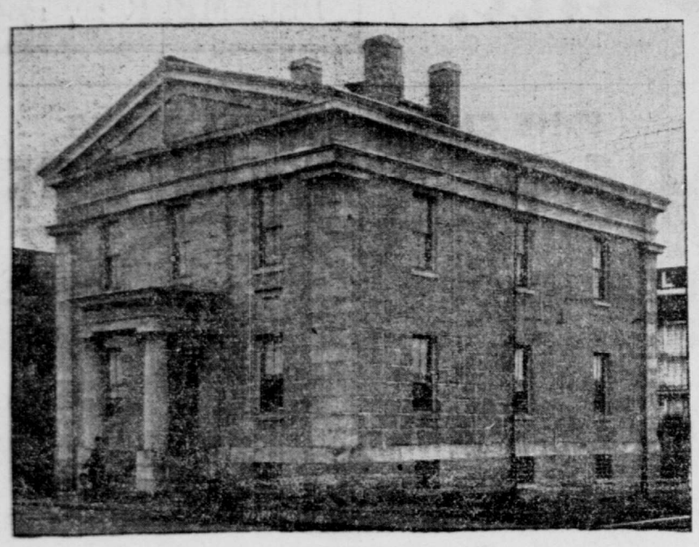


THE NEWBURYPORT (MASS.) CUSTOM HOUSE.
Where Uncle Sam has expended $627 to collect $5.

marked the doctor, after the first exchange of compliments.

The cashier pricked up his ears and looked incredulous.

"Indeed! Allow me to congratulate you," he said.

It was the doctor's turn to be amazed.

"Why—er—congratulate me? What do you mean? Why congratulate me?" he asked, wondering what was coming next.

"Why, doctor," said the cashier, "most assuredly on the birth of a little son!"

Mutual explanations were then in order.

COST FAR EXCEEDS RETURNS.

CUSTOM HOUSES TO MAINTAIN WHICH MORE IS SPENT THAN IS RECEIVED.

Uncle Sam has gained the reputation of being a hard hearted personage, because he rends apart and sells into impious hands without the least display of sentiment relics which have become precious in the eyes of the people of the land. That he is not so hard hearted as he has been painted is evident from the gentleness which he has displayed toward the decayed grandeur of a number of ports strung along the Atlantic Coast from Maine to Florida which once were the havens of a flourishing foreign commerce and helped materially to swell his coffers. With uncomplaining hand he still maintains the machinery which once measured the tea and coal, the sugar and spices as they were put over the side from the holds of the clippers of long ago and levied and collected the duties on the same.

The only difference in this respect between the past and the present, so far as Uncle Sam is concerned, is the reduction in the number of representatives. The days of those who still survive must be sleepy ones, for they have no duties beyond those of keeping the rats from overrunning the gray old buildings, occasionally sweeping out the cobwebs, and otherwise preventing the glory of their posts from becoming buried entirely. Perhaps, as Hawthorne says many of the gray bearded employes of the Salem Custom House did in his time, they spend a good deal of time asleep in their accustomed corners, their official chairs tilted back against the wall, awaking once or twice in the course of a forenoon to bore one another "with the several thousandth repetition of old sea stories and mouldy jokes." However that may be, the clerks of the Treasury Department are not kept awake nights worrying over their reports.

The degree of Uncle Sam's munificence toward these old ports is indicated in the following table, showing how much was collected from a number of them in 1902, and the cost of making the collection as compared with that of his most profitable ones:

Port.	Receipts.	Expenses.	Cost to collect $1.
Elizabeth City, N. C....	$2 00	$1,691 98	$845 99
Annapolis, Md.....	20 00	1,155 00	57 75
Beaufort, N. C.....	8 00	1,655 61	206 95
Cape Charles City, Va...	2 00	971 14	485 57
Crisfield, Md.....	11 80	3,323 82	281 68
Georgetown, S. C.....	2 90	408 40	140 827
Newburyport, Mass.....	5 00	627 00	125 40
Rock Island, Ill.....	4 55	677 05	148 80

At New-York and Baltimore the figures are as follows:

Port.	Receipts.	Expenses.	Cost to collect $1.
New-York	$166,807,010 38	$3,159,314 81	.019
Baltimore	3,517,319 75	264,655 21	.075

At Alexandria, Va., which has a salaried deputy receiving $1,200 a year, no duties were collected in 1901.

One of these decadent ports has stirred in its sleep, but whether merely to turn over and assume a more comfortable position or to wake up remains to be seen. This is Newburyport, Mass., one of the early ports of the United States, which, after a period of many years, in which practically no business has been done, is now beginning to show a little activity. The Newburyport officials tell their friends that the time may yet come when the receipts of the old custom house will amount to $1,200 yearly, or perhaps more; at any rate, enough to pay the salaries of the officials and "square" the government.

