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PAPER BY H. J. KANNAL

"The Veterinarian and His Relation to the Farmer," Read Before

THE JASPER COUNTY FARMERS INSTITUTE

Held at the Court House in Rensselaer, Wednesday and Thursday, Jan. 30 and 31, 1895.

FULL OF HISTORICAL INTEREST.

In the Art Gallery of the late Columbian Exposition, where the muses held their court and were treated in stone, bronze and oil, there was one statue more weird, more impressive and more startling than all. The Hippocentaur—half man and half horse.

It faced a main entrance through which surged the populace for several months. From many, it received scarce a glance.

Some looked and smiled, others frowned. But as the eyes of the intelligent student of mythology swept its massive outline and his mind conjured up the physical and mental possibilities of the combination, the profoundness of the old Grecian philosopher transfixed and startled him.

It is the commonest figure in Grecian art. The Athenian master made it his triumph. It was the inspiration of the novice, the embodiment of a strange fable, you may say, the result of ideal fancy or barbaric imagination.

No, ladies and gentlemen, Grecian art is too comprehensive. Mythology is not crude, but profound. Its figures which have been carried down through ages and embodied in stone, in painting and in song, are not the result of ideal fancy, but are the result of philosophic and penetrating minds. These old philosophers recognized the horse as man's best friend, and the first subjugation of nature and nature's forces they ascribed to a combination of the two—hence the figure.

The combined efforts of all the writers and orators of the century could not pay a grander tribute or draw a more impressive delineation of the mutual dependence, the mutual fealty, existing between man and horse. Of marvelous fertility were the minds of this race. They were skilled in the art and the sciences, and practiced medicine with marvelous results.

A descendant of the race, Chiron of Thessaly, achieved a reputation for the successful treatment of various ailments of equines, that was limited by the then existing bounds of civilization.

Tradition states, and is supported indisputably by the historical records we have of that time, that Æsculapius journeyed to Chiron and induced him to become his tutor. Therefore the founder of the modern school of medicine, the patron saint of our brother M. D., had for his preceptor a Veterinarian.

Ladies and gentlemen, we claim priority; we are the originators, the fountain head of the science of application of remedial agents for the alleviation of disease.

Following Chiron of Thessaly, came Eritheus, a young Greek, who achieved considerable reputation in the treatment of equine disorders. Xenophon, Limonides, of Athens, Varro, Columella, and others were students of the art of practitioners and authors who have left us records of their experiences. Magus, a Carthaginian, about 400 years B. C., collected, recompiled and published their works in twenty-eight volumes. Hippocrates, who lived about this time, is considered the ablest of early authors, and is to-day referred to as the father of medicine.

He devoted his works equally to man and horse, and it may be a matter of interest to some to know that the literal meaning of his name is horse force. Really it is a matter of difficulty to separate the early history of the medical profession from man's best friend.

Three hundred years after Christ, the works of previous authors were again revised by Vegetius, another Greek disciple

of Chiron. The decline of Athens and the social and intellectual supremacy of Rome which followed, naturally transported the profession westward, and proud and honored was the position occupied by the veterinarian.

His rank in the Roman army was recognized and the foremost titles and honors of the land were conferred upon him. Not in Rome alone was the veterinarian appreciated, the Merovingian kings of France conferred upon their veterinarians the highest rank in the land, viz: that of "Constable," while the Normans conferred that of "Marshal." There accompanied William I to England, a family highly skilled in the healing art as applied to the equine, and he held them in such appreciation as to create for them the present title of "Farriers."

But henceforth for several hundred years the horizon of the veterinary profession assumed a very sombre tint. No sparkling star of intelligence served to illuminate its background. It seemed as if the mass of superstitious rubbish which had attracted itself to it like barnacles, would eventually unglue it. But the good endureth, and Phoenix-like, out of ashes of ignorance and superstition the profession has once more sprung with advancing steps, greater than ever displayed by any other, until once more, to-day it holds in the minds of the intelligent portion of the public, the proud position it occupied in the days of Aristotle and Alexander. I submit to you, gentleman: Can the public, in the face of so old and honored a history, apply to a profession so noble in its imports and designs, the disapprobative term of "a horse doctor"? Mythology, tradition, legend, history, past and present, and the prophecies of the future, lead in a manner which cannot fail to impress the bluntest perceptions with the grand mutual co-operative obligation existing between man and horse, their inseparable fealty and mutual dependence.

