tive in detecting and suppressing

sion of this subject by of wat in his annual re-to your earnest attention. MEDALS OF HONOR. recommendation made in making that Congress

teers, regulars, sallors and duty in the Philippines who remained in the service aferms of enlistment had exwar for the detail of offihe line of the army, when yar in the adjutant gen

riment, inspector general's quartermaster general's subsistence department The army cannot be mmended for its faithful ce service in active military in the field and the difficult its able administration.

#### POSTAL SERVICE.

ntinued and rapid growth of service is a sure index of and increasing business ac-be country. Its most strik-evelopment is the extension delivery. This has come ng of the fiscal year number of routes in as only 301, and most of umber had increased to 2 into 44 States and Terriserving a population of 1,ing and awaiting action near-all those granted up to the scal year about 4,000 route c been established, providing daily delivery of mails at the homes of about three and a ons of rural population. Timellorates the Isolation conduces to good roads, and and extends the dissemination has tended to allay the ap that it would be so expen-forbid its general adoption it a general burden. Its net cation has shown that it in postal receipts and can be ac oled by reductions in other es of the service, so that the nied revenues and the accomsavings together materially, re e net cost. The evidences which these conclusions are presented all in the annual report of the aster general, which, with its mendations, is recommended to asideration of the Congress. The velopment of this special serquires such an outlay of money ould be undertaken only after areful study and thorough under-ding of all that it involves. Very efficient service has been ren-ered by the navy in connection with a insurrection in the Philippines and

the recent disturbance in China, ARMOR PLATE.

A very satisfactory settlement has n made of the long pending question the manufacture of armor plates; reasonable price has been secured and necessity for a government armor

pprove of the recommendations of cretary of the navy for new ves-ind for additional officers and which the required increase of navy makes necessary.

'ongress the measure now pendfor the erection of a statue to the nory of the late David D. Porter, NATIONAL NAVAL RESERVE.

commend also the establishment of de of vice admiral. Provisions ald be made as recommended by Many officers who ren most distinguished service dur he recent war with Spain have rein return no recognition from

#### AREA OF PUBLIC LAND.

The total area of public land as given the secretary of the interior is ap ximately 1,971,881,662 acres, of which 35,880 acres are undisposed of and 1.745,782 acres have been reserved for ous purposes. The public lands dised of during the year amount to 153,887,96 acres, including 62,423.09 res of Indian lands, an increase of 21,474.80 over the preceding year, The I receipts from the sale from the ile lands during the fiscal year were .10, an increase of \$1,309,962.72 er the preceding year.

## FOREST RESERVES.

The results obtained from our fores ces have demonstrated its wisdom the necessity in the interest for lons by Congress for the carrying is work. On June 30, 1900, there thirty-seven forest reserves creatpresidential proclamations unection 24 of the act of March 3, embracing an area of 46,825,529 ng the past year the Olympic re-

in the State of Washington, was d 265,040 acres, leaving its pres-ca at 1,923,840 acres. The Presserve in Arizona was increased 0.240 acres to 423,680 acres, and g Horn reserve, in Wyoming was sed from 1,127,690 acres to 1,180,800 A new reserve, the Santa Ynez ornia, embracing an area of 145. es was created during this year ober 10, 1960, the Crow Creek of reserve, in Wyoming, was creat-with an area of 56,320 acres.

## THE PENSION ROLL.

It the end of the fiscal year there pension roll 993,275 names, a case of 2,010 over the facal year he number added to the rolls year was 45,344. The amount sed for army pensions during this was \$224,700,594.25, and for navy \$3,761,533.41, a total of \$128. aving an unexpended bal f \$5.542,768.25 to be covered into sury, which shows an increase previous year's expenditure 70. There were 684 names added rolls during the year by special assed at the first session of the

act of May, 1900, among other provides for an extension of to widows pensioned under sale \$250 per annum. The secretary interior believes that by the ons of this act the number pensioned under it will increase increased annual payment fo IS will be between \$3,000,000 and

government justly appreciates ervices of its soldiers and sallors making pension payments liberal precedent to men, their widows

LETTERS PATENT GRANTED.

there were 26,540 letters patent grant including releases and decigns by the fiscal year ended June 30 .660 trade marks, 682 labels and 20

number of patents which expired were \$1,458,228,35. The expendi-Were \$1,247,827,58, showing a sur-of \$110,400,77,

attention of the Congress is by the secretary of the interior increasing necessity of further shiishing of schools in Alaska and cotable action is invited thereon.

