A Disease from Reeds.

A curious affection has been occasionally met with in certain parts of France, especially in Provence, among reed workers, chiefly those who manipulate the stems of Arundo donax. A case at Frontignan (Herault) has lately been very carefully studied by M. Baltus, of Lille. A man, aged forty-seven, and his son, aged seventeen, had been at work for several hours loading a cart with reeds, which had been cut a year before, and kept in a damp trench. Both were seized with painful irritation of the nose, eyes, and throat, followed by erythematous swelling in the same parts, which extended to the hands, trunk, and genital organs. A number of acuminated pustules appeared on the red swollen areas, the conjunctivæ were injected, the eyes streaming, and there was a slight cough. The next day four other persons —three adults and a child—who had come in contact with the reeds deposited at the farm, presented the same symptoms, although in slighter degree.

Moreover, four cats and three dogs which had frequented the same reeds presented red painful crusts about the nostrils. In every case the disease ran a mild course, and disappeared in a few days, under the influence of wet compresses. An examination of the reeds showed that they were covered with a mould consisting of the spores and mycelium of a fungus—Sporotrichum dermatodes—which had developed under the influence of the prolonged exposure to moisture. The spores had been shaken off as dust during the manipulation of the reeds, and had irritated the exposed parts of the skin on which they had lodged. Although usually trifling, the malady may sometimes assume a severe form, lasting nearly a fortnight, and has been known to cause the death of an old man seventy-one years of age. It may apparently be prevented by the simple expedient of washing the reeds before their manipulation.—*Lancet.*

New Slate Mines.

An important discovery of slate was made a short time ago at a spot about one mile from L'Anse, Mich., which report now says is proving of immense magnitude. The following is given in a press dispatch: "A depth of 25 feet has been reached, which shows a deposit of excellent billiard and roofing slate. The vein dips toward the southeast to a distance of 300 feet in width as far as the test pits have been made, then runs west, crossing the Marquette, Houghton & Ontonagon Railroad to an indefinite distance. The outcroppings on the sections show the slate to be within three feet from the surface. The facilities for shipping are excellent. With the railroad to the left of it 200 feet, and the Keewenaw Bay one mile in front of it, the markets of Chicago, Buffalo, and other leading ports can be reached with a cost of 50 to 60 cents a square. The discovery is looked upon with great interest, and will be one of the leading industries of the Upper Peninsula. Stripping and test pitting and other work to improve the property is under progress. The slate is equal to that which has been selected for covering the new Board of Trade Building in Chicago."

American Wheat Exports.

According to the statistics of the British Board of Trade, the United States supplied four years ago 75 per cent of all the wheat and flour imports into Great Britain; in 1881 this import decreased to 69, in 1882 to 55, and in 1883 to 46 per cent; in other words, the import of 93,000,000 bushels in 1881 diminished to 74,000,000 bushels in 1883. The decrease is not due to a reduced consumption, for the total import has increased from 136,000,000 bushels in 1881 to 160,000,000 bushels in 1883.

While we thus see a constant diminution in Great Britain's imports from the United States, we find an increase from other countries, especially Russia and India. Russian grain shipments to England have, for instance, increased from 8,000,000 bushels in 1881 to 27,000,000 bushels in 1883, and the import from India, which consisted of 15,000,000 bushels in 1881, has risen to 23,000,000 bushels in 1883.

In addition to this, Australia produced in 1883 not less than 32,000,000 bushels of wheat, of which a large part was taken to England and sold at prices refused by American speculators.

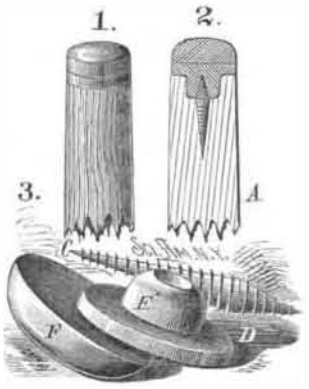
BUTTER PACKAGE.

The accompanying engraving illustrates an invention, recently patented by Mr. J. P. Sinclair, of Mottville, N. Y., which provides an air tight package for holding small quantities of butter. The package is composed of two similar parts made with flanges, so as to form lips which hold the rubber packing in place when the jars are put together. The flanges are beveled to form enlarged portions on opposite sides—as clearly shown in the perspective view, Fig. 1—thereby permitting the jars to be drawn tightly together upon the packing by the buttons. The flanges are under cut in order to furnish a secure hold for the notches in the buttons. This construction prevents the buttons slipping off or in any way injuring the flanges, and insures an hermetical seal.

