

**NOVEL CATTLE RINGER.**

The engraving represents a new cattle ringer recently patented by Mr. Horace E. Barnes, of Lee's Summit, Mo.

A is the fixed jaw, which may be similar to the corresponding jaw in an ordinary punching tool. It is provided at the point where the punch engages it with a cushion of rubber or leather. The movable jaw is made in two parts, B, arranged to work side by side, and both pivoted to the jaw, A, as if made in one piece. The part, B, is extended into a handle, corresponding with the handle of the fixed jaw, A, and its tip carries the punch, D, which is similar to that of an ordinary punching tool. The movable part of the jaw, B, corresponds in shape with the fixed part for a portion of its length. The front portion or tip is extended beyond the tip of the fixed part and formed into a ring, through which the punch, D, works, and its rear portion is provided with a slot, of ellipsoidal form, in which works a thumb screw, C, the threaded portion of which screws into the part, B. The handles are thrown apart by a flat spring attached to one handle and bearing against the other.

In using the instrument the handles are pressed toward each other just sufficiently to prevent the punch from protruding beyond the surface of the ring. The screw, C, is then turned so as to place the thumb piece transversely across the widest portion of the slot, which holds the parts in such position that the distance between the ring and cushion on the opposite jaw corresponds with the thickness of the gristle between the nostrils of the animal. The instrument is then applied to the nose, and when the punch and ring are at the point where the hole is to be made the thumb screw is given a quarter turn, so that it can work in the slot. This allows the punch to protrude beyond the surface of the ring so as to punch the hole as desired when the handles are pressed toward each other. When the handles are released the spring forces them outward, so as to withdraw the punch, D, within the surface of the ring, and the thumb-screw, C, is again turned so as to hold the parts in the former position. The tool is then partly withdrawn from the nose with one hand, and the nose ring placed in position with the other hand. By this construction provision is made for punching a neat hole and for inserting and withdrawing the instrument without unnecessarily cutting the animal or marring the extremities of the hole as punched, and also for clearing the punch from the hole by means of the ring.

**IMPROVED FEED-WATER REGULATOR.**

We give an engraving of an improved feed-water regulator, lately patented by Mr. Charles H. Kuhne, and is being manufactured and introduced by the Kuhne Regulator Company, Limited, of Corry, Pa. Fig. 1 is a perspective view of the regulator with a portion broken away to show internal parts; Fig. 2 is a vertical section of the steam and water cylinders; and Fig. 3 is a detail view of the steam valve which is operated by the float. The larger cylindrical vessel or float chamber is connected with the boiler above and below the water line by two horizontal pipes, each provided with a valve by which communication with the boiler may be stopped.

The float in this vessel is connected with a lever connected with a valve for opening communication between the float chambers and the larger of two cylinders, placed axially in line with each other and above and at one side of the float chamber. These two cylinders are accurately bored, and are each provided with a piston attached to opposite ends of a common piston rod. The upper cylinder is provided with a water-supply pipe at the top, and two lateral pipes placed one above the other. The upper of these two pipes leads to the water space of the boiler, the lower one is the overflow. A guide rod extends from the float downward into a pipe terminating in a small cock, which may be opened from time to time to keep the pipe clear.

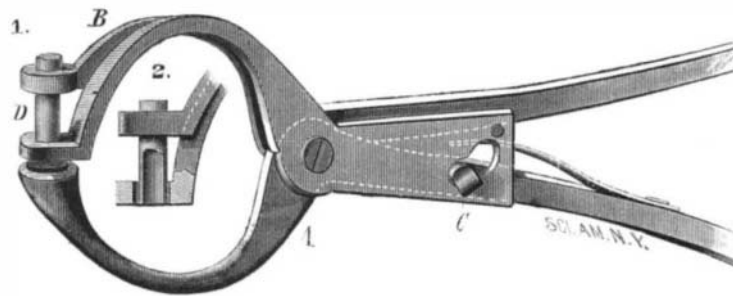
The apparatus is attached to the boiler, so that the float is on the water line. When the water in the boiler falls a small distance below the usual working level, the float drops, and opening communication between the steam space of the float chamber and the space below the piston in the larger cylinder above, the piston is forced upward and carries the smaller piston with it, closing the overflow pipe, when the water forced in by the pump passes through the upper or feed pipe into the boiler, and is retained by a check valve. When the float is raised by the increase of water in the boiler, so as to shut the steam from the lower side of the piston, the pressure of water on the smaller piston pushes it down so that the water passes out of the overflow instead of going into the boiler.

