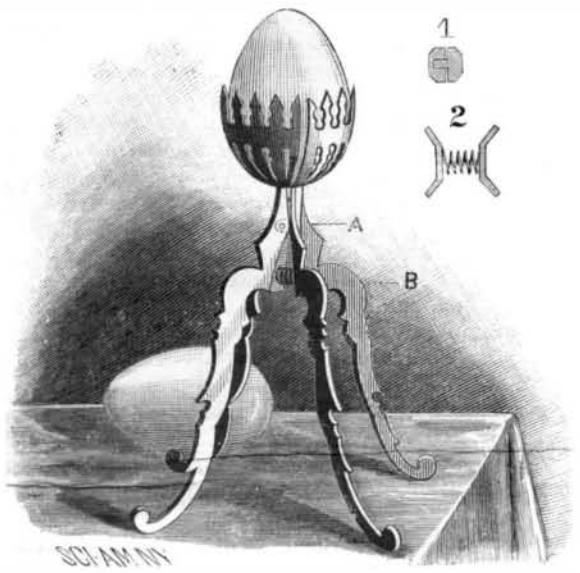
EGG HOLDER.

The holder is formed of two hollow semi-ellipsoidal sections made of sheet metal, wire, glass, or other suitable material. On the lower part of each section a stem, A, is formed, which terminates in two outwardly curved legs, B, of any desired design. The stems are pivoted to each other a short distance below their upper ends (Fig. 1 is a cross section through this portion), and between their lower ends is a spiral spring (Fig. 2) which presses them apart, thereby pressing the edges of the two hollow sections together. These sections may have their top edges pronged to give them more elas-



HERVEY'S EGG HOLDER.

ticity, and they may be ornamented in any appropriate manner. By pressing the two pairs of legs together the sections are separated and an egg can be placed between them, where it will be firmly held by the action of the spring. The holder can also be used for taking eggs from boiling water.

This invention has been patented by Mrs. F. P. Hervey, of Brenham, Texas.

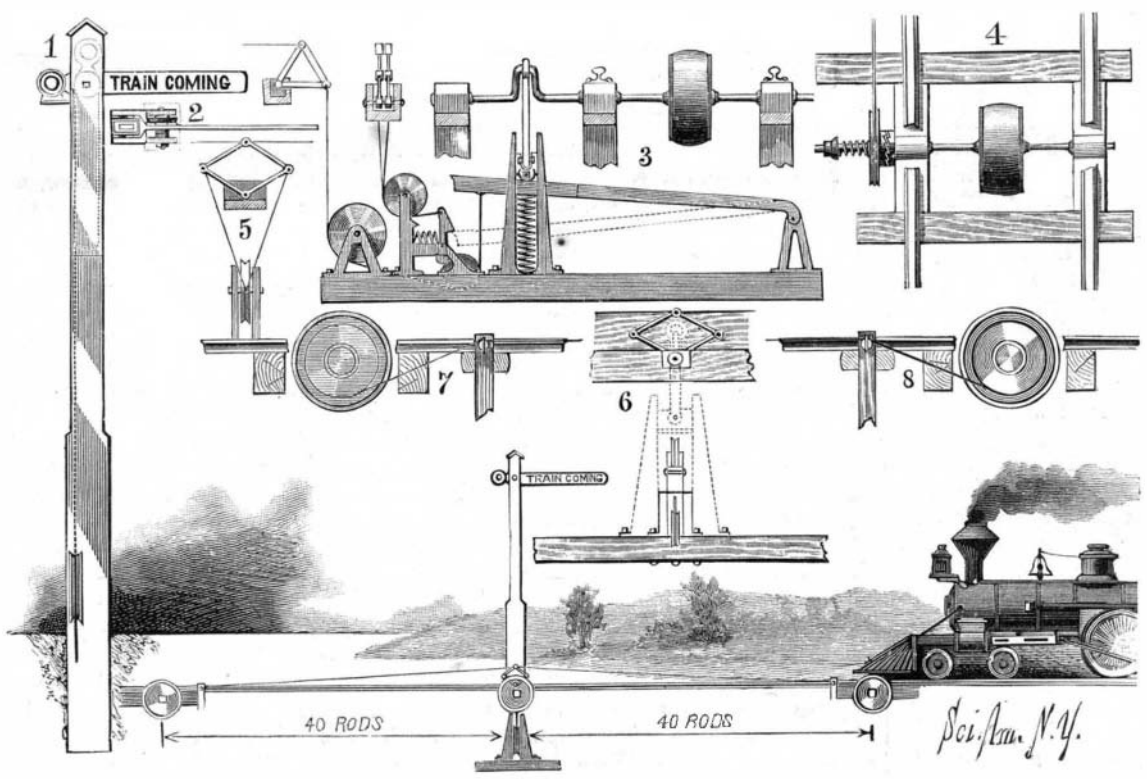
AUTOMATIC SIGNAL FOR RAILROAD CROSSINGS.