For years the federal officials have known what to expect each month in the report from Newburyport. When the mail brought the statement it took only a glance through it to tell that there was, as usual, little if any money coming to Uncle Sam from Newburyport. Now there is nothing sure about that statement from Newburyport since the big pulp mill owners at Haverhill, up the Merrimac, began having their wood pulp shipped from the provinces by schooners. Perhaps a schooner has gone up the river with a cargo during the month. If so, there is about $150 for Uncle Sam to jingle in his pocket. Perhaps the time will come when as many as eight schoners a year will make their way up the Merrimac with their cargoes for the Haverhill mills. Perhaps, and then—then—. But that is a long way off. Newburyport hardly dares contemplate it yet.

The port of entry at the mouth of the Merrimac was not always thus—one of the lowest in the government's list of custom houses that do not pay. There was a time, years ago, when the Newburyport custom house ranked second to few of the custom houses throughout the land. In those days, when vessels from many ports flocked about the mouth of the Merrimac, the quaint old stone house, with its back to the stream, was a busy place. The records show that along in the '60's, when the business of the house was at its height, the receipts averaged about $100,000 yearly, frequently running far over that figure.

Of recent years there have been some, according to the Newburyport officials, in which practically no business was reported, and the years are many in which very little business was transacted. The report for the fiscal year ended June 30, 1902, affords a good idea of the average returns from the custom house at Newburyport. The report shows that in that year the total receipts of the office amounted to $5.

Back in the prosperous days the Collector of the Port at Newburyport never failed to get the maximum fees and percentage of duties, his compensation seldom amounting to less than $3,000 yearly, and had it not been for the limit fixed by law it could easily have been swelled to $3,500 and $4,000. Now the Collector's returns from the office amount rarely to more than $200 or $300 annually.

In those old days the Collector was assisted not only by a deputy, but by a naval officer, a surveyor and a corps of clerks. Now the force consists of the Collector and his deputy, who, with the janitor, are the sole occupants of the old building, which is still kept as scrupulously clean and gets as much attention inside and out as if a business amounting to $100,000 a year was being done within its walls. The salaries of the Collector, the Deputy Collector and the janitor amount to $1,200 yearly, and this sum, with the cost of fuel, repairs and other incidentals, constitutes the annual outlay on the part of government, to balance which there has on occasions been never a penny of receipts.

In the days when Newburyport was one of the most important ports of entry on the Atlantic Coast the cost of looking after the business of the port amounted to over $5,000 a year. The period of greatest activity at the Newburyport custom house was during the thirty years between 1850 to 1880. Then sugar and molasses from the West Indies entered the port in great cargoes, fishing vessels entered with their burdens of mackerel or cod from Labrador, salt came in great quantities from Cadiz, Spain, and coal and other cargoes too numerous to mention are on the records as passing through the port in those days. In one corner of the thick walled cellar of the old custom house the great scales used in weighing molasses and sugar are still to be found, and in another are the big tubs in which the salt was weighed. Beside them are the awkward, swinging platform scales with which the codfish were weighed.

In those days of Newburyport's glory over one hundred and fifty fishing vessels hailed from that port; now there are only two schooners belonging there.

astrous to the country at large, was a help to the Newburyport Custom House, for while it was on the sleepy little port was surprised by the arrival of six or eight cargoes of soft coal from Nova Scotia. The wood pulp arrivals at the port will make the receipts for the fiscal year ending June 30, 1904, something enormous, in comparison with the barren reports from the office in past years.

The establishment of the custom house at Newburyport dates back to the formation of the federal government. Newburyport was made a port of entry by act of Congress in 1789, the district including the towns of Salisbury, Amesbury and Haverhill. The old records show that Tristram Dalton, a Senator from Massachusetts in the 1st Congress, proposed that Ipswich also be included in the district. This movement met, however, with opposition, and finally defeat. Later Ipswich was added to the district and is still a part of it.

The first appointments of customs officers were made by President Washington soon after a visit he paid to Newburyport in November, 1789. Stephen Cross was named for collector, Jonathan Titcomb for naval officer and Michael Hodge for surveyor of the port. Collector Cross held office three years and was succeeded by Edward Wigglesworth in 1792. The cause for the change does not appear, but whatever it was, it seems that the people were well satisfied with Mr. Cross, for in 1793 he was elected a member of the General Court. Later he was appointed postmaster at Newburyport and held that office until his death in 1809.

Colonel Wigglesworth, who was of Revolutionary fame, held the office of collector only two years, when he had to give it up on account of old age. He was succeeded by Dudley A. Tyng in 1796. Mr. Tyng held the appointment eight years. General Ralph Cross, his successor, held office until 1811, it is recorded of his widow that she met General Lafayette on the occasion of his visit to Newburyport and had a long conversation with him. Daniel Foster, a sergeant in Lafayette's select corps of infantry in the War of the Revolution, and to whom General Lafayette presented a valuable sword as a token of esteem, was appointed naval officer of the port in 1829, and held that office until his death, in 1833. The collectors holding office after the death of General Cross were Joseph Marquand, 1811 to 1821, and James Prince, 1821 to 1829.