Should it be desirable to use water from the street mains the upper lateral pipe will be dispensed with, and the opening into which it is screwed will be plugged. The pipe which was used as the overflow will now be taken to the boiler, and the feed water will be taken in at the top of the

regulator. When the pistons rise the pipe leading to the boiler will be closed, and when the pressure is removed from the lower piston, the water pressure forces both pistons down, and opens communication between the supply pipe and the boiler feed pipe.

Every engineer knows the advantages of having an equable supply of water. It obviates danger from low water, insures dry steam in a properly constructed boiler, and saves fuel and labor.

The inventor informs us that this device has been in successful use for some time past, and is considered more reliable than any attendant can be. It is compact and simple, requires no packing, and needs little attention. It will be seen that the water supply is controlled entirely by steam,

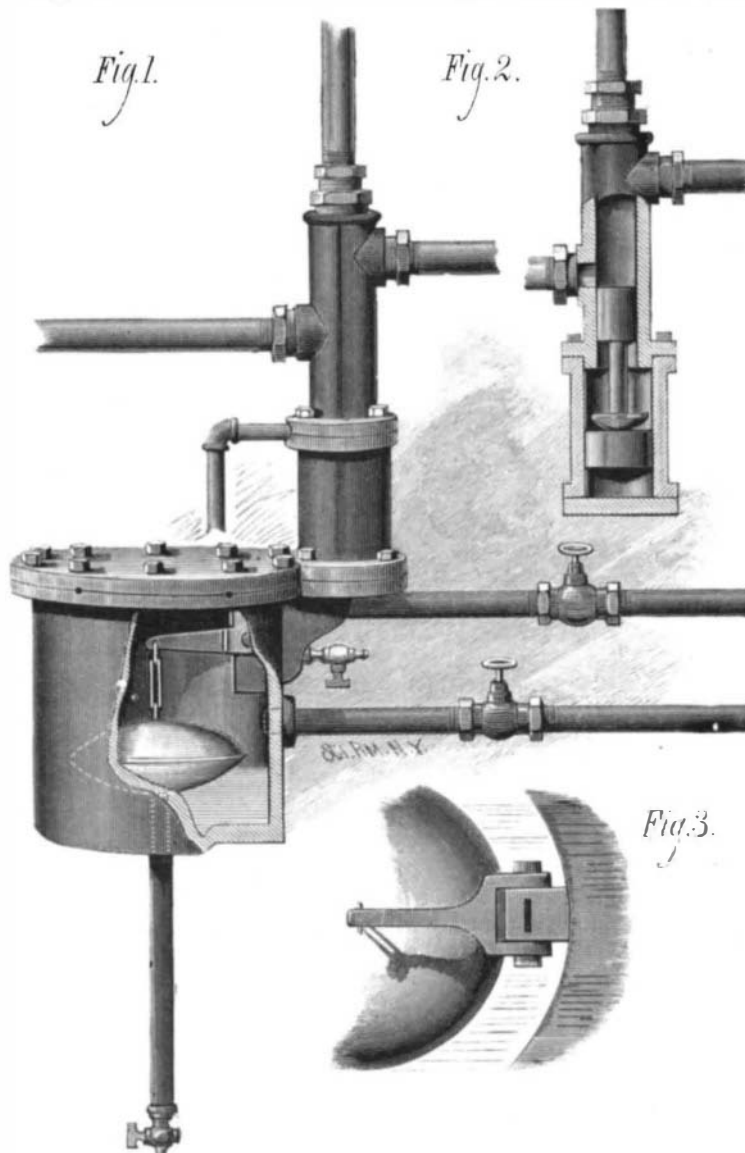
**BARNES' CATTLE RINGER.**

and that the duty of the float is simply to turn the steam on and off from the actuating mechanism.

Further information may be obtained by addressing the Kuhne Regulator Company, P. O. box 606, Corry, Pa.

