

COMMONWEALTH OF MASSACHUSETTS.

Norfolk, ss.

Superior Court  
Criminal Session  
#5545  
#5546

\*\*\*\*\*  
 Commonwealth  
 vs.  
 Nicola Sacco & Bartolomeo Vanzetti  
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AFFIDAVIT OF MERTON A. ROBINSON.

-oOo-

I, Merton A. Robinson, being first duly sworn, on oath depose and say as follows: That I am a resident of the City of New Haven, in the State of Connecticut. That I am the Ballistic Engineer for the Winchester Repeating Arms Company of said New Haven, which said position I have occupied for the past eight years.

As to my practical training and experience, in 1904 I entered the Ballistic laboratory of the Winchester Repeating Arms Company, and after about six years I was made foreman of that department. That position I held for five years, when I was transferred to the Central Engineering Department and given the title of Ballistic Engineer, still retaining supervision of the Ballistic Department, a position which I still hold.

In August, 1918, representing the Winchester Arms Company, I was made a member of a special commission appointed

by the United States Ordnance Board to study the methods of small arms manufacture in the prominent plants throughout England, France and Italy. It was also my duty as a member of that Commission to observe the effectiveness and quality of ammunition which the American Ammunition Companies were furnishing our troops.

The Winchester Repeating Arms Company manufacture rifles and shot guns, paper shot shells and metallic cartridges of all descriptions, including those loaded with both lead and metal jacketed bullets.

During my foremanship I supervised the routine and experimental tests of various types of cartridges. Since becoming Ballistic Engineer I have not only supervised the routine and experimental tests of ammunition, but have supervised the tests of rifles and shot guns. It has been my duty to specify standards of testing, types of priming mixture, types of powder, and specifications covering the sizes of projectiles, shapes, and other important details. It has also been my duty to specify the proper sizes of shot gun and rifle chambers, the proper twist of rifling to be used in rifle barrels, and the tolerance to be imposed in the relations between the arms and ammunition. In connection with my work I have had occasion to recover or observe the recovery of large numbers of bullets made of so-called clear lead or those manufactured with a metal jacket. These bullets have been recovered in soft pine boards, in oiled or dry sawdust, and in water. In line with my experiments I have examined these bullets under magnifying glasses and microscopes, and have made careful and exact measurements covering the engraving of the lands, length of bearings, change in profile, and other points of this nature.

I was requested by the District Attorney's office to come to Dedham, Massachusetts, for the purpose of inspecting certain shells, bullets and pistols. Upon arriving I was requested to make an independent investigation as to whether or not certain shells and bullets had been fired in a certain Colt automatic pistol calibre 32. I was also asked to give an opinion with respect to the Knurling of six Winchester cartridges, calibre 32 automatic, Exhibit 31, and as to the knurling of a fired 32 calibre automatic Winchester bullet, Exhibit 18.

I have examined six Winchester 32 automatic loaded cartridges, Exhibit 31. I have also examined photographs on page 7 of album accompanying affidavit of Mr. Hamilton, dated October 15, 1923, of these six cartridges, and have read portions of the affidavit pertaining to the knurling. Mr. Hamilton states that the knurling on the fired Winchester bullet, known as the mortal bullet Exhibit 18, is not perpendicular to the axis of the bullet, being 3° off to the left. This bullet is badly deformed, one side is flattened or caved in, and the base is mis-shapen. Under these conditions it is impossible to determine the true axis of the bullet, and it is impossible to determine whether the knurling is at right angles with the true axis or not.

The Winchester Repeating Arms Company, which manufactured the bullet known as Exhibit 18 has always grooved the bullet with a knurl parallel to the axis of the bullet. If any individual bullet is found with a knurling which is slightly off from the parallel, it must be caused by stretch or distortion of the surface when engaging the lands and not by the process of manufacture.

Mr. Hamilton states that the knurling on the six Winchester cartridges, Exhibit 31, with one exception shows that the knurling is parallel to the axis of the bullet. A large percentage of the

major portion of the knurling is beneath the mouth of the shell, and it is impossible to determine whether the knurling is perpendicular to the axis of the bullet or not.

I was shown a fired Winchester shell, calibre 32 automatic, known as the Fraher shell, F4, part of Exhibit 30, and asked to determine whether or not this shell was fired in Colt automatic pistol #219722, Exhibit 28. I was also shown a fired Winchester metal jacket bullet known as the mortal bullet, Exhibit 18, and asked to determine whether or not this bullet was fired from Colt automatic pistol mentioned above.