After the jars have been filled with butter they are placed together, the packing rings having been put between their edges, and the buttons are moved to the thick portions of the flanges. Air being excluded from the interior, the butter will keep fresh and sweet for a great length of time. One-half the contents of a package can be removed, moulded ready for the table, as shown in Fig. 4, without disturbing the other half. Fig. 2 shows the packing ring and clamping buttons, and Fig. 3 is a front view of one jar.

BILLIARD CUE TIP.

A screw, C, which is tapered toward both ends—one taper being about one-third the length of the other—is screwed into the end of the cue in the middle of a cavity having a concave bottom, the short taper projecting from the base of the cavity. One side of the butt piece, E, is furnished with a neck fitting in the cavity in the cue and into which the short taper is screwed, thereby holding the piece securely on the end of the cue. The tip, F, is then glued on the



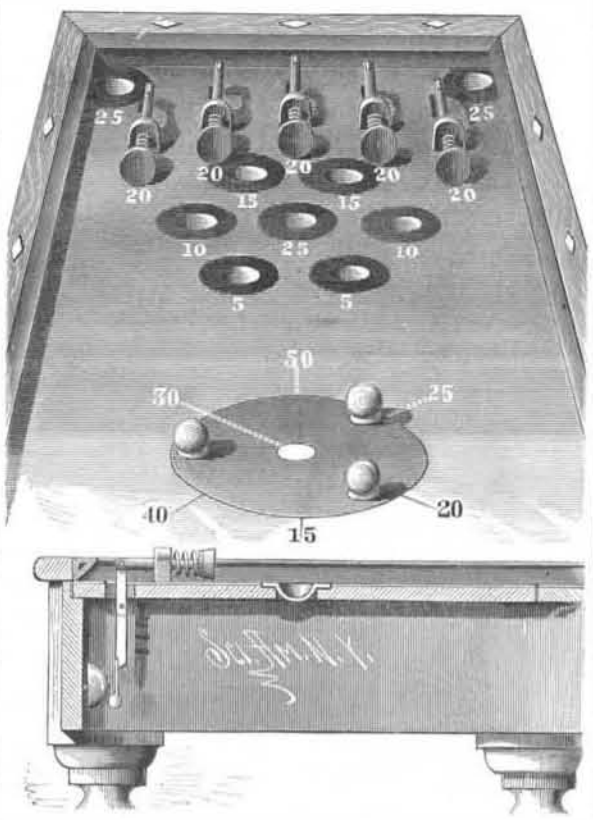
THOMAS & CORES' BILLIARD CUE TIP.

front surface of the butt piece. As the bottom of the cavity is made concave, the leather, in shrinking, forces itself against the screw, binds firmly, and cannot become detached. The tip can be adjusted very readily and accurately, and in such a manner that it cannot be knocked off.

This invention has been patented by Messrs. W. H. Thomas and C. B. Core, whose address is P. O. Box 696, Peoria, Ill.

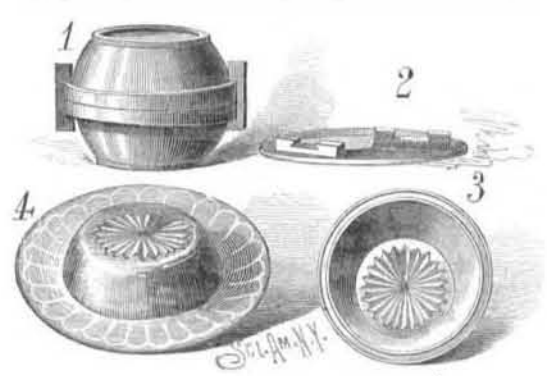
NEW GAME TABLE.

The table is rectangular in form, covered with baize, and cushioned at the edges like a billiard table. Near the upper



DE FOY'S NEW GAME TABLE.

corners are formed pockets, and near the center of the table is a cluster of pockets, each of which is made of hard rubber, flanged and set in a circular countersunk recess. Just beyond this cluster toward the head of the table are secured five uprights arranged in crescent form. These uprights support buffers which, when struck by a ball, ring a bell placed under the table. This mechanism and the way the pockets are formed will be readily understood from the lower engraving, which is a sectional view. In the center of



SINCLAIR'S BUTTER PACKAGE.

the table is pivoted a wheel provided with three pegs placed equal distances apart. In the middle of the wheel is a spot from which leads a radial index line, and around the wheel, upon the baize, are marked six radial lines as shown. The lines, pockets, and buffers are numbered as shown in the cut.