The engravings show the various parts of an automatic device for signaling the approach of trains, patented by Mr. T. H. A. Tregea, of Pontiac, Mich. The invention belongs to that class of signals in which a semaphore is moved mechanically by the passing of trains. The signal consists of a post, Fig. 1, erected at a suitable distance from the track and carrying a semaphore arm, pivoted to the post, and having at the rear end a pair of disks arranged to cover the opposite sides of a lamp, supported by the post, so that the different positions of the arm will serve to signal to persons using the crossing, both during the day and night. (This construction will be clearly understood from the sectional view, Fig. 2.) The weight of the arm tends to maintain it in the vertical position, shown by the dotted lines. The arm is moved by a chain, which passes around a pulley at the foot of the post, and is secured to and passed over a pulley attached to the arm. The signal releasing mechanism consists of a lever (Fig. 3) pivoted at one end to a bracket in a chamber below the track; the opposite end of the lever is raised by a spring, and to it is attached a cord passing around two guide pulleys to a crank lever, shown at the left in Fig. 3. Pivoted to the frame is a pawl, thrown forward by a spring and arranged so as to be thrown back by the contact with the end of the lever; the shoulder retains the lever in the position shown by the dotted lines. Transversely across the track extends a crank shaft connected by a rod to a guide block sliding in a bracket which supports the lever spring; the shaft carries a drum between the rails. To the upper end of the pawl or trigger are attached two cords extending to two bell-crank levers placed near the level of the ground. Each setting mechanism consists of a shaft (Fig. 4), supporting a drum between the rails and carrying at one end a clutch engaging with a similar clutch at the side of a loose pulley. From each loose pulley extends a cord to one of the bell-crank levers, Fig. 3. The drums are covered with rubber, and are of such size and so arranged as to be struck by the cow-catcher so as to be turned by the passing train.

As the train passes in either direction over the signal releasing mechanism (Fig. 3), it will turn the drum and its crank in one direction or the other, in either case moving the block and insuring the catching of the lever in case the trigger should slip upon the first movement of the lever. As the lever is depressed it slackens the cords leading to the crank lever, and the signal arm assumes its lowest position. The train then passes the signal and travels over the further drum, Fig. 4, which is turned without any effect upon the signaling apparatus, but upon another train passing over it and turning it in the opposite direction, thereby turning the loose pulley by means of the clutch and drawing upon the cord to draw back the trigger and release the lever, which, being raised by the spring, draws upon the cord leading to the crank lever and raises the signal arm. The train then strikes the drum, Fig. 3, and releases the arm, and then passing to the other setting mechanism adjusts it so as to be operated by another train.

Figs. 5 and 6 are elevations of parts of Fig. 3; Fig. 4 is a plan view of one of the signal setting devices; and Figs. 7 and 8 are side elevations of each of the setting devices.

It will be seen that each train, coming from either direction, draws back the trigger and insures the display of the signal as soon as it is within forty rods therof; the signal retains its position until the train has passed it. The various parts are positive in their action, and are so constructed as to work effectively when at considerable distances apart, and in addition they are not liable to be affected by snow or ice.



TREGEA'S AUTOMATIC SIGNAL FOR RAILROAD CROSSINGS.

