of the horse without expressing my regret that the health of this useful and precious animal is at the present time abandoned to the care, and to the often blind practice, of uneducated and ignorant persons. That department of medicine which the ancients called *veterinary* medicine, is now scarcely known, except by name. I believe, if some medical man were to turn his attention to this subject, and devote himself chiefly to it, he would soon be amply recompensed, and that he would not only acquire wealth, but, instead of being lowered in his profession, would become illustrious.

"This branch of the healing art would not be so difficult nor so dependent on conjecture as human medicine; for, since the food, the habits, the effects of the mind, in short, all acting causes, are more simple among the lower animals than with man, the derangements of their health should be less complicated, and consequently easier to diagnose, and to treat successfully. We must also take into account the great freedom with which we can make experiments, try new remedies, and thus acquire, without causing ourselves great anxiety, and without incurring odium, a large fund of this kind of knowledge, from which, in the way of analogy, we might draw conclusions useful even in human medicine."

The high authority of Buffon, and the zealous exertions of some of his cotemporaries, were much aided toward the attainment of the desired end by the great mortality among cattle which occurred during his time; and in the year 1761, a veterinary school was founded at Lyons, at the head of which was placed Bourgelat, a name celebrated in the history of veterinary medicine. In 1766 another school was opened at Alfort, not far from Paris, which, in the course of time, became a most useful and flourishing institution. Perhaps no better idea could be given of the condition and management of such schools in France, than to quote some passages from the account of the one at Alfort, by Mr. H. Colman, who visited Europe in 1843 for the purpose of examining the state of agriculture and agricultural institutions.

"This establishment is beautifully situated on the river Seine, near the village of Charenton, about six miles from Paris.

"The buildings for the different objects of the institution are spacious and well-contrived, and the grounds sufficiently extensive and judiciously arranged. Like other governmental establishments in France which have come under my observation, the institution is upon a grand scale, and complete in all its parts. The government of France, in a liberal manner, avails itself of the talents of the most competent men in every department, and of all the advantages which science and art can afford; and it spares no expense in the perfect execution of whatever it undertakes. It adds to all this, as is everywhere to be seen, a refinement of taste in the arrangement of the most ordinary subjects, which increases the expense only in a small degree, and which does not abstract at all from the solidity and substantial character of the work itself; but relieves that which would otherwise be monotonous, if not offensive, and often renders the plainest subjects attractive.

"The school at Alfort is designed to furnish a complete course of instruction in veterinary medicine and surgery, embracing, not horses

only, but all the domestic animals. A student, at his entrance, must be well versed in the common branches of education; and a full course of instruction requires a residence of four years. The number of pupils is limited to three hundred. Of these, forty are entirely supported by the government. These are educated for the army, and are required not only to become versed in the science and practice of veterinary medicine and surgery, but likewise in the common business of a blacksmith's shop, as far as it is connected with farriery.

"The establishment presents several hospitals, or apartments, for sick horses, cows, and dogs. There are means for controlling and regulating as far as possible, the temperature of the rooms, and for producing a complete and healthy ventilation. There are stables where the patients may be kept entirely alone, when the case requires it, and there are preparations for giving them, as high as their bodies, a warm bath, which, in cases of diseased limbs or joints, may be of great service. There is a large college, with dormitories and dining-rooms, for the students; houses for the professors within the inclosure; rooms for operations upon animals, and for anatomical dissections; a room, with a complete laboratory, for a course of chemical lectures; a public lecture-room, or theater; and an extensive smithery, with several forges, fitted up in the best possible manner. There are, likewise, several stands, contrived with ingenuity, for confining the feet of horses, that students may make, with security, their first attempt at shoeing, or in which the limb, after it has been separated from its lawful owner, may be placed for the purpose of examination and experiment.

