove-finger.

7°. Until conclusive inoculation experiments shall be made, proving the pathogenic properties of the curved bacillus of cholera, the conclusion to be reached is, that these latter are the same as are found in all secretions, normal or pathological, provided these have come in contact with water, which is the normal habitat of curved bacilli, or with air, which furnishes transportation for the germs.

[These experiments are exceedingly interesting, but no proof is offered to show the exact correspondence of the curved bacilli spoken of, with those of cholera. Johne's work (*Science*, June 5, 1885) speaks of the distinctive difference between Koch's comma bacillus and that of Finkler and Prior; and this latter will answer to all of the description given by Hericourt of the curved bacilli he has observed.]

HYPODERMIC INJECTION OF CULTURES OF CURVED BACILLI.

IN a paper on the effects produced in man and animals by the ingestion and hypodermic injection of cultures of the bacteria of choleraic diarrhoea (*Comptes rendus*, 1885, 1148), are given some interesting results obtained by Bochefontaine in experiments made with cultures obtained from choleraic diarrhoea in peptonized gelatine.

The first generations were found to liquefy the gelatine with a cup-shaped depression terminated by a deep point. None of the cultures contained the curved bacillus alone; but always, and in greater number than this, were found rods or spirilla fully developed. There were never found in the cultures the very short, rapidly moving bacteria which filled the watery discharges in cholera. Every successive generation showed an increase in the number of the simple curved bacilli.

I. The author has on four different occasions swallowed pure cultures of the curved bacillus of the third and fourth generation without ill effect.

II. Two adult guinea-pigs were inoculated in the flank with a fourth of a centimetre of a mixture of equal parts of water and gelatine containing the culture: both were found dead the next morning. The autopsy showed great effusion on the inoculated side and opposite abdominal wall, with nothing in the internal organs. Two other guinea-pigs were inoculated with an eighth of a centimetre of the same mixture, and the smaller one died in twenty-four hours, with appearances similar to the first two. The second showed no symptoms. Microscopic examination of the blood of the three dead animals showed nothing. The same injection was made in two larger guinea-pigs, with no result.

III. The experimenter injected three-fourths of a centimetre of the mixture under the skin of his left fore-arm, with the result of much oedematous swelling and some pain, with deep fluctuation in the region of the puncture, three days afterwards. Black blood obtained from this point showed no bacteria, either microscopically or upon cultivation.

The inferences that the writer draws are, that the ingestion of the cholera microbes produces no unpleasant symptoms; that their hypodermic injection will produce local symptoms if in sufficiently large dose; and that the blood of man and animals under normal conditions will destroy cultures of the bacteria of choleraic diarrhoea.