**MECHANICAL INVENTIONS.**

An improved milling cutter has been patented by Mr. Alfred Muir, of Manchester, County of Lancaster, England. This invention is applicable to cylindrical milling-cutters and globe-shaped cutters, and to cylindrical cutters having curved, rounded, taper, or flat ends, also to face cutters and to reamers. The teeth are formed on the cutter or reamer in the usual way, and then spiral grooves are made around it, thus dividing the faces of the cutting edges. In making the

**KUHNE'S FEED-WATER REGULATOR.**

spiral groove the edge is undercut to make clearance at one side, and afterward the other side of the groove is cut out, thus giving clearance at both sides of the cutting edges.

Mr. John Grein, of Maine Prairie, Minn., has patented an improved wrench for use in oiling carriages and for other purposes, which is so constructed as to hold the nut when removed in such manner that it can be replaced without soiling the hands.

Mr. John Hyslop, Jr., of Abington, Mass., has patented a machine for cutting, shaping, or finishing the heads of tacks, nails, and rivets, which is so constructed as to make all the heads uniform in shape and size.

**Summer Conventions.**

Among the important conventions recently in session are several at such a distance that only the briefest accounts have been telegraphed.

The American Society of Civil Engineers began its thirteenth annual meeting in Montreal on the 15th. The members were welcomed by Mayor Beaudry and Principal Dawson, of McGill University.

The Associated Maltsters of the United States met at Niagara Falls the same day.

The American Railway Master Mechanics met for their fourteenth annual convention in Providence, R. I., June 14, nineteen States being represented at the opening session. The secretary's report showed a membership of 197. A

paper was read from Reuben Wells, of Louisville, Ky., upon the manner of riveting boilers, favoring button-set riveting above hand riveting. The paper was generally approved. A report from Jacob Johann, of Springfield, Ill., favored a straight style of boiler rather than the wagon top. A committee was appointed to consider the propriety of adopting a standard gauge. A committee was appointed to report on the most economical plan for running locomotives. The next day Mr. James M. Boon, of Fort Wayne, Ind., reported for the committee on the best means of producing combustion of bituminous coal in locomotives. Mr. W. Woodcock, of New Jersey, for the committee on the best form of locomotives, reported in favor of the American eight-wheel as best for express passenger service.

The fourteenth annual convention of the Master Car Builders of the United States and Canada began in this city on the 14th. A large number of delegates were present. The first session was devoted chiefly to the discussion of proposed amendments to the constitution relative to membership.

The chief interest centered on a proposition to make eligible for representative membership any person having a practical knowledge of car construction, and to give to such a member all the privileges of active members, and in addition thereto in all measures pertaining to the adoption of standards for car construction, or the expenditure of money, one more vote for each thousand cars owned by the company he represents. It was contended by those favoring the

provision that it would gain for the association the active interest of the heads of the various railroad companies, and by those who opposed it that too much power would thereby be given to the wealthier corporations. The matter was finally referred to a committee of five, to be reported on at the next annual meeting. The remainder of the morning session was occupied by the discussion of the report of the committee on brake-shoes. The afternoon session was devoted altogether to discussion of the rules governing the interchange of freight cars between roads. The rules relate to the condition of cars, inspection at the time of interchange, and payment for repairs and for cars destroyed while in the custody of other roads. Among the important subjects to be reported on by committees appointed last year at Detroit, are, "How to Prevent Accidents and Injury to Train-men," "The Best System of Train Brakes for Freight Cars," "Standard System of Screw-threads for Nuts and Bolts." An interesting feature of the convention is an exhibition of recent inventions relative to improvements in rolling stock.

The American Pædological Society convened in this city on the 13th. President T. C. Duncan, M.D., of Chicago, read an important paper on "Pædology as a Specialty," in which he urged a larger attention to those diseases which occasion the terrible mortality of children under five years of age. Dr. S. Lillenthal, of New York, read a paper on infantile eczema. Other infantile diseases were discussed, such as tonsillitis, gastro-enteritis, capillary bronchitis, etc. The officers for the ensuing year are: President, Dr. S. Lillenthal; Vice-President, Dr. W. B. Chamberlain; Secretary, Dr. W. P. Armstrong; Board of Censors, Dr. George F. Foote, Dr. T. C. Duncan, Dr. M. Deschere, of New York; Dr. E. M. Jones, of Taunton, Mass.; and Dr. D. Foss, of Newburyport, Mass. The president then appointed the following gentlemen to prepare papers to be read at the next convention of the society: Prof. Dr. W. Owen, of Cincinnati, on chronic eczema; Prof. Dr. M. Deschere, on capillary bronchitis; Prof. Dr. W. C. Earle, of Chicago, on diphtheritic croup; and Prof. Dr. J. P. Mills, of Chicago, on elementary infantile foods.