"An extensive suit of apartments presents an admirable and, indeed, an extraordinary museum, both of natural and artificial anatomical preparations, exhibiting the natural and healthy state of the animal constitution, and likewise remarkable examples of diseased affections. The perfect examples of the anatomy of the horse, the cow, the sheep, the hog and the dog, in which the muscular integuments, the nerves, the blood-vessels, and, indeed, all the parts, are separated, preserved, and exhibited, by the skill of an eminent veterinary surgeon and artist, now deceased, who occupied the anatomical chair of the institution, display wonderful ingenuity in their dissection and preservation, and present an interesting and useful study, not to medical students only, but to the most ordinary, as well as the most profound, philosophical observer. I have seen no exhibition of the kind of so remarkable a nature.

"The department for sick dogs, containing boxes for those which require confinement, and chains for such as must be kept in the open air, and a cooking apparatus and kitchen for the preparation of their food, was spacious, well-arranged, and contained a large number of patients.

"Any sick animals may be sent to the establishment, and their board is to be paid at a fixed rate of charges; twelve *sous*, or six pence, per day, for a dog, and fifty *sous*, or twenty-five pence, for a horse, including medicine, advice, and attendance. In cases of epidemics, or murrain, prevailing in any of the districts of France, the best attendants and advice are sent from these schools, to assist in the cure, and espe-

cially to watch the symptoms and progress of the malady. In countries where large standing armies are maintained, and where, of course, there are large bodies of cavalry and artillery to be attended upon, as well as wagon horses for carrying the supplies, the importance of veterinary surgery is vastly increased; but in countries where no standing armies exist, the number of horses kept for use and pleasure, and of other domestic animals, bears a much larger proportion to the number of human beings than we should like to state without inquiry, and renders the profession highly important."

Other veterinary schools were before long established in different parts of France, and in various countries of Europe; in Germany, in England, in Russia, and in Italy. The veterinary college at London was established in the year 1791, under the charge of a graduate of the parent school of Lyons, and at the expense of a number of gentlemen who, upon becoming subscribers to the school, acquired certain privileges with regard to the medical treatment of their horses, in the event of their sickness.

The college received much encouragement from the medical profession of London, and a committee of some of the most eminent practitioners was appointed to assist at the examination of those of the pupils who became candidates for graduation, and to certify to their acquirements in case that they should be found properly acquainted with the principles of medical science and with the veterinary art. The associations of physicians with veterinarians, in such colleges, is one of the best assurances that the character of the education there given will be kept up to the high standard to which medicine has herself attained, and that the empiricism of a speciality will not be allowed to displace the philosophic spirit of true science.

Soon after the establishment of the London college, it received further encouragement by the appointment of veterinarians, as commissioned officers in cavalry regiments—a proceeding of great benefit to the service. The care of horses was the original object of the college, but an annual sum was given to it by the Royal Agricultural Society of England, to enable it to extend the field of its operations over the other domestic animals, whose diseases it has, accordingly, taken charge of; and such animals are sent from London and the neighboring country to the infirmary of the college, where, for a moderate charge, they are fed, housed, and receive veterinary attendance. The college has also received assistance from parliamentary grants.

In Germany, some of the veterinary colleges have, as a chief object, the education of veterinary surgeons for the military service.

In the United States, Veterinary colleges have been recently established. A veterinary institution has existed for some years in Massachusetts. In Pennsylvania, the Veterinary College of Philadelphia was incorporated in 1852, and put into operation during the present year. Four professorships have been established in it, namely: Of Materia Medica and Therapeutics; of Pathology and Practice of Medicine in Reference to Domestic Animals; of Medical Chemistry and Pharmacy; of Anatomy, Physiology, and Operative Surgery.

The College of Veterinary Surgeons of New York has also announced a course of lectures for the session of 1859–60; it has established

professorships of Veterinary Theory and Practice; of Veterinary Anatomy and Surgery, and of Chemistry; and has a Board of Censors, composed of some of the most eminent medical men in the city of New York.