HAWAHAN ISLANDS.

Much interesting information is givof the governor of to the progress and devel-

for their annexation, up to April 30, 1900, the dute of the aproval of the act viding a government for the terri-

The last Hawaiian census, taken in the year 1898, gives a total population of 109,020, of which 31,019 were native Hawaiians. The number of Americans orted was 8,485. The results of the cal census, taken this year, show

There has been marked progress in the educational, agricultural and railroad develorment of the Islands.
In the territorial act of April 30, 1000, section 7 of said act repeals chapter 34, of the civil laws of Hawall, whereby the government was to assist in encouraging and developing the agricultural resources of the republic especially irrigation. The governm of Hawall recommends legislation looking to the department of water supply as may department of water supply as may exist on the public lands with a view of promoting land settlement. The earnest consideration of the Congress

#### port of the secretary of the interior. TWELFTH CENSUS.

is invited to this important recommen-dation and others embodied in the re-

The director of the census states that the work in conection with the twelfth census is progressing favorably. This national undertaking, ordered by the Congress, has finally resulted in the collection of an aggregation of statis-tical facts to determine the industrial growth of the country, its manufactur-ing and mercantile resources, its richess in mines and forests, the number of its agricultural districts, their farms and products, its educational and reions pertaining to sociological condi-

The labors of the officials in charge of the bureau indicate that the law of March 3, 1899, requiring the complete sired subjects, namely, population, agstatistics, will be completed within the

prescribed limit.

The field work incident to the above inquiries is now practically finished and as a result the population of the States and territories, including the Hawaiian islands and Alaska, has been an nounced. The growth of population during the last decade amounts to 413,-000,000, a greater numerical increase than in any previous census in the history of the nation.

#### WILL ISSUE BULLETINS.

Bulletins will be issued as rapidly as possible, giving the population by States and territories by minor civi divisions. Several announcements of this kind have already been made and it is hoped that the list will be completed by January 1. Other bulletin series. etin giving the results of the mun uracturing and agricultural inquiries will be given to the public as rapidly as circumstances will permit.

The director, while confident of his ability to complete the different branches of the undertaking in the al-

lotted time finds himself embarrassed by the lack of a trained force properly equipped for statistical work, thus raising the question whether in the interst of economy and a thorough execu on of the census work there should not be retained in the government er ploy a certain number of experts no only to aid in the preliminary organi zation, prior to the taking of hte decennial census, but in addition to having the advantage of the work of a oureau of trained assistants to tate the early completion of the enormous undertaking.

APPORTIONMENT OF REURESEN-TATION.

I recommend that the Congress apportion representation among the eral States as provided by the Constitution.

DEPARTMENT OF AGRICULTURE. The department of agriculture has been extending its work during the past year, reaching farther for new varieties of seeds and plants, co-operating more fully with the States and Terirtories in research along useful lines; making progress in meteorogical work relating to lines of wire tele-graphy and forecasts for ocean going essels; continuing inquiry as to mal disease; looking into the extent and character of food adulteration; outlining plans for the cars preservation and intelligent har-vesting of our woodlands studying soils that producers may cultivate with better knowledge of conditions and hoping to clothe desert places with grasses suitable to our arld regions. Our island possessions are being considered, that peoples may be helped to produce the tropical products now so extensively brought into the United States. In-quiry into methods of improving our is has been active during the year elp has been given to many localities the States and Territories have een inaugurated, irrigation problems our semi-arid regions are receiving

careful and increased consideration. An extensive exhibit at Paris of the roducts of agriculture has made the oples of many countries more familiar with the varied products of our fields and their comparative excellence.

EXHIBIT AT PARIS. The collection of statistics regarding our crops is being improved and sources of information are being en-arged, to the end that producers may ve the earliest advices regarding crop nditions. There has never been a ime when those for whom it was es ablished have shown more apprech tion of the services of the department,

ALIEN CONTRACT LAW. In my annual message of December 5, 1898, I called attention to the neces-sity for some amendment of the alien contract law. There still remain imcation of the eight-hour law for the benefit of labor and of the principle of arbitration and I again commend the subjects to the careful attention of the

PHILIPPINE CIVIL SERVICE. That there may be secured the best service possible in the Philippines, I issued under date of Nov. 10, 1900, the

The United States civil service comdission is directed to render such serice as may be practicable to the civil ervice board, created under the act of he United States Philippine commis ion for the establishment and mainenance of an honest and efficient ciervice in the Philippine islands, and or that purpose to conduct examina-ions for the civil service of the Philipnos, upon the request of the civil ser-ce board of said islands, under such regulations as may be agreed upon by the said board and the said United States civil service commission.