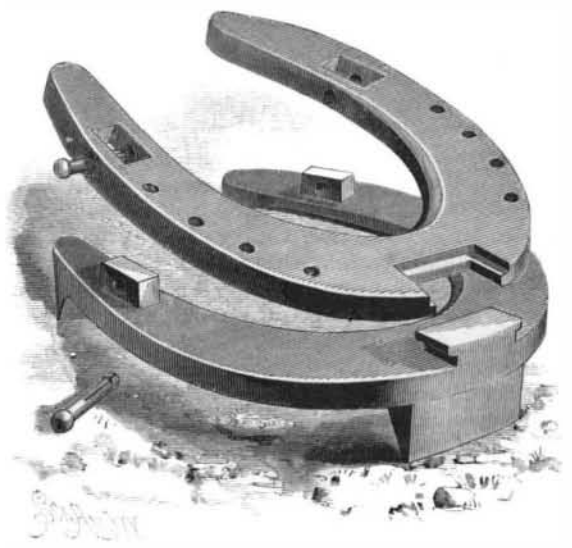
Peptonization.

An observation communicated by M. Marcano to the Academy of Sciences is suggestive of what may prove a valuable process for the conversion of albuminoids into peptones. If a small quantity of the fresh sap of certain plants—the agave, for example—be added to chopped meat first covered with water, and the mixture be kept at a temperature of 39° to 40° C., an active fermentation is immediately set up, with evolution of inodorous gases. At the end of thirty-six hours the fibrin has disappeared, and a liquid is left containing peptone equal in weight, when dried in a stove, to one-fifth the fresh meat used. This fermentation appears to M. Marcano to be due to the vital action of microorganisms, and to resemble the peptonization of the gluten of flour by a bacterium which is said to take place in bread making.

In confirmation of this view it is stated that if the juice of the plant be saturated with chloroform the fermentation is not set up. Moreover, a "mucorinee" may be cultivated by sowing a few drops of agave sap in sugared water. This mucorinee is capable of completely dissolving fibrin in the presence of water. A large number of other fruits and juices are stated to be endowed with properties similar to those possessed by the sap of the agave. Papaw juice is said to be relatively weak compared with the peptonizing activity of other juices which contain no digestive principle like "pepsin." M. Marcano is of opinion that the new method of peptonization will afford a simple and economic means of preparing pure peptone quickly and at a low price, and suggests that it might be applied upon a large scale, so as to allow of the export of meat from South America in a form more nutritious and economical than the extracts.—*Lancet.*

A NOVEL HORSESHOE.

The engraving shows a horseshoe recently patented by Mr. David J. Pryor, of Roxbury, Mass. The shoe is made of malleable iron, and consists of two parts, one of which is formed with heel and toe calks and the other with side rows of holes in the usual manner. The upper part is nailed to the hoof in the same way that the common shoe is. The method of uniting the two parts is clearly shown in the cut. The toe portion is slipped into the flanged recess in the upper or permanent part, and the two lugs at the heel enter openings, and are firmly held by split keys. In icy weather the



PRYOR'S NOVEL HORSESHOE.

smooth shoe can be removed, and the one formed with calks secured in its place in a very short time; the operation is simple and easy, and can be performed by any one. The upper plate will last for a very long time, being subjected to little or no wear. When the hoofs are to be trimmed down, the same shoe is replaced. Should the horse interfere when shod with calks, or should he become uneasy in the stable, the under part can be taken off. When considered necessary, an elastic packing can be placed between the two parts. By the use of these shoes, visits to the blacksmith need not be so frequently made, and the cost of shoeing will not be so great as when the old style shoes are used.

The Condition of Our Country.

Cheap wheat, cheap iron, cheap money, are the raw materials of prosperity, and these the United States now has in abundance. While our population has been increasing, deposits have been accumulating in the banks, inventions have been multiplied, intelligence has been spreading, and all the processes of civilization have been going on, the course of industrial readjustment has been strengthening all the foundations of our prosperity. Credits have been revised, and many abuses which grew up during the generous practices of the too abundant confidence of a few years ago have been put an end to. Tendencies to extravagant living have been checked, and it is a very rare exception that people are not living within their means. Frauds that take root naturally and flourish in eras of expansion have been overtaken and exposed. Enormous masses of debt have been liquidated. The commercial observer will, on the whole, probably find it impossible to discover in any preceding period of the history of this country a greater accumulation than that which he can now easily find of what we term the raw materials of prosperity.—*The Age of Steel.*

BOGUS GOLD DUST.—Under this heading we lately gave an account of the transmission to the Philadelphia mint of a package of metallic dust, apparently gold, but which proved on assay to be in great part spurious. The grains consisted of iron filings galvanized with gold. The specimen was, it appears, forwarded by Mr. Stifft, the well known jeweler of Little Rock, who bought it for the genuine gold; but subsequently becoming suspicious that he had been imposed upon, he sent it to the mint in order to have its value exactly determined. Mr. S. writes us that he lost $100 by the deception, but would give another hundred for the arrest of the swindler.