A veterinary author, who stands as high as any who have written in the English language—Mr. Delabre Blaine—remarks, in his Veterinary Art, that there are three classes of persons by whom veterinary medicine may be profitably studied; first, by gentlemen owning animals, and taking considerable interest in their management; second, by medical men who design practicing in the country, or in small towns, where regular veterinary surgeons are not accessible; and last, by those intending to make veterinary surgery their profession.

The acquirement of veterinary knowledge by non-professional men is a thing not at all impracticable, especially in the southern part of the United States, where, as agricultural matters are often under the control of men of wealth and leisure, a very thorough and elaborate education might be given, with the particular view of fitting gentlemen for the management of everything connected with a farm or plantation.

One remark, however, should be made with regard to veterinary education, whether of amateurs, or of professional men: no branch of medical art can be usefully taught without first imparting some knowledge of that medical *science* upon which the art rests. The names of diseases, their most prominent symptoms, and the remedies used for them, may, indeed, be communicated; but that information, without the guidance of rules for correct reasoning on the subject, can only lead to a blind and mischievous officiousness. Those who would learn how to deal with the arrangements of the living body, should first have their minds properly trained by the study of some branch of natural science, and, being thus accustomed to recollect facts, and to view them as parts of a system, they are better fitted to acquire a knowledge of the structure and of the functions of the body; in other words, of anatomy and of physiology. It is not essentially requisite that this knowledge should be minute, but a certain amount of it must be acquired, after which the various modes in which the functions depart from a state of health, and the proper methods of remedying such departures, may be made objects of study.

A delicate question here arises: whether any knowledge short of the professional would be of practical use to any one? It seems to me that the only way of throwing light upon such a question is to attempt to answer it as far as human medicine is concerned, and to leave the conclusion thus drawn to be applied, analogically, to the veterinary art. The skill which the medical man applies to the treatment of difficult cases is not to be attained except by those who have devoted many years to its acquirement; but there is much that he does which he could teach others to do without burdening them with an elaborate and laborious course of instruction. In the surgical art, there is a special branch called minor surgery, which treats of such things as the proper mode of dressing wounds, burns, and scalds; of setting fractures, and reducing dislocations. Much of it is taught to, and practiced by, hospital attendants and medical students in the early part of their course of medical education. Any intelligent person could, in a few weeks, learn enough of this art to enable him to render great service

in cases which at present are neglected, or given over to the management of the ignorant and presumptious, either from the inaccessibility of regular surgical aid, or from an indisposition to have recourse to it.

It may not be impossible to establish a similar branch of the medical art. A great deal of medicine has been, and always will be, administered without the advice of a physician; in fact, it is the testimony of apothecaries that the greater part of the medicine sold is so administered.

If instruction as to the nature and proper use of the medicines most in the hands of the people were generally diffused, of course with some previous instruction concerning the human body, and its more common and simple diseases, the amount of medicine taken would be less, and the good effected by it vastly more certain.

Without attempting to intrude upon the serious duties of the physician, every educated man might be qualified to deal with those trivial affections from which the great harvest of quackery is reaped, and to render service to himself and others, when out of the reach of professional assistance. To do this, the knowledge possessed may be limited, but should be perfectly sound as far as it goes, should be derived from unexceptional sources, and be in no wise akin to that of those pseudo-medical works, of a popular cast, which are at the present day put forward in large numbers, for the edification of a credulous public.

Similar remarks may be applied, with still more force, to veterinary surgery and medicine. Domestic animals, in many parts of the country, must be so far out of the reach of regular veterinarians, or of physicians qualified to practice the veterinary art, that the only means of giving them the benefit of medical knowledge is by lodging it in the hands of their owners.

The mode of education of regular veterinarians is a matter of more settled character than the above. The colleges existing in England, and now going into operation in this country, are founded by the effort of associations, and sustain themselves, both from the fees of pupils and from those received for the medical treatment of horses and other animals.