## COMMISSION'S NEEDS.

The civil service commission is greatembarrassed in its work for want of adequate permanent force for eleriand other assistance. Its needs are ly set forth in its report. ttention to the report, and especially orge upon the Congress that this imwhich passes upon the qualifications and character of so large a number of officers and employes of the govern-ment, should be supported by all needed appropriations to secure promptness and efficiency.

HALL OF PUBLIC RECORDS.

I am very much impressed with the statement made by the heads of all departments of the urgent necessity of a hail of public records. In every departit of the isuands during the per-from July, 1878, to the date of as I am informed, the space for official he joint treaty by Congress providing records is not only exhausted, W. J. Barratt,

but the walls of rooms fined with shelves, the middle floor space of many rooms is filled the middle with file cases; and garrets and base-ments, which were never intended attl-are unfitted for their accommodation, are crowded with them. Aside from the inconvenuence, there is great danger, bot only from fire, but from the weight of these records upon timbers not intended for their support. There should be a separate building, especialy designed for the purpose of receiving and preserving the annually acumulating archieves of the several recutive departments. Such a half should be so arranged as to admit of enurgement from time to line. I urgently recommend that the Congress take early action in this matter.

JOHN MARSHALL DAY. the proposed celebration of John Mar-shall day, February 4, 1901. Pitting exercises have been arranged, and it is earnestly desired by the committee that he Congress may participate in this at to the honor of the merits of

#### DISTRICT OF COLUMBIA.

The transfer of the government to feeling of genuine pride in the capital the Republic. It is a matter of in rest in this connection that in 1800 he population of the District of Co-umbla was 14,693; today it is 278,718. The population of the city of Washurion was then 3,210; today it is 218,

The Congress having provided for

an appropriate mational celebra-on of the centennial anniversary at of government in the istrict of Columbia," the committees utherized by it have prepared a pro-ram for the 12th of December, 1300. thich date has been selected as the iniversary day. Deep interest has sen shown in the arrangements for se celebration by the mambers of the oming Senate and House, the commitof governors appointed by the Presrict of Columbia generally. The pro-ram, in addition to a reception and be exercises to be held jointly by the enate and House of Representatives in the hall of the House of Representa-lives and a reception in the evening at

#### DANGER OF EXTRAVAGANCE.

In our great prosperity we must extravagance in government expendi-tures and apropriations; and the chosen epresentatives of the people will, I ubt not, furnish an example in their egislation of that wise economy which n a season of plenty husbands for the future. In this era of great business activity and opportunity caution is not untimely. It will not abate but strengthen our confidence. It will not retard, but promote legitimate indus-trial and commercial expansion.

#### AVOID TEMPTATIONS.

Our growing power brings with it temptations and perils requiring con-stant vigilance to avoid. It must not be used to invite conflicts, nor for oppression, but for the more effective main-tenance of those principles of equality and justice upon which our institutions and happiness depend. Let us keep alvays in mind that the foundation of our government is liberty; its superstructure peaces.
WILLIAM MCKINLEY.

#### E. W. WILSON NAMED. He is Put Forth by Petition for Member

of School Board. E. W. Wilson, present member of the board of education from the First municipal ward, wants to be re-elected, but will not trust to the non-partisan convention called for this evening, so he has secured nomination by the following petition:

Salt Lake City, Utah, November, 1900, Hon, E. W. Wilson, Salt Lake City, Utah:-Dear Sir:-We, the undersigned residents and taxpayers of the First nunicipal ward of this city, recognize and appreciate your able and efficient services as a member of the board of education of this city from this ward. We are aware that you do not seek a re-election, but we believe that the best aterests of the people of this ward emand that you lay aside your persondon. We respectfully and earnestly request that you become a candidate for re-election as a member of the board of education of this city at the election to take place December 5, 1900;