General Jackson, who was inaugurated President on March 4 of that year, made many new appointments to the offices in his power, and Samuel Phillips was made collector of customs at Newburyport, holding the office from 1829 to 1841.

Henry W. Kinsman held the office from 1841 to 1845; William Nichols, from 1845 to 1849, and then Mr. Kinsman again held the office from 1849 to 1853. James Blood was collector from 1853 to 1861 and Enoch G. Currier from 1861 to 1870. William H. Huse, father of the present deputy collector, Arthur L. Huse, held the office from 1870 to 1886. George W. Jackman was collector from 1886 to 1890. Ex-Mayor T. C. Simpson, now judge of the Newburyport police court, was collector from 1890 to 1893, and was succeeded by H. P. MacIntosh, the present incumbent.

The Newburyport Custom House is a fair type of the simple yet solid construction prevailing years ago. Even the roofs of the storerooms in the cellar are of brick, built in intersecting arches. The custom house when first established in Newburyport was located in a wooden structure, which was destroyed by fire, together with the surveyor's office, then in a separate building. When the present substantial building was erected it was one of the finest buildings in Newburyport. Everything about the old structure is suggestive of the days when the town was one of the busiest spots along the Atlantic Coast.

CLOUDS ON THE SUN.

Recent Studies of Vapor Masses in the Solar Envelope.

Astronomers have felt peculiar eagerness to solve the mysteries of the sun's structure and behavior for two reasons. The light and heat, and perhaps other radiations from that body, are more directly essential to animal and vegetable life on the earth than any influence from other celestial objects. Again, since all of the stars are believed to be suns, huge, hot and luminous, much of the knowledge that is gained in regard to the central body of our solar system would be applicable to the rest of that infinite multitude.

For nearly two centuries the world has been more or less familiar with dark spots on the sun. It has heard much less of certain bright patches, called faculæ, often seen in solar photographs, and observed visually through telescopes, but these markings are not novel. Neither are the huge, pink, comparatively calm protuberances often seen on the limb of the sun and known to be composed of hydrogen. Practically unknown hitherto have been certain features of the gaseous envelope of the sun which are being studied at the Yerkes Observatory by means devised by Professor George E. Hale, the director.

The nature of this work will be better understood if one refreshes his memory concerning the theoretical stratification of what may be called the solar atmosphere. The bright surface which the ordinary beholder sees is a layer of clouds called the photosphere. This is practically the foundation of things, below which one cannot penetrate far. In the opinion of Langley and other good authorities, the minute bright specks or granules of which the photosphere is composed are the upper ends of slender filaments, which are vertically disposed. These are apparently thrust over into a slanting position around the edges of a sunspot, thus imparting to the "penumbra" the appearance of grain stalks prostrated by a storm. Next above the photosphere comes what Professor Young calls the "reversing layer," because it makes dark lines out of what would otherwise be bright ones in the spectrum of the sun. Still higher lies the chromosphere, a shell of pink gas, mostly hydrogen, but also containing other elements. It is out of this layer that the hydrogen protuberances seem to rise. Finally, there is that nebulous extension, the corona, which is seen only at times of total eclipse.

Before he became director of the Yerkes Observatory and while still living in Chicago, Professor Hale began taking photographs of the sun in a new way. He interposed a spectroscope between his telescope and camera. Many of the lines which are exhibited in the solar spectrum have been identified as those obtained in terrestrial laboratories and belonging to well known elements. Some are due to hydrogen, some to iron, some to helium and some to calcium. By an ingenious adjustment of his apparatus, therefore, Professor Hale was able to admit to his camera only the light of a single line, and representing only a solitary element in the sun. For various reasons, the calcium lines were particularly adapted to such experiments. A picture taken with his spectro-heliograph would show, not what one sees in an ordinary picture of the sun, but only those regions on its surface, or above its surface, where calcium vapor existed.

For a time it was thought that the bright areas thus revealed were the same as the faculæ, but by degrees several students of the phenomena in question reached a different conclusion. Hitherto faculæ have been discovered only in the same regions as spots—that is to say, within 30 or 35 degrees of the equator—whereas Hale's pictures showed a kind of network extending all over the sun and up to the poles. Moreover, when single patches in the calcium photographs were compared with facular areas in the same general neighborhood, it was found that the former were often much larger. Hence it became evident that a new class of phenomena had been detected. To this Professor Hale now applies the name "flocculi," or little clouds, prefixing thereto the name of some element which is there seen in the form of vapor.

His latest studies of calcium and hydrogen flocculi have been conducted with a magnificent new instrument, the Rumford spectro-heliograph, which is adjusted to the 40-inch telescope at the Yerkes Observatory. An account of recent work, in which the director had the co-operation of Ferdinand Ellerman, is contained in a publication just issued, and is admirably illustrated with photographs.