Electric Lighting in America.

At a recent meeting of the Society of Arts held at London, the chair was taken by Sir F. Bramwell, and a paper was read by Mr. W. H. Preece, F.R.S., who described electric lighting as he saw it during his late visit to the United States. Electric lighting, he said, was flourishing in America much more than at home. There were probably 90,000 arc lamps alight every night in the States, and there were many central stations working regularly, both with arc and with glow lamps. Contrasting the brilliantly illuminated avenues of New York with the dull and dark streets of London, he stated that on the evening of October 21 he drove from the Windsor Hotel, New York, to the Cunard Wharf, a distance of about four miles, through streets entirely lighted by electricity. On the 30th of October he drove from Euston to Waterloo, without seeing a single electric light. He visited Montreal, Philadelphia, Buffalo, Cleveland, Chicago, St. Louis, Indianapolis, Boston, and New York, and found in each city the principal streets and warehouses, as well as stores and places of public resort, lighted by arc lamps. It was with arc lighting that the greatest advances had been made in the States. One manufacturer told him that he was turning out 800,000 carbons for arc lamps per month; another said that his output of plant was 50 arc lamps and three dynamos per day; and while he was present at a third factory an order was received for an electric lighting plant of 330 arc lamps requiring 14 24-light dynamo machines, intended for an installation to light up a park in the environs of Chicago.

In that city the number of arc lamps installed had doubled, increasing from 1,000 to 2,000 during the past 12 months. More than one electric light company paid dividends to its shareholders, and all the manufacturers as well as the lighting companies seemed to be full of work. The principal systems in use were, for arc lamps, the Brush, the Weston, and the Thomson-Houston; but there were other arc systems, not so well known on this side of the Atlantic, such as the Hochhausen, the Van de Poel, the Western Electric, the Fuller, the Sperry, etc.; for glow lamps, the Edison and the Weston. Mentioning a considerable improvement which had been made in the Brush dynamo machine, he gave some account of the Weston system, which, looked at from a mechanical point of view, struck him as being probably the best in use in the States. Of the Thomson-Houston system, unknown at present in England, and containing some considerable and ingenious novelties, he gave a more detailed account. The Hochhausen system was known in this country from its recent use at the Health Exhibition.

Visiting central stations in various towns, he found 164 Thomson-Houston arc lamps alight in the public streets and shops in Montreal. The rate was 50 cents per lamp per night from dark to midnight, or over £35 per lamp per annum. At Philadelphia the Brush system, employing 1,200 horse power, supplied electricity for nearly 1,000 lamps, for which £60 per lamp per annum was the charge. The Brush people had also two central stations at Boston, lighting up 816 arc lamps; in fact, there were few towns of any consequence in the States that did not possess central stations worked by the Brush Company, and probably there were 25,000 Brush arc lamps in use in the United States. At Chicago all the drives in the Lincoln Park were lighted by arc lamps with very good effect, especially on the unique drive skirting the shore of Lake Michigan. Other companies also had central stations in Chicago. He did not see in the States one single instance of street lighting by glow lamps. In every case arc lamps were used for this purpose, and they were usually fixed on much taller posts than in England. Although brilliant, the effect was by no means perfect, and no effort seemed to be made to distribute the light uniformly, as had been done in England by Mr. Trotter. The price paid in New York was 70 cents per night, or £50 per annum, for each arc lamp; a fine of about 6s. for each time any lamp was reported out was inflicted.

Turning then to methods of incandescent lighting, he remarked that these did not seem to have flourished so much as arc lighting, nor indeed had they been applied to private houses to the same extent as in England. The principal system in practical use was that of Edison. House lighting had been attacked principally by the Edison Company. They had a central station in New York, which was opened on the 3d of September, 1882, and from that date to the time of Mr. Preece's visit there had been only two hours and a half stoppage, and that due solely to carelessness. There were 587 subscribers, using altogether 12,764 lamps served day and night. The price charged was the same as that which would be paid if gas were supplied at 7s. 6d. per 1,000 cubic feet, the price of gas having now been reduced to 5s. 9d. The use of secondary batteries had not received so much attention as on this side of the water. No difficulty was found in determining by the Edison meters the charge to be made, the subscribers paying for the light they received and not for the current they used. These bottle measurements were unquestionably accurate within one per cent.