Mrs. May Pitcher, Mrs. Alice S. Stone,
Mrs. D.L. Nickum, W. W. Rives,
H. E. Deardorff, L. B. Coates,
Mrs. J. S. Weller,
Carrie Carlson, Mrs. K. W. Green,
Carrie Carlson, Mrs. L. C. Shield, Bernhart, Mrs. Theo. Loven-Mrs. W. W. Rives, Mrs. L. Morrison, Mary J. Wolcott, ard F. Neslin, S. Stone, Mrs. G. A. Lyon. V. B. Shield, Mary J. Burton, Mumie Stephens, J. M. Stoutt, Theo. Lovendule, Mary E. Wolcott, Mrs. J.B. Stephens, Jonnie Sullivan Mrs. Adeline Stoutt, William M. Scott Mrs. J. C. Grifflth, Thomas Harris, d. W. Griffith. George Harris, A. M. Tatleck, Mrs.Dalsy Cushlon, Virginia E. Rives, Mary A. Schupp. 1878 C. Weeks. Thomas Yardley, Harrington, B. Harris. Mrs. S. O. Dininny, ohn Rives, E. A. Breckon. Dean Breeze, Mrs. H. C. McDon-Helen Yardley, E. E. Yardiey.

C. McDonough, H. A. Miller, Barbara Hoffer, James Savage,

George Nickum, Gertrude E.Corker, Mrs. I. M. Riddle. Kate McKenzie. Mrs. P. V. Sprout, Mrs. P. C. Beebee, Mrs. J. E. Counsel- Isabell M. Hall Mrs. E. C. Thomp- Mrs. C. S. Martin. Mrs. E. Hawkhurst, A. S. Martin. A. E. Wilson. E. Hawkhurst,

Art Croxford. M. S. Rock, Croxford. Villiam Handley W. Dittmann, Lillian Crexford, Thomas Hobday, H. M. Schenck, A. H. Adkison, J. Schenck, Harry Adkison, Hannah L. Rock, Sara H. Letcher, Maldle A. Dye. Mrs. J. E. Rule, Annie Dye, J. E. Rule, C. E. Street. Mrs. H. E.Redfield,

S. A. Parker, Loretta Dye, Mrs. W.H. Bennett, Mrs. E. M. Holder, Mrs. Sarah Carter, G. D. Walker, Mrs. M. D.Eidredge Mary E.McCallum. Frank Pierce. Frunk Pierce, Mrs. Anna Schafer, A. Scott Chapman, Mas V. Gilmere, Mrs. Vallance, Mrs. A. T. Miller, F. E. Schoppe, Mrs. A. C. Ewing, Mrs. Kate H. Han- Mrs. J. H. Snyder, cock. Mrs. Robt. Beveridge,

Hattle M. Parsons, Mrs. M. Ash, Geo. Olds Orr, Mrs. M. P. Falor, John Birieigh, Mrs. David Evans. Mrs. J. B. Rarton, Mrs. Richard Hart Henry A. Reven-

May M. McLaugh-Hilda C. Ehters. John McCabe, Mrs. A. I. Drake, E. D. Hoge, Mrs. Mary Meloy. F. Goodwin. H. Farnsworth, Mrs. A. E. Street,

Mrs. Lund, Mrs. Lund, Richard Hartley A. E. Scoddard, d A. Slade, Davis, A. H. Studdard, C. Kidder, Constance A. Din-Nahum Eager, inny. W. J. Barrett, Mrs. D. Cummings, Jos. Milliron, Sou Clark. Jos. Milliron, Sou Clark, H. Hancock, Mrs. Alice Pitt, Ewing, M. D. Mrs. W. J. Moore, J. Lynch, L. J. Harwood, Wallace, F. M. Climer, Mrs. Fred Gul-Parsons, Warren, F Scoffeld, Fred Chubransen, W. W. Gee, Mc Mrs. H. H. Me J. Steward, Mrs. L. M. Chillian Adamson, Mrs. P. H. Clark

ath,
a. Jennie Land\* H. Dessey,
smarck Snyder, Harry McLain,
ibert Riddle, L. D. Cary,
M. Miller, Mrs. E. G. Mc-J. B. Tim- Maria Sherard,

Goetchius. T. Strong, es. Carrie Riley, vra L. Sawyer, Charles Porter, A. H. Hillen Geo. H. Ingham Isabelia Christen Hapgood, H. Eills. Sen. Leonora Lynch, F. E. Margetts, John W. Burton,

Montgom- Emma Allen. L. C. Kelsev, newald. Mrs. W. C. Tracy, Greenewald. rank H. Clark, Mrs. Maltida Par Edward Home. Sine Gulbranson, Mrs. J. G. Holman H. Parsons. Mes. E. McLaugh Phosho M. Mc

laughlin. Mrs. Hvier, Haulstein, Mes Harbara E. . R. Hall. C. A. Walker. Jones, M. H. Desky. Luncine W. Hoge, Sarah A. Shepperd. Mrs. W. S. Glesy, Lucy A. Harring-Mrs. B. S. Kimball S. Kendall, has J. E. Gul A. Dix.

