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For over a year I have treated syphilis by the intramuscular injection of salicylate of mercury, with very satisfactory results. The details, as advocated by Dr. Gottheil, have been followed in nearly every particular. The salicylate is suspended in sterilized albolene, and the injection given in the gluteal region, on the average every week for two or three months, and subsequently less frequent. The dose of salicylate given is one-half to one grain, but in exceptional cases this may be considerably increased and given at shorter intervals.

The patient is kept more under control by this method of treatment and is not inconvenienced by the necessity of swallowing drugs. The benzoate and lactate are other salts of mercury likewise advocated for subcutaneous injection.

References—Julien, International Clinics, Volume IV, Thirteenth Series; Gottheil, Volume III, Fourteenth Series.

ATMOSPHERIC HUMIDITY IN RELATION TO HEALTH.

By A. P. REID, M. D., L. R. C. P., Etc., Provincial Health Officer, Middleton, N. S.

(Read at meeting of Canadian Medical Asssociation, Halifax, August, 1905.)

A WANT of definiteness in the ideas that prevail on this subject must be my excuse for introducing this paper to your notice.

Trusting to your forbearance, and in order to prevent repetition and argument, I will mention a few physical laws.

First:—The capacity of the atmosphere to retain or absorb vapor of water at the freezing point is practically nil; with increase of temperature is increased ability to retain vapor, which goes on in an expanding ratio, so that at 80° F. it can absorb a very large amount. It is like a sponge with water; compressed it may be nearly dry, but as it expands it can absorb proportionally. Increasing the temperature of the air increases its absorptive capacity, and conversely lowering the temperature diminishes it, hence we have what is called the dew-point, which varies owing to the temperature, and the humidity or amount of vapor in the air.

Second:—Normal humidity generally runs from 60% to 70%, marked divergence from which is apt to cause a feeling of depression and a tendency to disease. In the open air the normal condition generally prevails, because as the temperature rises and falls so does the humidity. An artificial atmosphere, unless special provision be made, has not this power to correct abnormality. Hence outside air is esteemed healthful and the confined air of the house is often the reverse. There are of course other contributory agencies such as dust, but dust may be, and often is very plentiful outside, and the microbes are also very evenly distributed be it winter or summer.

Third:—The vital processes generate a superabundance of heat and this must be dissipated, and the chief agency in carrying this out is the insensible evaporation of water (which becomes sensible when there is an excessive demand for this function), because the conversion of water into vapor absorbs a great amount of heat. The surface of the skin and the moist surface of the mucous membrane of the air passages are the chief means for the removal of this extra heat. By our clothing we can and do modify the influence of the skin, but we cannot so modify the function of the mucous membrane. The work it does is more pronounced than that of the skin owing to the great extent of its surface and of the moisture with which it is always covered, *hence it is easy to perceive that anything which interferes with or modifies this function may pro rata interfere with health. Either by debilitating the sytsem from the greater demand on its vitality, giving rise to various forms of malaise, or if there be a contagious element present it may find a fitting nidus for its growth, the debilitated system being unable to counteract its malevolence.*

Fourth:—Temperature (per se) is not a cause of disease, for perfect health is consistent (with an open air residence) from the heat of the tropics to the cold of the arctics, and this even with undue exposure as well as starvation.

There is reason to believe that respiratory diseases are not only more rife but more severe than formerly.

The winter season, which used to be inimical to the aged and weakly, is now almost as much so to the young and vigorous, pneumonia in the larger cities increasing as the cold weather develops, and decreasing as the season opens out to summer.

The costly residence with all the modern improvements and sanitary mechanisms, I think I am justified in saying, has not less but more sickness amongst its inmates than the old fashioned domicile with many insanitary surroundings, poorly heated, and with no ventilation except what gets in by leaky doors and windows and a big fireplace; where flakes of snow can settle down on the restless sleeper; and where cold draughts play in every corner.

Were I to ask what causes the common cold (not of a serious character), which few people pass a winter without suffering from more or less, the response would be more in what it did not say than what it did. Germs floating in the air, attacking a person debilitated from some cause (for the

germs are always present more or less), would be the most appropriate answer. But why is a person in good ordinary health attacked when there is no sufficient reason apparent?