The game, which the inventor, Mr. Frank R. De Foy, of Dannemora, N. Y., calls "Apollo," is played with one red, four white, and four black balls, by two or four persons. The red ball is placed on the spot on the wheel. The first player shoots a ball, with a cue, at one of the pegs, so as to revolve the wheel and start the red ball off. If this ball goes in any of the pockets in the cluster, it counts for double the number marked upon it; and if the index line of the wheel stops in line with one of the marks in the table, it counts the number indicated. Subsequent shots are made at the balls on the table, and if they strike the red and another ball, it counts five. Any of the balls entering the cluster pockets or striking the buffers count what they are marked, but if the player sends his own ball into one of the corner pockets it counts twenty-five for his opponent. Unless the player hits his partner's ball with his own, he cannot count. If the player touches his partner's ball, then touches the red, it counts fifteen. The game is two hundred points.

California Dried Fruits.

Geo. W. Meade & Company, of San Francisco, give the following *resume* of the above California products for the year 1883:

Raisins, 20 pound boxes	125,000	boxes.
Sun dried apples	800,000	pounds.
" peaches	500,000	"
" pears	75,000	"
" apricots	300,000	"
" nectarines	20,000	"
" figs	60,000	"
Evaporated apples	250,000	"
" apricots	90,000	"
French prunes	250,000	"
Dried grapes	150,000	"
Pitted plums	100,000	"
Comb honey	125,000	"
Extracted honey	835,000	"
Almonds	700,000	"
Walnuts	500,000	"

Acidity of Beer.

It is frequently asserted that the acidification of beer is due to the development of acetic acid, and therefore writers have frequently called this change acetification; but when beer is submitted to careful chemical analysis, it is surprising to find how small a quantity of acetic acid is to be found in even that which is very sour. The fact is that very little acetic acid is formed in beer, the acid which gives the taste of sourness being mostly lactic acid. Acetic acid is only formed by the oxidation of alcohol, brought about by the intervention of a peculiar ferment called *Mycoderma aceti*, while lactic acid is formed by the simple molecular change of any of the carbohydrates of the sugar type, and does not even require the presence of any oxygen. Lactic acid may be easily distinguished from acetic acid by its property of not being volatile. If the total acidity of a sample be first determined, and then a portion of the same beer be evaporated to dryness, and the acidity of the residue be determined, this will give the amount of lactic acid, and this, deducted from the total acidity, will give the amount of acetic acid.

Resolutions of the Legislature of the State of New York.

On the 11th inst., in the Assembly of New York, the subject of the proposed objectionable changes in the patent laws came up for discussion, in the course of which Gen. Husted, from Westchester County, made a very able speech in defense of the rights of inventors and in support of patent property. The following excellent resolutions were passed almost without a dissenting voice:

RESOLUTIONS OF THE NEW YORK ASSEMBLY.

Whereas, The incentive and rewards given to inventors by the Constitution of the United States and the laws of Congress passed thereunder have done more, perhaps, than any one cause to advance our whole country to the front rank in wealth, resources, and industries among all nations in the world; and, *Whereas*, any material change in those laws would, in the opinion of this House, seriously retard our material progress as a people,

Therefore, be it resolved, etc., That our Senators and Representatives in the United States Congress are respectfully requested to oppose the passage of any bill which would have the effect to discourage inventions, by impairing the value of patented property or of imposing any conditions on the owners of such property in prosecuting and maintaining their rights to the full value of their said property which are not equally applicable under the laws of Congress to the rights of all property, and the remedies provided to protect the same, for all citizens of our entire country.

Resolved, That this House heartily approves of such amendments to existing patent laws as shall provide speedy and full punishment for all persons who appropriate the patented property of others without authority of law, and manufacture and sell the same to innocent purchasers and users thereof, to the great annoyance in some cases of the user, and to the great injury of the rightful owner of such property in all cases.

Resolved, That a copy of these resolutions be forwarded, etc., etc.