John Rockefeller, Marcaret Gifford, T. H. Warner, Houston, Julia Chatfield, Wm. Allen. J. F. Taylor. John T. Buckle, Mrs. Emms Mont- J E. Lynch. H. P. Lytie. Mrs. Hillen. le Porter.

has, C. Buckle, Miss Amy Harris, Mary J. Rice, J. D. Pardes, C. P. Madsen, B. Sawyer. H. J. Rivers. aura I. Goechins, W. Skinner, Josiah McClain, Mrs. Lou Cary, Mrs. Rody McLain, Mrs. H. Dewey, scar Groshell, A. Virtue, F. A. Virtue H. T. Duke, Nell Prout. G. Parker Norton ohn W. Dallas, Anna Clarke, Mrs. Shand Smith H. V. Van Pett.

Mrs. Nellie Porbes, H. H. McCreary, Mrs. W. W. Gee. Christian Sahler, Mrs. E. F. Root. N. Gulbransen N. Bulbransen. N. Gulbransen. Rose G. Parmales, Mrs. N. Gulbran Mrs. J. G. Holman,

SCIENTIFIC MISCELLANY.

Workers in glass, especially opticians, re warned that certain kinds of glass appear to be so soluble in water that destroys the transparency, Mr. E. P. Mondy, of Decoa College, East Bengal, eports having noticed the duli matt ppearance of a cut wine glass and of nger-bowis in which water had been IN Delib need bad doldw steinscho owi ter partial draining. These effects were all due to water-etching, This ex-plains the rapid deterloration of optical apparatus in the moist elimate of In and of giass used is furnished by the mer surface of the convex lens being of the concave lens was quite clear,

The motion of campbor in water is well known. A German chemist, K. Schnum, has taken such rendity solu potassium nitrale, silver nitrale, cal dum chloride, potassium permanganate and sugar, and has studied their trav dissolving by dropping single er or dilute acid. The movements greater in cliute acid than in water-are very characteristic. The crysta The movementsfirst takes a zigzag course, the changes to a circular path, and finally turus rapidly on its axis. The rate of motion varies with the rate of solution

The new method of packing used for chipments of butter from Melbourne to Cimberley is recommended for delicate criticles in general. The bex is made from six panes of window giass, closed at the edges with guramed paper, and this is given a heat-insulating covering wrapped in waterproof paper.

The curious fact is noted by a French brones of a hive without harming the

An interesting discovery that has been An interesting the forgotten for more than half a century was bitely brought to notice by Maj. Hen. J. Waterbouse. In 1842 Morse found that silver, like its compound. sensitive to light, and that a distinct image could be formed on a clean silver plate by exposing to sunlight for two or three hours behind a black with cut-out characters and then leveloping over moreury vapor. He strained similar results with copper, uncluding that all substances are hanged by light. Taking up the investigation, Gen. Waterhouse has proen that the photographic image may be visible after exposure, but that, whether visible or invisible, it is clearaction on other metals, except lead, ap- its young.

ars to be very slight, although enc made indicate that the cause of the on cannot be heat or pressure, bu out the effect is due to the blue and diet rays of light. Whather it is sult of oxidization is yet to be learned apparently pure silver, it is known, of ten containing occluded oxygen.

The Importance of a magnetic survey the vicinity of the magnetic poles Dr. Cook of the Belgian Antrtle expedition, points out that a government survey is of far less cons silion of the magnetic poles is yr be fixed. Many years ago the north rn magnetic pole was found to be in he northwestern part of British North America, but its place is steadily hanging and is not now exactly known. n magnetic pole, all that can be said ing that a circle 500 miles across could a drawn on the castern and of Wilker

A novel Russian device for lessening mage in pallway collisions consists of the train and this instantly sets the brakes. Cuts are so made on these tune that it become broken on the slightest irregularity of movement of the train, and this instantly sets the brakes. In a late test at Verscholary, train reaching displaced sleepers and ne pussing upon displaced rails were rompily stopped without damage.