In the normal atmosphere, whether cold or warm, wet or dry, under excessive fatigue alone, or with hunger added, with wet feet or chills, and with the germs as usual in the atmosphere, disease may not be contracted by a party so exposed even when he may be debilitated in various ways.

What can be the explanation for these contradictory conditions? Evidently the cause must be one that is very generally distributed, which acting in conjunction with others can thus initiate disease.

Respiratory diseases are by far the most common, and I think there can be included amongst these not only the ordinary ones affecting the lungs, bronchi, larynx, throat and nose, but measles, scarlet fever, small-pox, chicken-pox, and even typhoid fever, as the bronchial mucous membrane is likely to be involved in all these affections. Bearing these facts in mind it does not seem to be a far stretch of the imagination to assume that some cause acting on this membrane may be a determining cause. Temperature may be excluded as only contributory, and reasoning by exclusion, *atmospheric humidity*.

To understand how atmospheric humidity may be a determining cause, let us consider the subject. By clothing we adjust ourselves to the external temperature, but the very large evaporating surface of the respiratory mucous membrane is not in the same way under our control, and an abnormal condition of the atmosphere means that the vital powers are unduly taxed to make up the difference, and when this point has been overreached, and if any seeds of disease be present, then is the system unable to overcome the cause of disease and the malady supervenes. It is not difficult to conceive that a dry atmosphere is avid of moisture and an increased evaporation of water from the mucous membrane would lower the temperature unduly, and the system is called on to make up the difference in some other and not so easy a way; hence if this condition act for too long a time, disease results.

Assume the converse, a too humid atmosphere; then water will not evaporate from the moist membrane in sufficient quantity to low the temperature and lassitude very rapidly supervenes, and we complain of the close "muggy" atmosphere. In the acute form it gives rise to heat prostration and in a milder form to some of the other diseases that affect the debilitated.

It means also that a moist atmosphere at 60° F. or 70° F. feels warmer than a dry atmosphere at 80° F., or put in a more practical shape a normal 60% or 70% of humidity feels at 60° F. more comfortably warm than 75° F. or 80°F.

if abnormally dry. *This fact is very generally overlooked in the warming and ventilation of the modern house.*

If the above facts be correctly interpreted it means that, in our houses, halls, schools, churches and work-rooms, the hygrometer is necessary and the thermometer is rather ornamental than useful, because our ordinary sensations are as good guide as any as to the temperature. What form of hygrometer to use is a question?

The wet and dry bulb thermometer is the best, but it requires some attention and a little skill to read it aright. What is wanted is something that is easily interpreted and that will require no attention, and I have been working for some time on this subject, with a fair practical result. The effect of moisture on the chloride of cobalt is well known and often made use of under the name of a "barometer." There are many formulae used in making this indicator. The following I have found to be very satisfactory:

Calcium chloride,	34	parts.
Sodium chloride	15	"
Cobalt chloride	30	"
Gum Arabic	9	"
Water	90	"

Dissolve carefully, and then soak thin white muslin in it and wring as dry as possible, then hang up and allow to dry, then cut into convenient strips for use. When moist it is *pink or red*, and when dry it is *blue*. An atmosphere of 70% humidity or over gives a *reddish* shade, one 60% humidity or under a *blue* shade, so that a normal atmospheric moisture will give a *greyish* or *neutral tint*, neither red nor blue. Little strips of this muslin (like strips of test paper) can be hung up in all the rooms and halls and they will give most reliable information.

Paper can be used in place of muslin, but I do not think it is as good and it will not bear as much handling.

The next question is not so readily disposed of. With the ordinary means of heating, how are we to get the normal humidity? All the heating systems claim to supply this want, but there is no sufficient means of knowing whether they do or not. It is a sort of "hit or miss," without any system. A tank or reservoir is a part of the furnace which is supposed to be kept full of water; generally, however, it is dry or has a fitful supply, and there is no index to give notice when it is empty or whether it is properly performing its duty. Again, assume that it is working, how are we to know that it is right?

The whole thing looks like a "sop to Cerberus" (science), and so it goes, until the slaughter of the innocents causes investigation.

It would take much more water to supply our heating systems with sufficient moisture than is generally supposed; at least such is my experience. By accident I constructed better than I knew.