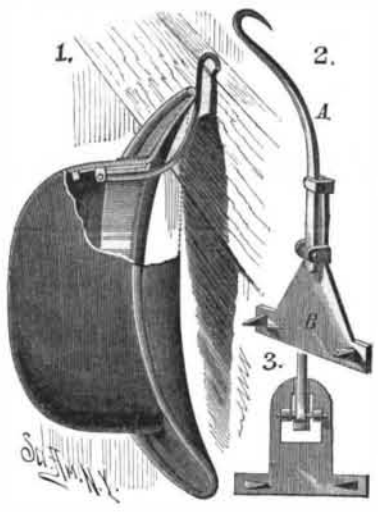
At present the electric light in England must be regarded as a luxury, and must be paid for as a luxury, but there was no reason why it should remain a luxury. Pointing out improvements in dynamos and lamps which had already effected a reduction of cost, he observed that there was still vast room for economy, and it was clear that the prices now required to make electric lighting pay would be brought down. Even now it was possible in England to make a system pay at the rate of a halfpenny per glow lamp per hour. In conclusion, he spoke of the influence of electric street lighting upon the morality and safety of the public. The Chief of Police of New York had gone so far as to say that "every electric light erected means a policeman removed."

In a discussion which followed, Mr. Crompton gave reasons for believing that with regard to steam engines, dynamos, and lamps, and consequent economy and efficiency, we had little to learn from the United States. Professor G. Forbes spoke of the important element in the question of the experience gained in the United Sfates in the supply of the current from central stations. Mr. Hammond, agreeing that in point of quality arc lighting was better done in England on the whole than in the United States, said the love of the electric light there was to be measured by the commercial instinct of the consumer.

The chairman, in closing the proceedings, pointed to the unfair conditions of an Act of Parliament as the true reason why electric lighting from a central source had not been developed in this country. The thing had been done with the express purpose of stopping the introduction of electric lighting from a central source, and only a strong expression of public opinion would remove this unreasonable obstacle to a great improvement.

HAT HOLDER.

The hat holder shown in the cut can be attached directly to the hat, and is so arranged as to be folded into the crown when not in use. Fig. 1 shows a hat provided with the holder, Fig. 2 shows the holder detached, and Fig. 3 shows a second method of locking the hook back into the crown. The hook, A, is made of a narrow strip of metal, and is hinged to a plate, B, attached to the sweat band inside of the hat by means of points stamped out of the plate. As represented in Fig. 2, the plate is made with an extension formed with a holding lip under which the hook is adapted to be sprung for holding it turned back into the crown. The plate may be formed with a spring tongue (Fig. 3), so arranged as to press against the end of the hook for holding it folded back and also when brought to the position shown in Fig. 1. The device is cheap and convenient, is adapted to different styles of hats, and does not interfere with the wearing of the hat. Further particulars may be had by addressing the inventor, Mr. Oscar H. Haubner, 306 West 36th Street, New York city.



Experimental Surgery.

The London *Times* says: "While the Bishop of Oxford and Prof. Ruskin were, on somewhat intangible grounds, denouncing vivisection at Oxford last Tuesday afternoon, there sat at one of the windows of the Hospital for Epilepsy and Paralysis, in Regent's Park, in an invalid chair, propped up with pillows, pale and careworn, but with a hopeful smile on his face, a man who could have spoken a really pertinent word upon the subject, and told the Right Rev. prelate and the great art critic that he owed his life, and his wife and children their rescue from bereavement and penury, to some of these experiments on living animals which they so roundly condemned. The case of this man has been watched with intense interest by the medical profession, for it is of a unique description, and inaugurates a new era in cerebral surgery; and now that it has been brought to a successful issue, it seems desirable that a brief outline of it should be placed before the general public, because it illustrates vividly the benefits that physiological explorations may confer on mankind, shows how speedily useful fruit may be gathered from researches undertaken in the pursuit of knowledge and with no immediate practical aim, and reveals impressively the precision and veracity of modern medical science.