A new procedure is now indicated for the first time. By making exposures at what are believed to be different levels on the sun, different outlines are secured in the same region. Hints are thus afforded of the shape of the flocculi. Generally speaking, those masses are broader at great elevations than at lower ones. Of course, if they could be seen in profile on the edge of the sun, as hydrogen protuberances are, both the exact height and variations in lateral extensions could be mapped. One could tell whether they spread out like mushrooms, or like elms, or like bulrushes. As yet, however, that is not possible. The only information can be secured by the method here mentioned. This does not give such precise results as one might wish, and the work already done must undergo criticism from other experts before its trustworthiness can be fully judged. Professor Hale presents his own interpretation of the facts with modesty, and lets the photographs speak for themselves. The work is incomplete, too. Professor Hale has met with certain difficulties in getting pictures at the very highest levels attempted, and he has confined himself almost exclusively to calcium and hydrogen areas. In spite of all these limitations, though, astronomers will quickly recognize the great value of the work and the immense possibilities which it seems to open up.

The lower level which the recent pictures represent is the base of the chromosphere. Consequently they carry the exploration higher than does the visual inspection of the photosphere below. Cloudy weather prevents anything like continuous observation at any one point. But by co-operation at a number of points a complete record could be had not only from day to day, but from hour to hour. If this were extended through one whole sunspot cycle—eleven years—important clews would probably be furnished to the character of solar activity. The change of form of calcium and other flocculi, the rapidity of the alteration and its time relation to other phenomena might give a new insight into the observation of forces. Moreover, though calcium is particularly abundant in the chromosphere, and its lines in the spectrum are exceptionally convenient for this sort of research, it is not unlikely that important revelations would be made by using the lines of the forty other elements whose presence has been detected. Clouds of iron vapor, for instance, might prove to be more intimately related to explosions than those of calcium. A vast and important field of research is opened up by this new achievement.

RIGHT AND WRONG METHODS OF CROSS-EXAMINATION

THE SUBJECT EXEMPLIFIED AND ILLUSTRATED—SOME FAMOUS INSTANCES.

Many are the ways in which the cross-examiner breaks down a witness and discredits his testimony. As the average citizen who has served as juror or has taken the witness stand knows, no two lawyers conduct cases in the same way; yet the layman finds it difficult to distinguish between the methods of different ones. He watches the battle, but he does not always comprehend the subtle means by which it is won or lost.

In his book, "The Art of Cross Examination," Francis L. Wellman reveals so many secrets of the legal profession that at first one might think he had deprived the cross-examiner of many of his most potent weapons. Mr. Wellman tells of the many different ways in which lawyers succeed or fail in examining witnesses, and what in his own opinion are the right and wrong methods to pursue. He draws not only on his own experience, which includes apprenticeships in the District Attorney's and the Corporation Counsel's offices, in addition to a long private practice, but also from the careers of such attorneys as Lincoln, Butler, Rufus Choate, Russell, Curran and Mason. Mr. Wellman is particularly well qualified to speak on the subject, for he estimates that in his practice he has examined some fifteen thousand witnesses.

An attorney will often win or lose his case, Mr. Wellman says, simply by his manner. After he has sized up his witness, has watched "every expression of his face, especially his mouth, even every movement of his hands, his manner of expressing himself, his whole bearing," to see whether the witness is mistaken as to his facts, or telling a preconceived lie, then he should begin the cross-examination without antagonizing his subject.

As an illustration, Mr. Wellman quotes the case of a New-York commission merchant who had sued the Metropolitan Street Railroad for damages sustained, he alleged, by a fall from a moving car. The family doctor was on the stand, who, in addition to the damages sued for by the plaintiff, wanted $2,500 for his professional services.

"What medical name, doctor, would you give to the plaintiff's present ailment?" asked the lawyer pleasantly.

"He has what is known as 'traumatic microsis.'"

"That means, does it not, the habit or disease, as you call it, of making much of ailments that an ordinary healthy man would pass by as of no account?"

"That is right, sir."

Here the counsel smiled still more pleasantly, and asked:

"I hope you haven't that disease, doctor. Have you?"

"Not that I am aware of, sir."

"Then we ought to be able to get a very fair statement from you of this man's trouble, ought we not?"

"I hope so, sir."

"The opening had been found," adds Mr. Wellman, in his mention of the case. "The witness was already flattered into agreeing with all suggestions, and warned against exaggeration." He then quotes more questions and answers to show how friendly witness and lawyer were becoming, and then recalls this question of the attorney:

"And you said that $2,500 would be a fair and reasonable charge for your services. It is three years since Mr. —— was injured. Have you sent him no bill?"

"Yes, sir; I have."

"What was the amount of it?"

"One thousand dollars."

Here the lawyer dropped his smile and shouted savagely: "Why do you charge the railroad company two and a half times as much as the patient himself?"

The doctor was embarrassed.

"How much have you been paid on your bills?"

COLLECTOR MACINTOSH.
At his desk in the Newburyport Custom House.

"He paid me $100 at one time, and at two different times he paid me $30."