In putting in a heating system in my house I had to go down into the ground to get sufficient draught, so much so that the floor of the hot-air chamber was not only moist, but frequently had water in it. The floor was 18 x 6 feet, a very large evaporating surface. I also noticed that the hygrometer was nearly at the normal all the time.

Direct Radiation:—Let us consider some of our heating systems.

Hot Water:—Good for raising the temperature in the room, but the supply of moisture or fresh air is a matter of chance.

Steam Heat:—If distributed in the same way, has same defects.

Hot Air Furnace:—This is theoretically good, because it brings in fresh air, but there is not sufficient provision for moisture, and the air is apt to be heated too hot—to be dry, and harsh.

The Grate and Fire Place:—From a sanitary point of view are fairly good but comparatively a failure economically, and not efficient.

Indirect Radiation:—Theoretically good but practically no sufficient means are taken to add sufficient moisture so that there is a so called *burnt condition* of the air, similar to, but not so marked as in the hot air furnace system.

That we may try to understand what is meant by normal humidity, let us assume that we take air at 40° F. and normal, let it be raised to 70° F. it has only the moisture of 40°, and barely contains half of what would be normal at 70°, and this difference becomes greater as we go below 40° or above 70°. It is not to be wondered at that there is an increase of pneumonia and respiratory diseases, with our modern systems of heating, tight houses, and figurative ventilation

The method of heating is good, but it is in a crude and undeveloped form, due, I think, in part to the fact that hazy ideas prevailed and yet prevail as to the object which is to be attained.

The conditions referred to are really the offspring of a higher civilization and a more dense population, and there is no reason why we should not have as good sanitary conditions along with the increased comforts of living, as are obtainable with sparse populations, did we make practical our present knowledge. In the present war Japan has demonstrated to the world that the careful practice of our present sanitary information gives astonishing results. Working on the same lines our homes, schools, and work-rooms should be nearly as healthy as if they were in the open air.

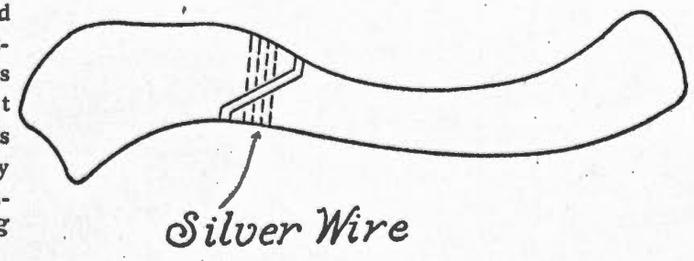
RECENT FRACTURE OF THE CLAVICLE WITH OPERATIVE TREATMENT.

Case Report by J. W. T. PATTON, M. D.,
Truro N. S.

(Read before Canadian Medical Association, Halifax, August, 1905.)

THE rarity of operative treatment of recent fracture of the clavicle, and the highly successful result obtained in a case so treated, is my excuse for reporting the following case :—

On September 1st, 1904, J. K. C., æt 56, consulted me for injury received that morning. While harnessing a horse in the barn he was jammed against the side of the stall by the animal, the point of the shoulder striking the wall. Upon examination, a fracture of the right clavicle was readily determined, the fractured ends overlapping. The patient was a large muscular man, and reduction of the fragments and maintenance of reduction was performed with much difficulty. Feeling certain that the fracture was an oblique one, and that reduction could be maintained with great difficulty, with probably considerable deformity and impairment of function, the question of operation was discussed with the patient and it met with his approval. Under chloroform, the fracture was exposed, and as suspected, it was somewhat oblique, as shown by the accompanying diagram.



The fragments were adjusted and held in place by encircling them with two or three strands of silver wire. The operation wound was closed with silk-worm gut sutures and the arm fixed to the chest by a Velpeau bandage. Recovery was uninterrupted and rapid. The sutures were removed on the fourth day and the bandage was replaced and maintained for two weeks more, after which the arm was kept in a sling for another week.

The subsequent history was uneventful. The patient began slight movements of the arm after the bandage was removed, and these he gradually increased. In response to enquiry regarding the condition of his shoulder, the patient always replied, "My arm feels better and stronger every day." The last enquiry a few weeks ago elicited the response, "I can't tell any difference from the other arm."

It might be questioned whether it were wise thus to convert a simple into a compound fracture. In considering the subject pro and con, I