Success in waterproofing cloth by th Success in was proofing coan by the aid of electricity is elained by Mr. J. T. Van Gestel after somewhat discourasing failures. The fabrics are saturated in a bath of soluble metallic salis, to which the dye is added, and an electric current is passed through them while in the bath. Suitable apparatus ensures the treatment of both sides allies as the metallic is passed. ddes allke, as the material is passe through. The action is not clearly un hrough, the decion is the necessary leaves of the leavest of some kind is formed by the mascent exygen liberated by the electic current, and this fills the pores of he fabric, giving a water-resisting surand at the same time serving as mordant to fix the dye.

A remarkable exhibition of the webbuilng powers of the red ant (Geoor Mr. E. G. Green, of the Botano Jardens at Peradeniya, Ceylon, A breech having been made in a struc-ure of leaves on which they were B work, the ants quickly drew the edges of the leaves together, and about an hour afterward they were seen to be passing back and forth across the gap two while grubs, from whose mouths issued continuous threads of slik that the ants were using to repair the damage. The larvae had evidently been rought from a nest some distance

Lack of proper nesting places, too ittle water, the English sparrow, boys, ollectors, birds on hats, and the cat, the among the causes of the decrease of song birds, enumerated by D. Lang. He suggests protection and encourage-ment of the birds by planting trees and shrubs for them to live in, putting ip nesting boxes for breeding, providing water for feeding and bathing, and eding in unfavorable weather.

The fireproof building material known s nrallie-much used in Hussia for fur-liurs, etc.—is a compressed mixture of asbetos chalk, silicates sulphurie acid, sulphate of alumina, etc., saturated with gue and mineral color. It combines the advantages of stone with those of wood, and on battleships it emoves the dangers of splintering and

Lighting by phosphorescence has long been an attractive dream. Believing Raphel Dubois has sought for the the most suitable culture bouillor which must contain water, sea sall phosphated and other foods, and trace f mineral matter. After thousands of liquid bonitions in giving a root the light of full moonligh By this light from millions lving organisms, print may be read the time told by a watch, and a fe operations may be performed for which ordinary artificial light would be unsuitable. M. Dubois expects to in-crease the intensity of the light thus making it of much practical value,

Connection between the acoustics and the plaster of a room has been pointed out by Professor Charles Nussbaum. To obtain at once the best result where softness of timbre or tone colo valls and ceiling should not be covers of plaster of Paris, free from sand in the upper tayers, and carefully smoothed. The strongly elastic, deli-cate surface of this plastering is speci-ally adapted for reflecting sound waves and giving soft timbre.

A dark lamp has been made by M. Gustave Le Bon for producing invisible radiations of great wave length. Among the striking experiments performed with it has been the placing near it, in an absolutely dark room, of a statuette covered with sulphide of lime and also perfectly dark. In about two minutes the statuette becomes luminous. pearing to emerge from the darkness.

In a new German furnace, liquid nir is poured upon pent and other low grade fuels to aid combustion. Or evaporation, nitrogen passes off first, leaving a gaseous mixture, containing to per cent of oxygen which powerfully forces the fire.

The centrifugal gun, which uses no explosive whatever, is the result of many years of experiment by an experienced British engineer, Mr. James Judge, A disc at the base of the gun is rotated rapidly by a small electric motor, and the shots are thrown by centrifugal force from the circumference of the disc at any rate up to 3,000 feet pe minute, and with a muzzle velocity about 2,000 feet per second. There is n hoise and no recoil. As at present de-signed, the gun is five feet high and weighs about 600 pounds, and is oper. ated by two men protected by a ligh shield. Though Intended specially fo service on electrically-equipped war-ships, it can be adapted for field purposes by mounting on a light carriage, with the addition of oil engine and dynamo for generating electric current, In addition to obvious advantages, the weapon has unlimited vertical range, and will fire around a complete circle,

Without the sullpeter that was obtained from caves in the Southern States during the war of 1812, it is beleved that the history of America and if the world would have been materially changed. The origin of this cave sait-peter has just been investigated by Mr. W. H. Hess, who finds from numerous analyses that the deposits could not have come from bat gunno, as has been supposed, but that they have resulted from the evaporation of percolating water charged with altraics from the sur-face soil. Similar nitrate deposits are sometimes noticed under ledges of rock,

An old-time belief is that adders, when frightened, swallow their young to protect them. Naturalists generally have declared such a feat impossible, and to settle this point a careful examination of the adder's structure has been made by Mr. G. Leighton, He finds no anatomical evidence against the truthfulness of the old assertion. To mercury vapor or developing solutions acting on the silver. The photographic an adder that has been sent to dissect action on other metals, except the silver.

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