It is to be hoped that the Legislatures of all the other States in the Union will pass similar resolutions without delay. A little earnest effort on the part of the friends of progress and industry in each State where the Legislature is in session will secure the adoption of suitable resolutions likely to have much influence with Senators in Congress.

Memorials before Congress.

Large numbers of petitions and memorials are being sent to Congress, praying that no changes adverse to inventors may be made in the patent laws. Here is a specimen of one day's delivery by Senator Hawley:

Mr. Hawley presented the following memorials, remonstrating against the repeal or hostile modification of the present patent laws, which were referred to the Committee on Patents:

A memorial of Simpson, Hall, Miller & Co., and 7 others, manufacturers and inventors, of Wallingford Conn. ;

A memorial of Isaac Cole and 4 others, of New York city;

A memorial of Professor Alexander C. Twining, C.E., of New Haven, Conn. ;

A memorial of R. Wallace & Sons' Manufacturing Company, of Wallingford, Conn. ;

A memorial of the Whiting Manufacturing Company, of New York;

A memorial of J. H. Bullard and 18 other manufacturers and inventors of Springfield, Mass.;

A memorial of D. W. Wesson and 15 other manufacturers and inventors of Springfield, Mass.; and

A memorial of the Billings & Spencer Company and 9 other manufacturers and inventors of Hartford, Conn.

Resolutions of the New York Board of Trade and Transportation.

At the regular monthly meeting of the New York Board of Trade and Transportation, held in this city April 9, 1884, the President, Mr. Ambrose Snow, in the chair, Mr. A. B. Miller, of the Executive Committee, addressed the board touching the several bills before Congress which propose changes hostile to the patent laws of the country. In conclusion, Mr. Miller offered the following preamble and resolutions:

Whereas, The rapid development, growth, and wonderful prosperity of the United States is largely attributable to the inventive genius and skill of our people, which—under the stimulus of the protection afforded by existing patent laws—have, by the creation of labor-saving machinery, rendered it possible to not only compete successfully with the cheaper manual labor of Europe in almost every branch of agriculture, manufactures, mining, transportation, etc., but also to bring under profitable cultivation thousands of square miles of territory which would otherwise have remained a wilderness; and

Whereas, Bills have been introduced in Congress for the purpose of limiting the existence of a patent to five instead of seventeen years, as now, and in other ways to destroy or injure the value of patents; and

Whereas, It is well known that but a small number of the many patents that are issued ever become valuable to the inventor or owner, and that in those cases where successful it has rarely happened that any suitable pecuniary reward has been received until after the expiration of five years, as at least that time is generally consumed in perfecting the manufacture of the patented article and bringing it into public use; therefore

Resolved, That this board views the proposed legislation in regard to patents with the gravest apprehension, as being designed to not only do a serious and irreparable injury to all owners of existing patents, but by withholding the hope of just reward as the result of a successful and useful achievement in invention, the genius of our people will be throttled, the rapid progress and prosperity of our country will be checked, and agricultural, commercial, and all other industrial interests of our nation will suffer.

Resolved, That while this board is not opposed to the reasonable protection of those who without knowledge have purchased and used a patented article and discontinued the use thereof after notice, it is clearly of the opinion that the manufacture and sale of patented articles with the knowledge that the same are patented, unless with the consent of the patentee or his assigns, should be made a penal offense, punishable with either fines or imprisonment, or both, at the option of the court.

Resolved, That it is the judgment of this board that no action should be taken by Congress that in its operation would reduce the term for which patents are now given, or in any way render them less secure or valuable.

The preamble and resolutions were unanimously adopted, and the secretary directed to forward a copy of same to President Arthur and to each member of the United States Senate and House of Representatives.

Resolutions of the Davenport, Iowa, Academy of Sciences.

At a meeting of the Academy of Sciences, of Davenport, Iowa, on the 4th of April, the pending patent legislation was discussed, and the following resolutions adopted, which we take from the *Daily Gazette:*

Whereas, All experience has shown that one of the very important elements in the progress of a nation and the development of its resources is the wise and liberal encouragement of mechanical invention and practical scientific discovery, promoting improvements in manufacturing processes, in means of transportation with greater public safety, and in the establishment of new and important industries; and,

Whereas, Now, while other nations, recognizing the wisdom, justice, and expediency of liberal legislation to protect and encourage invention and research, are fast adopting the course which has so long been in successful operation in the United States, and at a time, too, when increased effort is necessary to keep pace with the progress of the age, numerous bills have been presented in Congress—several of which have already passed the House of Representatives—calculated to impair the rights of inventors in the products of their own industry and research, and to discourage all effort in that direction; therefore,

Resolved, That we respectfully and earnestly request our honorable Representatives and Senators in Congress to use their best endeavors to prevent the repeal of the existing guarantees or the enactment of any laws obstructing the inventor's control of his inventions or the defense of his rights therein, and destroying the value of that which is legitimately his own property, or for shortening the period of the existence of a patent, taking away his prospect of pecuniary compensation for work in the highest degree beneficial to the community, and contributing largely to the prosperity of the nation, and discouraging the exercise of talent and means in that direction.