A number of persons become subscribers of a small annual sum, each, toward the maintenance of a veterinary hospital, in consideration of which they acquire the privilege of consulting the veterinary surgeon of the establishment upon the proper treatment of their animals, upon the soundness of a horse that they purpose buying, and upon such other points as may present themselves; and when a horse is sick, they may send him to the infirmary and have him attended to, with no other expense than that of his keep at livery and of his medicines. The veterinarian should not, save in exceptional cases, be called upon to pay visits out of the hospital, but should remain at the establishment. A hospital thus established furnishes the means of clinical instruction for a school, which may afterward be attached to it. Professors of anatomy, physiology, materia medica, and chemistry, may, if necessary, be chosen outside of the ranks of veterinary practitioners, and students may be received on terms similar to those of medical colleges, and subjected to a course of study varying from two to four years. Much may be done in this way by private enterprise; but the

question arises, of how far such schools might hope for the support of a State, or of the federal government.

All forms of civilized government have made education, in some way, their care, and there would seem to be great propriety in this, since all experience tends to show that the prosperity of a community chiefly depends upon the education of its members. This is true, whether we consider that general diffusion of knowledge and of mental discipline, which enables the citizens of a free State properly to exercise their powers and to discharge their duties, that higher cultivation of a few, which fits them for the investigation of the laws of Nature, and for determining the scientific truths upon which the arts of civilization are founded, or that special training in the arts and professions, which qualifies men to do good in their respective callings.

Now, if the importance of the veterinary art, and all the advantages dependent upon it, be fairly considered, it will, I conceive, be found worthy of the extension of a helping hand to its struggling infancy, if not of a more permanent support.

Physicians and surgeons form a third class, to whom Mr. Blaine recommends, under certain circumstances, the study of veterinary medicine. It may be remarked of these that, beside the advantages that may result to themselves from the possession of such knowledge, they, as a body already possessed of weight and authority in the community, and able to make their influence widely felt, can bring about reforms which can hardly be effected by other agencies. To illustrate the point that there may be a flourishing condition of veterinary institutions, a class of educated veterinarians, and an extensive veterinary literature, and that yet those to whom the care of animals is chiefly intrusted may be comparatively uninfluenced by the progress around them, I would quote from Wilson's Rural Encyclopedia a portion of the article on Hippopathology, (the science which treats of the diseases of horses:) "Yet, in spite of the enormous bulk and the vast variety of our domestic hippopathological literature, in spite, too, of the stupendous additions to it which are made by French and German works of easy access, the science continues to be incredibly little known by the great body of the horse-owning community, and is still in a scandalous empirical condition, among a considerable proportion of country practitioners. Even if no books at all existed on the subject, a little common sense, expatiating on the analogies between the health of the horse and the health of man ought to rescue grooms and farmers from the absurdities and cruelties which many of them practice in the stable."

A wider diffusion, as well as a further increase, of veterinary information, is evidently required, and to insure its diffusion there is no better way than to have its precepts and practice enforced by a large and widely-spread number of persons, the correctness of whose knowledge on such topics the public are already prepared to admit. This is a thing which physicians are not qualified to undertake at present, although they could become so by means of some addition to the usual course of medical education. It has been remarked that "a good physician has gone three fourths of the way toward becoming a good

veterinarian, but he must go the other fourth to become a veterinarian at all."

As the medical sciences have not been limited in their beneficial results to the healing of the sick only, but have, by means of the knowledge of the human economy which they inculcate, thrown light upon all questions involving the physical well-being of man, so we are apt to expect that from the cultivation of veterinary medicine we will obtain guidance in many important matters which concern the physical state of domestic animals. Every question relating to their management, whether involving the condition of an individual or that of a race, is a question of the mode of action of physiological laws, and can only be satisfactorily answered by those who have made the physiology of animals their professional study.

The strength of this position will be readily admitted with regard to individual animals, and it may, I think, be shown that a necessity exists for a body of educated veterinarians, to take in charge matters that affect races and species of our domestic animals, rather than single cases.