The American Institute of Homeopathy began its thirty-eighth annual session at Brighton Beach, Coney Island, June 14, with a large attendance. In the usual address the president, Dr. J. W. Dowling, of Brooklyn, said that there were 6,030 physicians in the United States whose practice was according to the homeopathic law; there were 11 homeopathic medical colleges, no less than 38 homeopathic hospitals, 29 dispensaries, 23 State societies, 93 local societies, and 16 medical journals. In a paper on personal hygiene as to fluids drunk, Dr. George M. Ockford, of Burlington, Vermont, spoke of the need of caution with regard to the use

of ice water, as gastric troubles and insanity sometimes resulted from its careless use as well as from water polluted with sewage matter. The effects of alcohol on highly sensitive nervous organizations were considered at length, and an increase of insanity, epilepsy, and kindred nervous disturbances was traced to its use as a beverage. Dr. Ockford also lamented the increasing use of absinthe among the intellectual classes, and regarded it as rapidly ruinous to the constitution, productive of serious disturbance of the function of the brain and nervous system, and very dangerous as a habit. He considered tea as a better beverage than coffee in cold climates, and contradicted the current notion that tea tasters became broken down in nervous function by the pursuit of their business. Coffee could be used without disadvantage as a beverage in southern climates, but in the north once a day should generally be the limit, as dyspepsia and nervous derangement frequently followed the coffee habit when inveterately indulged. He recommended caution in the use of milk—one of the most valuable of beverages and foods when pure and clean, but exceedingly liable to pollution and a frequent agent in the propagation of diseases, having in a high degree the property of absorbing putrescent matter without its presence being detectable by the senses.

**Advantages of Electric Railways.**

In an extended account of the construction and working of the Siemens electric railway at Berlin the London *Times* mentions as first among the advantages which the electric motor has over steam or compressed air for passenger transport, the circumstance that no heavy machinery has to be carried about to set the train in motion. The carriages can, therefore, be built in a lighter manner, thus reducing the power necessary to move them, and permitting all bridges and other superstructures to be built more cheaply than usual. Several carriages, each with a dynamo machine, can be joined to one train, and by this distribution of motive power much steeper inclines can be overcome than when the same train is drawn by a single locomotive. In addition to the ordinary brakes, means can be provided to short-circuit the machines on the carriages, and to cause them to act as very powerful brakes. The use of large stationary engines reduces the amount of fuel necessary to develop a certain power on the traveling carriage, and if waterfalls can be utilized the cost of working these railways can be further diminished. It seems probable that such railways can be usefully and economically constructed to facilitate the traffic in crowded streets, or in situations where local circumstances favor their application. From all that has been done during the last few years it is evident that the art of transmitting power by electricity has advanced rapidly, and that its practical application is continually gaining ground.

**A Vessel Wrecked by a Water Spout.**

The brig Bogota recently arrived at New Bedford, Mass., having on board a party of shipwrecked mariners composed of the officers and crew of the wrecked British brigantine Florence May, who were picked up in the ocean, about 600 miles from this coast, their vessel having been almost torn to pieces by a water spout. Captain Cochran, of the May, says that he sailed from New York May 13, with a crew of eight men and one passenger; weather was good, and May 23 the vessel had reached latitude 35:42, longitude 65:26, and was lying becalmed; at 2 o'clock A. M., she was struck in the bow by a waterspout, which hit her so forcibly that she was opened forward, her jibboom and head gear were twisted off, and the vessel severely strained and her seams opened, causing her to leak badly. The pumps were at once started, and for three days she drifted about in an unmanageable condition. Fortunately the weather was good, and but little difficulty was experienced in keeping her free from water, but on the third day one of the pumps gave out, the water began to gain in the hold, and the boats were prepared for leaving the brig; but at this juncture the Bogota appeared and rescued the crew, with their personal baggage. The Florence May was 213 tons burden, and was loaded with a miscellaneous cargo, consisting mainly of flour and grain.