"This case, then—this impressive and illustrative case—is that of a man who, when admitted to the Hospital for Epilepsy and Paralysis, presented a group of symptoms which pointed to tumor of the brain—a distressing and hitherto necessarily fatal malady, for the diagnosis or recognition of which we are indebted to bedside experience and post-mortem examination. But while clinical and pathological observations have supplied us with knowledge which enables us to detect the existence of tumors of the brain, they have not afforded us any clew to the situation of these morbid growths in the brain mass, and it was not until Prof. Ferrier had, by his experiments on animals, demonstrated the localization of sensory and motor functions in the cerebral hemispheres that the position of any diseased process by which they might be invaded could be definitely determined. By the light of these experiments it is now possible in many instances to map out the seat of certain pathological changes in these hemispheres with as much nicety and certainty as if the skull and its coverings and linings had become transparent, so that the surface of the brain was exposed to direct inspection. And thus in the case to which I am referring, Dr. Hughes Bennett, under whose care the patient was, guided by Ferrier's experiments, skillfully interpreted the palsies and convulsive movements which the man exhibited, and deduced from them that a small tumor was lodged at one particular point in his "dome of thought," and was silently and relentlessly eating its way into surrounding textures. Not more surely do the fidgetings of the electric needle intimate their origin and convey a meaning to the telegraph clerk than did the twitchings of this man's muscles announce to Dr. Hughes Bennett that a tumor of limited dimensions was ensconced at a particular point of a particular fold or convolution of the brain—the ascending frontal convolution on the right side.

"Very brilliant diagnosis this, it may be remarked, and nothing more. A conclusion has been arrived at which, should it prove correct, will gratify professional pride; but as it cannot be confirmed or refuted until the poor patient is no longer interested in the matter, and cannot be made the basis of any active interference, no great advance has been made after all, and vivisection has yielded only some barren knowledge. Until quite recently, criticism of this kind would have been justifiable in a sense, but now it is happily no longer possible, for another series of experiments on living animals, undertaken by Profs. Ferrier and Yeo, have proved that through our power of localizing brain lesions we may open a gateway for their removal or relief. The old notion that the brain is an inviolable organ with *noli me tangere* for its motto—a mysterious and secluded oracle of God that simply falls down and dies when its fane is desecrated by intrusion—has been dissipated by these experiments; and we now know that under punctilious antiseptic precautions the brain, in the lower animals at any rate, may be submitted to various operative procedures without risk to life or fear of permanent injury. Emboldened by this knowledge, Dr. Hughes Bennett devised a way of helping his patient, whose disease he had diagnosed with such remarkable exactitude, and gave him one chance, if he had the courage to embrace it, of saving his life and recovering his health.

"The patient had the position in which he stood faithfully explained to him. He was told that he labored under a malady which medicines were powerless to touch, and that if left unassisted he must die in a few months at latest, after prolonged sufferings similar to those which had already brought him to the verge of exhaustion, and which could be only partially alleviated by drugs; but that one outlet of escape, narrow and dangerous, but still an outlet, was open to him in an operation of a formidable nature and never before performed on a human being, under which he might, perhaps, sink and die, but from which he might, perhaps, obtain complete relief. The man, who had faith in his doctor, and no fine-spun scruples about availing himself of the results of vivisectional discoveries, eagerly chose the operation. On Nov. 25th, accordingly, Mr. Godlee, surgeon to University College Hospital, in the midst of an earnest and anxious band of medical men, made an opening in the scalp, skull, and brain membranes of this man at the point where Dr. Hughes Bennett had placed his divining finger, the point corresponding with the convolution where he declared the peccant body to be, and where sure enough it was discovered. In the substance of the brain, exactly where Dr. Hughes Bennett had predicted, a tumor the size of a walnut was found—a tumor which Mr. Godlee removed without difficulty. The man is now convalescent, having never had a bad symptom, and full of gratitude for the relief afforded him. He has been snatched from the grave and from much suffering, and there is a good prospect that he will be restored to a life of comfort and usefulness. In that case he will be a living monument of the value of vivisection. The medical profession will declare with one voice that he owes his life to Ferrier's experiments, without which it would have been impossible to localize his malady or attempt its removal, and that his case opens us new and far-reaching vistas of hopefulness in brain surgery. Many men and women will henceforth, there is reason to anticipate, be saved from prolonged torture and death by a kind of treatment that has been made practicable by the sacrifice, under anæsthetics, of a few rabbits and monkeys."