"And he is a rich commission merchant downtown!" With something between a sneer and a laugh, counsel sat down.

"Ben" Butler, according to Mr. Wellman, was the only successful lawyer who adopted the "roaring method" in examining a witness. "Once he was cross-examining a witness in his characteristic manner," says Mr. Wellman, "when the judge interrupted to remind him that the witness was a Harvard professor.

"'I know it, your honor,' replied Butler, 'we hanged one the other day.'"

An important requisite for a trial lawyer is perfect self-command. When an answer comes as a blow to his question he should not let his face show how it hurts. He should be a good actor as well. As an illustration Mr. Wellman tells how Rufus Choate, on hearing a witness for his antagonist drop a damaging statement, asked him to repeat it in cross-examination. The lawyer on the other side, thinking by Mr. Choate's actions that he must have found something in this testimony to strengthen his side, cautiously evaded any further mention of it himself.

"The very intonations of the voice," says Mr. Wellman, "and the expression of face of the cross-examiner can be made to produce a marked effect upon the jury and enable him to appreciate fully a point they might otherwise lose altogether." As an illustration Mr. Wellman quotes from O'Brien's "Life of Lord Russell" as follows:

"Once when cross-examining a witness by the name of Sampson, who was sued for libel as editor of 'The Referee,' Russell asked the witness a question which he did not answer.

"'Did you hear my question?' said Russell in a low voice.

"'I did,' said Sampson.

"'Did you understand it?' asked Russell, in a still lower voice.

"'I did,' said Sampson.

"'Then,' said Russell, raising his voice to the highest pitch, and looking as if he would spring from his place and seize the witness by the throat, 'why have you not answered it? Tell the jury why you have not answered it.' A thrill of excitement ran through the courtroom. Sampson was overwhelmed, and he never pulled together again."

The silent mode of cross-examination is oftentimes effective, because of its theatrical effect. If the witness happens to be a woman, and at the close of her testimony in chief it seems that she will be more than a match for the cross-examiner, it often works like a charm with a jury to practise upon her what may be styled the silent cross-examination. Rise suddenly as if you intended to cross-examine. The witness will turn a determined face toward you. Look her over good naturedly and sit down.

A false step, however, on the part of the lawyer playing such a part may prove disastrous. "John Philip Curran," says Mr. Wellman, "once indulged himself in this silent mode of cross-examination, but made the mistake of speaking his thoughts aloud before he sat down.

"'There's no use asking you questions, for I see the villain in your face.'

"'Do you, sir,' replied the witness, with a smile. 'I never knew before that my face was a looking glass.'"

Sometimes when a lawyer can control his temper and yet make the witness lose his, he will be able to score a considerable victory in the minds of the jury. "In a recent Metropolitan Street Railway case," says Mr. Wellman, "a witness who had been badgered rather persistently on cross-examination, finally straightened himself up in the witness chair and said pertly:

"'I have not come here asking you to play with me. Do you take me for Anna Held?' (This occurrence was at the time when the actress was singing her popular stage song, 'Won't You Come and Play With Me?')

"'I was not thinking of Anna Held,' replied the counsel quietly. 'Suppose you try Anna-nias?'

"The witness was enraged, the jury laughed and the lawyer, who had really made nothing out of the witness up to this time, sat down."

A lawyer, however, must be careful with a witness who shows himself ready at repartee, for he is likely to get an answer which will prove a boomerang. When a lawyer uses the "roaring method," such a turn of the tables is most likely to prove fatal to counsel. As an example, Mr. Wellman quotes from "Curiosities of Law and Lawyers" in telling of a trial at the Worcester Assizes, in England, when a clergyman had been put on the stand to testify concerning the soundness of a horse. "A blustering counsel on the other side, after many attempts to get at the facts upon cross-examination, blurted out:

"'Pray, sir, do you know the difference between a horse and a cow?'"

"'I acknowledge my ignorance,' replied the clergyman. 'I hardly know the difference between a horse and a cow, or between a bull and a bully—only a bull, I am told, has horns, and a bully,' bowing respectfully to the counsel, 'luckily for me has none.'"

A lawyer, who has been trained to read character correctly, will often tell by the actions of a witness whether he is telling the truth or a falsehood. Witnesses of low intelligence, says Mr. Wellman, have a certain vacant stare, and they twist about nervously in the witness chair when telling a lie. Their mind is so absorbed in trying to defend itself against a false step that it fails to govern certain muscles of the hands and feet. For an example, Mr. Wellman quotes this experience of Jeremiah Mason, the famous New-England cross-examiner: "The witness had previously testified to having heard Mason's client make a certain statement, and it was upon the evidence of that statement that the adversary's case was based. Mr. Mason led the witness round to his statement, and again it was repeated verbatim. Then, without warning, he walked to the stand, and, pointing straight at the witness, said in a high, impassioned voice:

"'Let's see that paper you've got in your waistcoat pocket!' Taken completely by surprise, the witness mechanically drew a paper from the pocket indicated and handed it to Mr. Mason. The lawyer slowly read the exact words of the witness in regard to the statement, and called attention to the fact that they were in the handwriting of the lawyer on the other side.