**Quick Telegraphy.**

The Direct Cable Company and the *Evening Telegram* of this city seem to be justly proud of a recent feat in rapid telegraphy, by which the result of the Derby race in England was announced here in advance of all other mediums of communication. The *Telegram*, with its usual enterprise, had an operator and instrument on the grand stand at Epsom. The remainder of the story is thus recorded: "Horses got away at 10:21:5, New York time. Iroquois passed winning post 10:23:55, New York time. Result reached New York 10:24. Time occupied in transmission, 5 seconds."

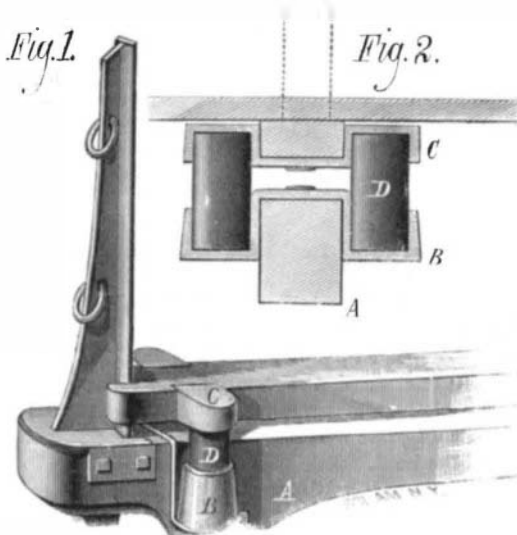
**Electrical Light Patents.**

About 175 patents have so far been granted for patents relating to electrical lighting, in this country, and about three hundred more applications for patents thereon are now pending.

When we consider the large number of patents now existing for telegraphing instruments, telephones, alarms, electrical batteries, switches, and the divisions of electrical devices, it will readily be understood that the Patent Office at Washington is rapidly becoming a great store house of novelties relating to electricity, and that this branch of invention is already one of extraordinary magnitude.

**IMPROVED WAGON SPRING.**

The engraving shows an improved wagon spring lately patented by Mr. Christopher Heinen, of Fort Laramie, Wyoming Territory, and designed to lessen the concussion between body and bolsters. The bolster, A, is supplied at the ends with removable standards, and with sockets, B, formed in one piece with a saddle plate fitted on the bolster. Inverted sockets, C, made like the sockets, B, but somewhat



HEINEN'S WAGON SPRING.

shallower, are secured to a bar extending parallel with the bolster, A, and guided by the standards. In the sockets, B, are placed springs, D, which may be either of rubber or steel. The upper ends of these springs are received by the sockets, C.

With this construction the body of the wagon has an elastic support, which relieves it from shocks and the running gear of the wagon, and at the same time relieved from the downward blows of the load.

This device can be readily applied to wagons already in use, and will not only break the concussion between the body and bolster, so as to avoid injury to the load by jarring, but it will increase the durability of the wagon.

Fig. 1 is a perspective view of one end of a bolster having the improvement applied, and Fig. 2 is a transverse section showing the relation of springs, sockets, and bolster.

**IMPROVED AIR PUMP.**

The illustration represents a powerful double-acting hand pump for air or gas lately brought out by Mr. H. Weindell, 405 N. Fourth street, Philadelphia. A smaller pump for air only



WEINDELL'S AIR AND GAS PUMP.

was illustrated in this paper on Oct. 15, 1876, in which the leading principle is the same as in the pump now illustrated. The present improvements made consist mainly in greater simplicity and different construction in the pumping cylinder to adapt the machine to more varied uses.

By moving the hand lever, consisting of the frame containing the slide rod, piston, and piston rod, the two flywheels are rotated, and the momentum acquired by these is sufficient to bring the cylinder to a point where the resistance of the compressed air is equal to that in the receiver. At this point the slide rod (on hand lever) and the crank (formed on the flywheels) stand at such an angle as to work like a toggle joint and compress and expel the air with great force.

The particular pump shown is expressly designed as exhaust pump. It, therefore, has a long stroke (6 inches) and very large and light inlet valves of 2 3/8 inches diameter, consisting of leather plates backed by sheet brass. The flywheels are 15 inches in diameter, and the entire machine is very strongly built, weighing almost 70 pounds. It will, when compressing air at its regular working speed of about 110 revolutions a minute, readily give in its 2 3/8 inch cylinder 32 pounds pressure to the inch. In exhausting it will also quickly raise mercury within three-quarters of an inch of the barometric pressure. This is with valves actuated by air pressure only. The same pump is also built for a better vacuum yet, having for this purpose valves operated by friction only, and a simple contrivance connecting automatically for a short time at each stroke both sides, thereby answering as a Babinet cock, making very complete exhaustion possible.