"If God created man, the horse was created next to him," said William I, as he viewed the bloody field of Hastings; the victory being due to his Norman horsemen. "Gone to the dogs," is a very common expression and we will admit that men have gone there; but the fact is self evident that the dog has not become contaminated by the association, but remains to-day, the personification of courage, faithfulness, sterling integrity and honor.

The Story of a Campaign.

Willis J. Abbot, the political editor of the Chicago Times, who is recognized by his fellow journalists as one of the ablest and cleverest political writers in the country, whether one is in sympathy with his views or not, tells the story of the populist campaign in Chicago in the *Arena* for February. Mr. Abbot had the advantage all through the campaign of last autumn of being in touch with the leaders of the different elements that are gradually forming a new party, with new social and economic aims in American politics, and his paper has value for all those who want to get at the facts regardless of dominating prejudices. Even the opponents of every sort of change in the political phases of the country should study this paper, in order to estimate the potency of this new political sentiment that is in the air—and is not peculiar to America, but is seizing upon the heart and brain of the whole great western world.

Nearly all contagious diseases are transmissible from animal to man, and here the veterinarian stands as a safe-guard to public health, seeking out, isolating and checking the ravages of disorders of the most dangerous types.

Legislative action is now being taken by several of the states aiming at complete and thorough veterinary inspection of all animal food and dairy products, so that without encroaching upon the honored position of the physician as the alleviator of disease, we will still be given opportunity to demonstrate our ability as preventors. The late Mr. Charles Darwin in his great work, "The Descent of Man," delineates with wonderful accuracy the similarities of many of the attributes, actions, fancies, lives and dispositions of man and the brute creation.

Sympathy and its twin brother, the humanitarian sentiment, are in his opinion, the highest

attributes of the human family, that which chiefly distinguishes us from the lower animals. If this be so, let us cultivate, cherish and guard religiously the attribute, and as civilization and the race advances we can confidently look forward to the time when the sick and injured animal will be treated with the same care and by as intelligent physicians as the sick man.

Twenty millions of dollars is a low estimate of the value of live stock in this country. In fact it is a matter of great difficulty for the mind to comprehend the vast amount of money the people of this country have invested in this interest. The men controlling most of this vast wealth are the farmers. You are the ones most interested in the work of the veterinarian.

If some devastating plague or contagious disease breaks out in your herd it may not only cause the loss of many valuable animals, but it injures the market value of those remaining. You all know the market value of a beef affected with actinomycosis (or lumpy-jaw). And are you aware that many cases of the dreaded disease consumption are caused by the use of milk from cows affected with tuberculosis. How many of you can say that your own herd of milk cows are free from this disease, as it may be present and the animal seem in perfect health. The farmers should put their shoulder to the load and give their united support to the framing of laws to rid the United States of such dangerous diseases. The veterinarian can't accomplish this without your aid.

The Bureau of Animal Industry protects you in foreign markets by placing at all packing houses, veterinary inspectors, but how about the meat and dairy products sold in towns the size of Rensselaer. No one guards against the sale of diseased meat or dairy products in cities of less than 10,000 inhabitants.

You are the breeders and sellers of these products and it rests to a great extent with you to remedy this danger to human life. The veterinarian must have your support to gain the desired end.

From an aspect purely financial, irrespective of any human duties, the men who guard this vast wealth from dangerous and devastating plagues and diseases, as well as ministers to the animal scientifically, should have your respectful assistance in all movements directed toward your own and the public's benefit.

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PROF. A. H. PURDUE

Principal of the Rensselaer High School, Presents a Thoroughly Interesting

SCIENTIFIC PAPER IN COMMON WORDS.

That is of Inestimable Value to the Progressive Farmer Who Uses Both Brain and Brawn.

"ORIGIN OF SOIL."