Resolved, That these resolutions be published in the daily papers, and copies forwarded to the Congressional Senators from Iowa and Representative from this district.

The American Patent Protective Association.

This association is the outgrowth of the convention of inventors that assembled in this city in October, 1883. A very excellent constitution has been adopted, the principal officers are gentlemen of ability, and the corporation is now doing some excellent work in opposing the progress of the hostile patent legislation before Congress. The president of the association is Mr. E. M. Marble, of Washington, D. C., late Commissioner of Patents, J. A. Price, of Scranton, Pa., first vice-president, A. S. Cushman, 83 Cedar Street, New York, corresponding secretary. The association has issued the following statement concerning the obnoxious patent bills:

"The founders of our Government conferred upon Congress as a power to be exercised, that of promoting progress of science and the useful arts, incorporating it into the national Constitution, and indicating the manner of its exercise in such clear and explicit terms as to fix its scope and limitation. That manner is '*by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.*'

"Annually attempts are made to nullify these plain, concise guarantees of the Constitution, and to render the right insecure, and redress difficult and illusory. In the 45th Congress a bill which was introduced in each branch, prepared by skilled attorneys in the interests of 81 Western railroad corporations, to evade a liability of some millions of dollars, would have impaired the value of every patent in the land. Fortunately, the fixed hour of a closing session prevented concurrent action, and the danger was postponed.

"But it is believed that at no former session have so many varied attempts in the interests of infringers been attempted, including: Bill H. R. 311, introduced by Mr. Calkins, of Indiana; bill H. R. 419, by Mr. Lamb, also of Indiana; bill H. R. 1,956, by Mr. Wood, likewise of Indiana; bill H. R. 1,081, by Mr. Ray, of N. Y., the main features of which were incorporated in Bill H. R. 3,934, reported by the House Committee on Patents, without (so far as we know) prior notice or hearing having been afforded to inventors or those representing the important investments of capital in patents. This bill was not only reported as a substitute for the preceding bills, but also for bill H. R. 1,134 and bill H. R. 1,250, and has actually passed the House of Representatives, by a vote of 114 *ayes to only* 6 *noes, without debate.* Another similar bill, H. R. 3,925, had passed only the day previous under a suspension of the rules. This indicates speed on the part of those pushing the measure, and indifference on the part of the main body of the House. Still another bill, H. R. 3,617, introduced by Mr. Anderson, of Kansas, seeks to limit the term of a patent to five years, and thus not only injures the American inventor in his own land, but prevents his enjoying the fruits of his inventive genius for any longer term in a foreign land. Other bills have been introduced, making a total of twenty bills to modify the patent laws in the early days of a new Congress.

"The manifest purpose of these bills, considered together, is to gradually undermine our patent system; to render patents valueless; to obstruct patentees in obtaining redress, by closing to them our national courts, and turning them over to local courts; to overturn the valuable settled line of decisions which have been pronounced by the soundest judges, and in their stead create uncertainty and diversity; to render poverty an insuperable barrier to obtaining any redress; to convert a victory into a paralyzing discomfiture by making the burden of costs of action fall upon the one who is wronged, and not upon the wrong doer; to render every patent a contest, and every contested patent valueless; and generally to grant immunity to infringers, and to discourage, vex, and impede those who venture to assert their rights before the tribunals. By the provisions of one bill, the inventor may be compelled to have a license against his will, and that too without his consent as to the amount of royalty to be paid for the license. By another provision, though the right to sue is not taken away, yet in the case indicated in the bill no damages or profits can be recovered by a judgment. Individuals and corporations other than manufacturing (*e. g.*, railroad) can purchase in open market, and use with impunity, till actual notice, all kinds of patented articles without paying anything to the one whose brain has provided the convenience; and after notice (unless the patentee recovers over twenty dollars) he is saddled with his own costs, and pays his adversary's attorney fifty dollars.