**The Lady Franklin Bay Colony.**

The members of the Arctic expedition under the command of Lieutenant Greeley, have assembled at St. Johns, Newfoundland, intending to start July 4, for Lady Franklin Bay. The whaling steamer Proteus has been chartered for the conveyance of the enlisted men and officers detailed by the Signal Service Bureau for the expedition. The personnel of the expedition is as follows:

Lieutenant A. W. Greeley, Fifth Cavalry (in charge); Lieutenant James B. Lockwood, Lieutenant Frederick T. Kislingburg, Sergeants Edward Israel, W. S. Fewell, George W. Rice, and D. C. Ralston, of the Signal Corps; Sergeants D. L. Brainard and D. Sinn, and Corporals D. C. Starr and N. Sailor, Second Cavalry; Corporal P. Grimm, Eleventh Infantry; Corporal J. E. Elison, Tenth Infantry; Privates Black and Gardiner, Signal Corps; J. Frederick, Second Cavalry; J. Ryan, Second Cavalry; W. Ellis and T. M. Connell, Third Cavalry; Charles B. Henry, Fifth Cavalry; J. Bender, Francis Long, and W. Whistler, Ninth Infantry; J. H. Bredbrick, Seventeenth Infantry; and W. H. Cross, general service.

The expedition is intended to establish a permanent scientific colony at the most suitable point north of the eighty-first parallel and contiguous to the coal seam near Lady Franklin Bay. The official instructions provide that after leaving St. Johns, N. F., except to obtain Esquimaux hunters, dogs, clothing, etc., at Disco or Upernavik, only such stops will be made as the condition of the ice necessitates, or as are essential in order to determine the exact location and condition of the stores cached on the east coast of Grinnell Land by the English expedition of 1875.

The main purpose of the colony is meteorological observation, the station being one of eight or more to be established for such work by the United States, Russia, Norway, Sweden, Holland, Denmark, Austria, and probably also by Germany, France, Great Britain, and Canada. The American colony engage in the work of geographical exploration by sledge parties, and will give careful attention to the collection of specimens of vegetables, animals, and minerals. Incidentally they will keep a sharp lookout for the Jeanette expedition, which may drift into that quarter.

**Drifting Half a Year.**

The following report of the rescue of nine Japanese sailors by the Pacific steamship City of Peking, is printed in the San Francisco *Chronicle* of June 13: The Japanese had been blown out to sea in a storm which occurred December 9, 1880. They lost their masts and rudder in the storm, and had been drifting at the mercy of the winds, they knew not where. After their own provisions were exhausted they subsisted on their cargo, mostly beans and dried fish, and such rain water as they could catch during the six months which had elapsed since the typhoon occurred. They had burned most of the small woodwork, doors, berths, windows, etc., of their vessel for fuel, and were on short food rations, 40 beans per day for each man being the allowance. Their fire, when put out from time to time, they had rekindled by rubbing two pieces of wood together. They had given up all hope of ever seeing land or anything human again, when, on Saturday, the 28th of May, in latitude 36° 37' north, longitude 143° 54' east, about 300 miles from the Bay of Yeddo and Yokohama, they sighted the Peking on the wide waste of water. Captain Berry, in answer to their signals of distress, bore down and sent one of the boats off with an officer and the doctor to examine into their sanitary condition, and the poor souls were soon landed on her deck. One of their number had died the day previous from exposure, hunger, and anxiety.

**Discovery of an Aztec Calendar Stone.**

The *World's* correspondent at Mexico reports the discovery of a new Aztec calendar stone. It was found, June 2, by Captain Eavans under a dilapidated Indian hut, which stood on the place that once formed the favorite garden of the Texcocan "Poet Prince" Netzahualcoyotl. It is a stone slab, eight feet by six, covered with hieroglyphs, and near the center of it is a clearly cut calendar—similar to the famous "Aztec Calendar stone" which is now attached to the cathedral in the city of Mexico. The stone goes to the Mexican National Museum. Further excavations are to be made on the same site, and since King Netzahualcoyotl "the Wise" built his palace on a hillock on which the residence of the sovereign lords of a more ancient nation had stood, it is probable that further researches in that locality may lead to interesting discoveries.