Our domestic animals are, to a great extent, artificial productions, their most valuable qualities having been communicated to them by a kind of cultivation; thus breeds of horses have been produced far surpassing in size, strength, and fleetness, any animal of the species that exists in the wild state; the ox species has acquired in different races great capabilities of producing flesh for the butcher, or milk for the dairy; the sheep is clothed with a fleece more valuable for human use than that worn by his wild progenitor; and all valuable animals exhibit marked alterations from the original type of the race, which have been produced by human care and management. The extent of this change varies much with different breeds, and its importance is testified to by the high prices commanded by those animals in which it is most strongly marked.

Few improvements contribute as much to the wealth of a nation as these. The expense of feeding and of caring for an animal of good breed is but little more than that required for a very inferior one, and the profit derived from it, whether in the shape of labor, of flesh, of wool, or of milk, is often very different in the two cases. A farmer may raise a horse that will command one thousand dollars in the market, or one worth less than a twentieth of that sum, and spend nearly the same on either animal. In view of the strong motives which exist for raising the finest animals only it may seem a matter of surprise that there are so many bad ones, and that, especially among horses, where good quality is of such great importance, the general standard should not be higher. There is, however, a want of certainty and of permanency about these improvements, which arises from their artificial character. there is a constant tendency in the race to return to the condition of Nature, and, where measures are taken to prevent the loss of some one of its characteristics, it sometimes happens that those very means hasten the destruction of some other, or diminish very much the vitality of the race.

The maintaining of good breeds becomes thus a struggle between Nature and art, and the art is one that requires peculiar skill and knowledge to manage with the best results; and while the intelligence and care of a number of enterprising persons, who have been stimulated by large profits, and possessed of considerable means, have done much for the improvement of breeds of animals, the success thus far attained has been attended by a host of failures and disappointments, and, in some cases, where the greatest care and expense has been bestowed, it is maintained, by good authorities, that a positive degeneracy has taken place.

The difficulties in the way of making a breed of animals just what we want it to be, and of maintaining it in that condition, are of a complicated character, and demand for their correct solution the attention of those who can regard them from a scientific point of view, and whose daily studies and experience relate to the animals which they concern.

ADMINISTERING MEDICINES TO DOMESTIC ANIMALS.

TRANSLATED AND CONDENSED FROM AN ARTICLE BY DR. WAGENFELD, OF DANZIG, PRUSSIA.

Animals being unwilling to take medicine of their own accord, it must be administered by force, except when mixed with agreeable substances, for instance, with oats for the horse, and with meat or sugar for the dog.

THE HORSE may receive medicine in different forms; first, as a *powder*, This is to be mixed with short fodder, especially oats, with a portion of bran, which should be moderately moist, because he would otherwise blow away some of the powder with his nose. Though this mode is convenient, it can only be employed to a limited extent, as the horse will not eat his fodder if it be mixed with medicine of a considerable odor, or if his appetite be much impaired. Secondly, as a *drink*. For instance, several salts and acids, also insoluble powders, as red bale. But here, likewise, a difficulty becomes apparent. The horse, from an absence of thirst in certain diseases, drinks little or nothing, so that the medicine is not taken in the quantity desired. Thirdly, as an *infusion* or *potion*. This form deserves to be more fully considered, as many horses have been lost in consequence of potions being administered. If, for instance, a horse is suffering from colic, a potion is usually given, sometimes several of them, and even veterinary surgeons resort, especially in this case, to infusions through the mouth. Though it is known that the infusion is not wholly without danger, because part of the liquid might easily get in the windpipe, yet the injury that may result is not sufficiently considered, even by many surgeons.

The application of infusions, especially in colics, has been recommended, because a rapid remedy is desired, which is most likely to be attained by mixing the medicine with a certain quantity of liquids, and bringing it thus immediately in connection with a large surface of the stomach and the bowels. Though these advantages are not to