"Such legislation multiplies infringers, and enables them to set at defiance society's benefactor. It crushes the inventor if he has but little capital. It terrorizes him with hazardous litigation if he has capital, and unless in the case of machinery for manufacturing purposes, depreciates the value of his invention, so that a patent under the broad seal of his government is but a certificate of his folly in paying the official fees.

"Further inaction is perilous to the capitalist as it is to the inventor. There is need of a united, intelligent effort on the part of those who desire a continuance of the benign and wise policy of our fathers, which has placed our industrial prosperity in unrivaled prominence."

Thomas E. Daniels.

The inventor of the widely known Daniels planer died at Fitchburg, Mass., on the 11th inst., at the advanced age of eighty-three years.

Mr. Daniels was born in Fitchburg at the commencement of the present century, and spent a large portion of his life in his native town. He was fond of mechanics and inventions, and was the recipient of sixty-two patents.

The invention with which his name was most extensively associated was the Daniels wood planer, patented in 1836, and which is still in extensive use. The novel feature of the invention, as most of our readers know, was having the cutters revolve at right angles with a perpendicular propelling shaft, while the lumber was carried under the cutters and the surface planed; and for certain purposes, such as planing timber, and producing a true plane surface on lumber, it has never, we believe, been superseded, and the introduction of the Daniels planer has extended to all parts of the world.

Mr. Daniels was much respected by his townspeople, and his loss will be felt by a large circle of relatives and friends.

Trials with the New Dynamite Gun.

The first of the regular series of experiments with the new pneumatic dynamite gun, of which we published an engraving and description in the SCIENTIFIC AMERICAN of April 5, took place a few days since at Fort Hamilton, under the direction of Col. John Hamilton and Lieut. E. L. Zalinski.

The target at which the shots were fired was situated at a distance of 2,100 yards, on the shore at Fort Wadsworth, the gun being placed on the glacis of Fort Hamilton. The first shot fired was one weighing 17 pounds, capable of carrying from 10 to 12 pounds of dynamite. It was loaded with the same weight of sand and lead, instead of dynamite. The pressure used was 485 pounds. The shot went 60 yards to the left and slightly above the target, exactly as Lieut. Zalinski had foretold it would do, owing to the wind. The second shot, with a pressure of 480 pounds, went 10 yards to the left of the target and 15 yards above it, burying itself completely in the hill. The third and last shot, which was sent in a blinding rainstorm, was a line shot, which went 25 yards short of the target and struck the water.

"I am well satisfied with the experiments," said Lieut. Zalinski. "While these dynamite guns can never supersede the ordinary powder guns, they will be a very valuable auxiliary, as they can be used equally advantageously on land or sea. The pressure used to-day—480 and 485 pounds—we shall increase to 2,000 pounds as soon as another engine is supplied. You know that the numerous attempts to throw dynamite with ordinary powder guns have nearly always met with disastrous results."

Wire Tests.

At a recent meeting of the Philosophical Society of Glasgow, Professor Jamieson said he had obtained some specimens of nearly pure aluminum wire from the Aluminum Crown Metal Company, the same being prepared by Webster's process. On analysis, the wire gave 98·39 per cent of aluminum, 1·24 per cent of iron, and 0·37 per cent of silicon, the specific gravity being 2·786. As the wire was only in short lengths, he had been compelled to determine the electrical resistance of the metal by the "fall of potential" method with chemically pure copper wire as well as with a standard B.A. unit; and he had found that the aluminum had 1·96 times the resistance of the copper wire of the same gauge and length, and but little more than half the resistance of pure copper for the same length and weight. The conclusion arrived at, therefore, was that aluminum had by far the least resistance of any known metal for its weight.

In the course of his investigations he had elicited a very curious fact, namely, that the introduction of a very small percentage of aluminum into copper not only raised its tensile strength immensely (the specimens shown having a breaking stress of about 45 tons per square inch), but also enormously increased its resistance. So far as his tests had gone, the specimens shown had a resistance of 25 times that of pure copper. He pointed out the probable uses of such wire, as, for example, in the construction of high resistance coils. Other qualities might be found well adapted for telephone wires, and the purer kinds of aluminum, owing to the great lightness of the metal, could be used for military purposes, in which lightness of baggage was an important desideratum.