"'Mr. Mason, how under the sun did you know the paper was there?' asked a brother lawyer.

"'Well,' replied Mr. Mason, 'I thought he gave me that part of his testimony just as if he'd heard it, and I noticed every time he repeated it he put his hand to his waistcoat pocket, and then let it fall again when he got through.'"

Sometimes a skillful examiner will make a witness base his whole testimony on a single statement and then suddenly knock the prop out from under him. In a trial in which Lincoln was examining a witness, and which Mr. Wellman quotes, the future war President followed this method with marked success. It was Lincoln's first defence in a murder case. The proof was so strong that Grayson, his client, came near being lynched soon after his indictment. After questioning the witness at some length, Mr. Lincoln asked:

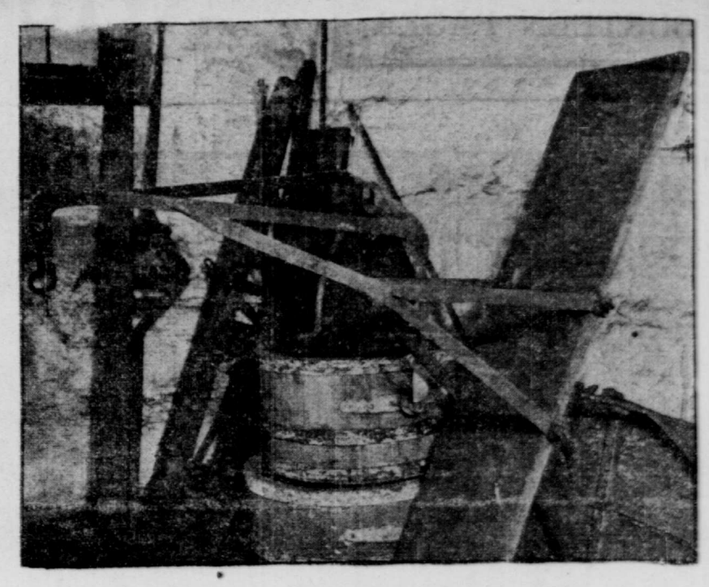
"How, then, did you see the shooting?"

"By moonlight."

"You saw this shooting at 10 at night—in beech timber, three-quarters of a mile from the lights—saw the pistol-barrel—saw the man fire—saw it twenty feet away—saw it all by moonlight? Saw it nearly a mile from the camp lights?"

"Yes, I told you so before."

At this point Lincoln drew a blue-covered almanac from his side coat pocket, opened it slowly, and read from a page that the moon on that night did not rise until 1 a. m.



OLD TUBS USED FOR MEASURING SALT FROM SPAIN.
In the days when Newburyport's Custom House was a busy place.

MISREPRESENTATION OF THE MOUND BUILDERS.

THEY COULD NOT BUILD WALLS WHICH WOULD STAND—NO ECONOMIC USE OF METALS.

Chillicothe, Ohio, Nov. 14 (Special).—Gerard Fowke, an archæologist of this city, seems destined to take in the archæological world much the same position which John Burroughs has assumed in the circle of nature writers. Nearly every one remembers the vigorous thrashing given by Mr. Burroughs not long ago to certain members of the nature school, and Mr. Fowke has similarly applied the flail to the writers of recent books on the mound builders. Mr. Fowke has devoted much time to the examination of the remains of the mound builders. From 1885 to 1888, and from 1891 to 1893, he was engaged in explorations and surveys of aboriginal remains in the eastern half of the United States, in connection with the Bureau of Ethnology. In 1898 the American Museum of Natural History sent him on a voyage along the Amoor River, in Siberia, for the purpose of tracing the origin of the mound builders, and for the last year he has been examining the aboriginal remains along the Mississippi Valley, a work which will continue several years more. The result of these investigations has led him to say:

"The erroneous ideas of persons, otherwise well informed, concerning archæological matters would amaze one who could attain to any considerable knowledge of the science without previously becoming familiar, to some extent, with the many absurd theories and notions promulgated by authors ignorant of their subject and writing only to strike the popular mind and pocket. The tendency of most of these works—and the exceptions are not to be found among those of greatest fame and widest circulation—is to indulge in sentiment without much regard to facts; to appeal to the reader's emotions instead of to his reason; to induce a state of melancholy over the mournful and mysterious disappearance of a numerous and interesting people, instead of furnishing any information about them; adroitly to rehash old matter and present it in a new and attractive form, thereby gaining for the compiler the reputation of being a great and learned man.

"It may seem harsh thus to characterize them, but a milder phraseology scarcely seems admissible. Even allowing full honesty of purpose, the rhapsodies of ill informed enthusiasts are as harmful as the deliberate misstatements of intentional deceivers; and one cannot resist a feeling of indignation that the widespread desire for accurate information on a most interesting subject is met and perforce satisfied with such trash as forms the bulk of our archæological literature.