To those who are interested in the greatest possible development of the natural resources of our state, the movement on foot to improve its present methods of farming and all that pertains thereto, is extremely gratifying. In a very large degree, the present prosperity of our country as well as its future condition, depends upon the manner in which farming is carried on. The mines yield to man their rich treasures of both the precious and the useful metals, the seas in abundance produce their fishes, but the race always has, and of necessity always will, depend for its existence and progress in civilization mainly upon the products of the soil. The soil produces plants which the animal feeds upon, and man depends for food, clothing, and shelter upon both plants and animals. The clothing upon our bodies, the shoes upon our feet, the shingles of the roof, the brick of the hearth, the bread upon the table, and the plates we eat from; all these and thousands of other things, come either directly or indirectly from the soil. What a heritage the soil is to us, and how it devolves upon us to see to it that the wanton manner in which it has in many cases been thoughtlessly destroyed by our fathers be, substituted by such methods of agriculture as will constantly improve it!

The most comprehensive knowledge of the treatment of soils, whether it be to cause them to yield their largest crops or for their preservation, includes some notion at least of their origin. This is the apology I offer, if any is necessary, for addressing you as farmers upon the subject of origin and nature of soils.

The term soil as I shall use it includes all that portion of the land areas that is not solid rock. It will readily be seen that in this sense it embraces a great variety of material, such as sand, clay, hardpan, etc. As you know, these materials at their greatest depth reach only a few hundred feet from its surface; and when we consider the great size of the earth, we readily see that the soil forms only a thin covering of the continents. But however small the amount of soil as compared with the solid portion of the earth, it is found almost everywhere on land areas.

Small surfaces exposed to stormy winds or swift waters are sometimes destitute of soil, as are also steep mountain slopes and limited areas from which moving ice has scraped it away.

Because of the fact that the soil is so widely distributed, it usually escapes our notice except when we happen in those localities when there is none of it to be seen. This universal distribution of the soil is no matter of chance, nor has it always existed as we now know it, or come into this existence by any agency acting suddenly, but is the result of thousands, nay I may say millions of years, of the slow but sure work of many of nature's forces.

With the exception of the relatively small amount of material produced from the decay of plants and animals, all soil material has originated from the breaking up of rock. Granting this to be true, it is plain that the character of the soil, (that is whether it is sandy, clayey, or limey, etc.) of any locality, depends upon the kind of rock from which it was formed.

Sandstone alone, when disintegrated, forms a sandy soil; limestone a limey soil; shales a clayey soil. We often find beds of sandstone and limestone overlying each other. In cases of this kind the disintegration of both together, forms a mixed soil of lime and sand. Beds of

sandstone, limestone, and shale, may overlie each other on a hillside and disintegrate and be carried to the low ground below, forming a mixed soil of lime, sand, and clay.

Without stopping to consider how the vast amount and great variety of rock of the continents was formed and came to be where it is, let us take it as we find it, and proceed to notice some of the ways in which it has been, and is being, changed from its solid form to tillable land.

You have all observed in passing through railroad cuts, in digging wells and cellars, and in making other excavations, that there is often a gradual transition from the soil at the top, through rotten, broken rock that can be easily worked with the pick and shovel, to hard rock beneath. Frequently in such cases as this a careful examination will show without doubt that what is now soil was once stone, and that the soil has been produced by the rotting, so to speak, of the stone. Observation will also prove to us that in such cases the process of soil formation is not only a thing of the past, but that it is now slowly but none the less surely going on.

In cases of this kind, if the rock lies in such a position as not to permit of "washing," the soil remains where it was formed; but if the rock be on a slope, the soil is liable to be carried away by the rains as fast as formed, to the bottom lands below, or to streams, by which it may be carried long distances before it is dropped. In this way, the flood plains of our rivers, both large and small, are composed of material brought together from very distant parts. For example, any acre of land in Indiana subject to the annual overflow of the Ohio river, may be, and doubtless is, composed of material from Kentucky, Ohio, West Virginia, and Pennsylvania. Likewise, the soil at New Orleans, La., is composed of material from every state and territory between the Rocky Mountains and the Appalachian Mountains, brought down by the Mississippi and its tributaries. Remembering what was said above, we see that the soil at New Orleans originated from the rocks of Montana, Colorado, Tennessee, New York, and all the other states of the Mississippi Valley.