"Since the time of Squier and Davis, who more than forty years ago published the results of what purported to be a careful and critical survey of mounds and other remains in the Scioto Valley, there have forced themselves upon public attention hosts of writers who, knowing nothing but what they have read, and unable to interpret even that correctly, have flooded the market with books that cause a feverish excitement in the minds of those who are really interested in a study of the prehistoric condition of our country. . . .

"Mainly by reason of the teaching of these sciolists, there are many widely prevalent ideas which are at variance with all observed facts.

"So far as has yet been discovered, the mound builders could not build a stone wall that would stand up. In the absence of springs or streams they could procure water only by excavating a shallow pond; they could not even wall up a spring when one was convenient. They left not one stone used in building that shows any mark of a dressing tool. Their mounds and embankments were built by bringing loads of earth, never larger than one person could easily carry, in baskets or skins, as is proved by the hundreds of lens-shaped masses observable in the larger mounds. They had not the slightest knowledge of the economic use of metals, treating what little they had as a sort of malleable stone; even galena, which it seems impossible they could have used without discovering its low melting point, is always worked, if worked at all, as a piece of slate or other ornamental stone would be. They left nothing to indicate that any system of written language existed among them, the few 'hieroglyphics' on the 'inscribed tablets' having no more significance than the modern carving by a boy on the smooth bark of the beech, or else being deliberate frauds—generally the latter in the case of the more elaborate specimens. They had not a single beast of burden, unless we accept the 'proof' offered by a New-York author that they harnessed up mastodons and worked them. Beyond peddling from tribe to tribe a few ornaments or other small articles that a man could easily carry, or transport in a canoe, they had no trade or commerce.

"Now, is there possible, under such circumstances, anything in the nature of what may be called 'civilization'? Can we conceive of a people as possessing even a slight degree of 'culture' who are lacking in any of these particulars?

"Fort Ancient has furnished a prolific ground for wondermongers. At the foot of the hill on which the three terraces are situated the current of the Little Miami has worn a deep hole in passing from a bed of stone and hard clay to one of finer, looser material. Washouts of this character are common, but no such explanation of its origin meets the approval of at least one visitor to the place."

Regarding a passage from Hosea's "Fort Ancient," page 298, in which it is asserted that this excavation was made by the mound builders as a sort of subterranean and secret way of communicating with the fort, Mr. Fowke says: "But we are left in ignorance as to the method by which men or animals could find their way into or through a tunnel whose entrance was at the bottom of a pool 'over thirty feet deep' and its exit in a mudhole more than two hundred and fifty feet above. This may be the place to which Nadaillac refers when he says that mound builders' works 'are connected with each other by deep trenches and secret passages, some of them hewn out beneath the beds of rivers.' ('Prehistoric Peoples,' page 296.)

"From Utah, Kansas, Indiana, Illinois, Texas and, perhaps, other places come reports of corn dug from the bottom of a mound, which, being planted, produces a bountiful crop. As a rule, the grain of this corn is different from any other ever seen. An Arkansas man caps the climax of such discoveries, and his report affords a fitting end to these absurdities. He says that 'near the great mound, not far from Osceola, there is a threshing floor, paved with adobe, having an area of quite ten acres. The wheat of wide districts must have been thrashed on this spot, and stood in bins made of the same material, the remains of which are visible.' (Du Pre, page 347.)

"Du Pre's article then goes on hysterically about 'countless myriads of people,' 'skulls and thigh bones of giants' (it seems that in all such cases remaining bones entirely disappear); in the swamp 'remains of brick structures'; 'old military road, the product of ancient skill and toil'; 'countless canals by which floods were rendered impossible'; 'broad farms of hundreds and even thousands of acres, absolutely created by piling up the earth'; 'mightier tasks than those achieved by modern engineers'; 'magnificent cities'; 'an earthen box with a sliding lid, half full of pills,' whose potency had 'caused the bones of the mound building patient to become an impalpable powder.' Strangely enough, he makes no mention of the tall man, with heavy whiskers and an unusually large jaw, who is generally so conveniently present to afford a scale of measurements, but introduces a novelty in the shape of a 'burly, weather beaten sailor,' who happens along just in time to pronounce an exhumed pot 'the water cooler of a Malay Islander.' He 'has before him' wheat raised in Arkansas from 'grains taken from an ancient Egyptian sarcophagus. Strange, but true it is, this very wheat still grows among the weeds and grass that cover mounds' near Memphis, Tenn., which is sufficient proof that the mound builders are descended from the Egyptians.

"The greatest mistake that has ever been printed in regard to American antiquities comes from no less a person than America's most eminent historian. It is quite opposite in its nature to the general tenor of those which have just been concluded."

Mr. Fowke quotes a statement of Bancroft's to the effect that the "country east of the Mississippi has no monuments. . . . Where imagination fashions relics of artificial walls, geology sees but crumbs of decaying sandstone; the mounds composed of different strata of earth it ascribes to the Power that shaped the globe into vales and hillocks." He adds that it is only fair to state that this quotation does not appear in the latest editions of Bancroft's history.