The process of the slow decomposition of rock can be seen also in old stone quarries that have for a long time been abandoned, in the foundations of buildings, stone steps, steep cliffs, in fact in all places where rock is exposed to the weather. This decay is sometimes comparatively rapid, and sometimes very slow, depending largely upon the character of the stone, but it is only a question of time when the most durable stone, exposed to the weather, will be broken up and scattered as the sands of the sea.

But it is not alone by the process of "rotting" that stones are changed to soil. Though this immediate locality is not a fit place for observing it, none of you have failed to notice in other localities where the streams are swifter than here, the large amount of gravel carried by the streams. This gravel, which now has round, smooth surfaces, consisted of angular pieces of stone. When picked up by the water, these sharp cornered pieces of stone have been rolled along the bed of the stream and knocked against each other until their corners have worn off to the present form.

Much of this gravel will continue to wear till it finally entirely disappears. Meanwhile, each grain of sand, as it is worn from the pebble, is picked up by the stream and carried to quiet water somewhere along its course and dropped, where it contributes its mite to the formation of soil. When we consider the great amount of this kind of work almost everywhere being done by streams, we realize that the quantity of soil each year produced in this way must be enormous; and when we remember that this work has continued through the tens of thousands of years that have passed, we must admit that a very large portion of our soil has been

formed by the grinding up of rock by streams.

Another manner in which rock is worn away, though of little importance in this locality, is by wind action. This is noticeable in the western states where there are strong winds and but little vegetation to hold the sand. In such places the strong winds pick up the loose sand and dash it with great force against the exposed faces of rocks and cliffs, in that way rapidly wearing them off. This, continued through past ages has had much to do with producing the western soils.

Let us consider another agency, formerly very active in this locality, by which rock is ground to sand, viz., the glacier. In any region where more snow falls during the winter than melts during the summer season, there is necessarily an accumulation of that material. Each year it becomes deeper, and would eventually reach a very great height, did not the force of gravity, acting upon it as upon all other matter, pull it down to a lower level. As each year's snowfall adds its weight to the highest part, the pressure from that point in all directions produces an actual, though slow movement of the snow (which has become compressed into ice) from the high level to a lower one. This moving body of ice, we call a glacier. It is plain to be seen that a mass of ice of very great depth, moving in this way, would act as a scraper, and gather up all loose material along its route, such as soil, gravel and loose stone, and would shove this material along in front of, and beneath it. The material at the base of the ice, consisting of angular stones, gravel, sand, etc., in passing over beds of rocks, would wear them off and grind them into sand. This sand would be pushed along with the boulders, gravel, and other debris, to the edge of the glacier where all of the material would be dropped by the melting ice. The deposition of material along the edge of the glacier, continued through a long period of time, would result in a ridge. An example of this kind of work is seen in the ridge which runs in a north-easterly direction across Jasper county a mile and a half north of this place. While the glacier is building up at one place, it is scooping out in another, in that way producing depressions, which after its disappearance becomes swamps and lakes.

Now it is known that during a former period of the earth's history, a large body of ice with one of its centers north of the Great Lakes, covered a large portion of North America. From its center this body of ice moved southward, covering Michigan, a large portion of Ohio, most of Indiana and Illinois, much of the territory west of the Mississippi, and New England states. In places, this great ice sea is said to have been two miles thick. It doubtless continued for a very long time, so that the rock beneath, in many places, may have had hundreds of feet worn off. Evidence of this wearing is found in different parts of Jasper county, where the surface of the rock is worn off smooth, and is as level as a floor. It is not at all improbable that a large portion of the sand of this locality owes its origin to this grinding away of the rock during the glacial period. As the ice melted and disappeared, the rock and other material with which it was loaded, were dropped and left scattered over the surface. This, as you know, accounts for the great number of boulders in parts of this county and the state. These boulders disintegrating, add their material to the soil. It is thus seen that glaciers, as well as rivers, are great agents in the distribution of soil material to distant parts.

Another agent in rock disintegration is frost. Every one knows that the expansive force of water in freezing is very great. A small amount of water left in a strong iron pipe, will in freezing, burst it. All rock is more or less porous, and so contains water. This water, in freezing, will break the rock up. It may be that only a very small portion of the outside will be broken off

(Continue on Eighth Page.)

Albert Overton visited friends in Battle Ground, last Sunday.