"Broadhead says of a 'walled burial place': 'The walls were constructed of rough limestone taken from the subjacent strata of the hills.' Nevertheless, the illustrations which he gives of them represent straight lines, sharp angles, smooth curves and accuracy of fitting, such as would be possible only with slabs dressed by a skilled artisan. (Broadhead, 351-2.) The cuts, instead of the text of these descriptions, seem to have furnished inspiration to various persons for the assertion that large buildings, constructed with great regularity, of stone accurately cut and fitted, are still to be found in Missouri.

"The worst publication of this character which has ever appeared in a scientific disguise is that of a former State Geologist of Indiana, who furnishes a report and figure of a most remarkable 'stone fort' at the mouth of Fourteen Mile Creek, in Clark County, near Charleston. Across the neck of a peninsula formed by the creek and the Ohio River, he says, a wall is piled up 'mason fashion, without mortar.' It has 'an elevation of about seventy-five feet above its base, the upper ten feet being vertical.' The plate which accompanies the report shows a regular revetment of large stones, apparently dressed, or at least squared. A wall along the creek is said to be similarly built, but is not more than ten feet high. (Indiana Geological Report, 1873, page 125.) Both the plan and description of this so-called fort are entirely imaginary. The reported 'walls' are only the natural outcrop of the heavy, evenly bedded limestones. It seems incredible that any person connected in any capacity with a geological survey, even as cook or mule driver, could ever have made such a ridiculous blunder as to suppose them artificial. . . .

"Again it is stated that 'the great magnitude of the works shows a numerous population distributed over a wide area, but all subject to one great central power, with kings, and chiefs, and high priests, and laws, and established religious systems, and despotic power, and servile obedience.'

"If the assumption upon which all this is based were correct; namely, that the various works scattered through the Mississippi Valley were occupied at one time by one people, there would be some probability of its truth; but the little that is definitely known points the other way—to distinct races of mound builders at widely separated periods of time.

"A close study of the inclosures leads to the conviction that the population was not numerous, except in the immediate vicinity; the mounds were not necessarily built synchronously—in fact, some have the appearance of being of much more ancient date than others only a few miles distant. What their use may have been has always been a puzzling question, any conjecture finding many difficulties to overcome. Among other suggestions is the plausible one that they were intended as a means of defence to the villages built within them. If this be the correct theory (which is not asserted), it can be readily understood that when the population of one of these villages increased to such a degree as to feel crowded, a portion would branch off and establish themselves at some convenient spot, where they would construct an inclosure or protective wall similar to that from which they had removed.

"Moreover, if the great centre of all this power was within the southern half of Ohio, is it not strange that a 'mighty nation' should build its principal fortifications in the interior, leaving the frontier exposed?

"The 'kings,' 'priesthood,' 'religious systems,' etc., result from the influence of a vivid imagination. The problem is difficult to solve when viewed in its simplest aspect, but wellnigh impossible if, to the original question, be added the mystery and nonsense in which so many are trying to envelop it."

LINCOLN'S PRIVATE CAR.

"There is standing on a side track in the Union Pacific Railroad yards at Omaha a relic that many people think should be in the National Museum at Washington," said Henry J. Harper, of the Western city, to a "Star" man at the New Willard.

"It is the old armored car used by Abraham Lincoln when he was President of the United States, and was also used to carry the body of the martyred Executive to its resting place at Springfield, Ill., in 1865. The car remained at Springfield until the close of the Civil War, at which time much government property was sold at auction, the Lincoln car included. The Union Pacific Railroad was just being built, and, practically, owing its existence to Mr. Lincoln, purchased the historic relic.

"When first constructed the car was the acme of railroad architecture, but when placed beside the modern equipment of to-day the vast strides made in the progress of railroad trains are shown as never before. Originally divided into three compartments opening into a narrow hallway, extending the entire length, the car was lined throughout with quarter-inch steel plates, making it bullet proof. This was thought necessary, since Mr. Lincoln used the car in all his travels from Washington to the army posts he visited. The car was upholstered and padded with rich, crimson silk, and the President's room was decorated with panels on which the coats-of-arms of the different States were painted.

"After the car passed into the possession of the Union Pacific it was used by Sydney Dillon, then head of the railroad, as a private car for himself and the directors. At that time Indian and outlaw attacks on the overland trains frequently occurred, and the armored car was used as a protection against both white and red marauders. It served its purpose for many years until all danger of these attacks was past, after which the car was brought to Omaha and a special house erected for it in the Union Pacific shops.

"During the World's Fair at Chicago and again at the Trans-Mississippi Exposition at Omaha the historic car was on exhibition, and attracted much attention. Since the last named exhibition the old car has been taken out of the shed and has gone to ruin very fast. At present scarcely a vestige of its old splendor remains."—(Washington Star.