I have examined the so-called Fraher shell, F4, part of Exhibit 30, a Colt automatic pistol calibre 32 automatic #219722 Exhibit 28, three Winchester fired shells calibre 32 automatic Exhibit 34, three fired Winchester bullets fired at Lowell, Exhibit 35, and a deformed fired Winchester bullet known as the mortal bullet, Exhibit 18.

The Winchester 32 automatic fired shell F4 Exhibit 30, was examined carefully with a Bausch & Lomb microscope and with a powerful magnifying glass. The firing pin dent shows an imperfection on the side, and the face of the flattened metal of the primer where it is set back against the breach block shows clearly defined marks and characters from the imprint of the breach block. I have observed the relation as to position of these significant markings with respect to the ejector mark, extractor mark, and imperfection in the primer indent.

I have examined the Colt automatic pistol calibre 32 #219722 Exhibit 28, and find that the firing pin has a defect or gouge on its side. I find that the face of the breach block shows a number of machine or tool marks and other groups of characters, and that these agree as to number and shape with the markings on

the fired primer in the Fraher shell F4 Exhibit 30. I find further that the location of these various tool marks or machine marks with respect to the extractor and the ejector clearance agrees as to location of the imprints shown on the primer of the Fraher shell F4 Exhibit 30.

I found on the face of the breach bolt one definite series of tool or machine marks consisting of the Roman numeral V and four marks on one side, and seven marks on the other side, of that V. This series of marks is near the firing pin hole opposite the ejector cut. There is also a tool mark extending at right angles from the bottom of that V; also a tool mark at right angles to the top of that V, extending in the opposite direction to the first mark. This same series of tool or machine marks appears on the flattened surface of the fired primer in the so-called Fraher shell F4, Exhibit 30, and also appears in the Winchester Lowell shells, Exhibit 34, known to have been fired at Lowell in the Colt automatic pistol #219722, Exhibit 28.

I have examined three Winchester fired shells known to have been fired from a Colt automatic pistol, calibre 32, #219722, Exhibit 28. These shells were examined under a Bausch & Lomb microscope and with a powerful magnifying glass. All of these shells show the same significant imprint from the tool marks or machine marks found on the above pistol. I also found that the relative position of the various imprints, both on face of primer and in firing pin indent, to be the same as that observed on Fraher shell F4, Exhibit 30.

I have examined a deformed fired Winchester bullet known as the mortal bullet, Exhibit 18. I have examined this bullet and measured the width of land impression and groove cuts with a Bausch & Lomb Compound microscope. I have also examined it carefully with a powerful magnifying glass. I find that <sup>on</sup> one of the

groove cuts on this bullet, or that portion corresponding to a groove in the barrel there are two characteristic scores or scratches caused while passing from the barrel. I have measured the location of these scores or scratches from the side of the groove cut. I have also examined the three Winchester fired bullets, Exhibit 35, known to have been fired at Lowell, in the Colt automatic, #219722, Exhibit 28. These bullets have been examined under a Bausch & Lomb Compound microscope and have also been examined carefully with a strong magnifying glass. I find that each bullet shows two distinct scores or scratches located on one of the groove cuts of bullet, or that portion corresponding to the groove in the barrel, in the same relative positions as shown on the mortal bullet, Exhibit 18. I have measured the distances of these scores or scratches, first from the left hand edge of each groove cut; <sup>to the nearer score</sup> secondly from the right hand edge of each groove cut, <sup>to the further score</sup> and third, from each other. I also measured the width of the groove cuts. A table of these measurements is hereinafter stated.

The letter "A" refers to the left hand edge of each groove cut; the letter "B" refers to the score or scratch nearer to said left hand edge; and the letter "C" refers to the score or scratch nearer to the right hand edge of said groove cut, and the letter "D" refers to the right hand edge of said groove cut.

	EXHIBIT 18	L W 1	L W 2	L W 3	
A - B	.0534	.0516	.0532	.0509	inches
A - C	.0694	.0676	.0681	.0658	"
A - D	.1054	.1036	.1042	.1045	"
B - C	.0149	.0154	.0172	.0156	"
B - D	.0509	.0503	.0543	.0525	"
C - D	.0367	.0376	.0358	.0363	"

From my careful examination and measurements, I am satisfied that the Fraher shell F4, Exhibit 30, was fired from Colt automatic

pistol #219722, Exhibit 28.

From my careful examination and measurements of the fired Winchester bullet known as the mortal bullet, Exhibit 18, I am satisfied that this bullet was fired from Colt automatic pistol calibre 32, #219722, Exhibit 28.

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State of Connecticut )  
County of Fairfield )

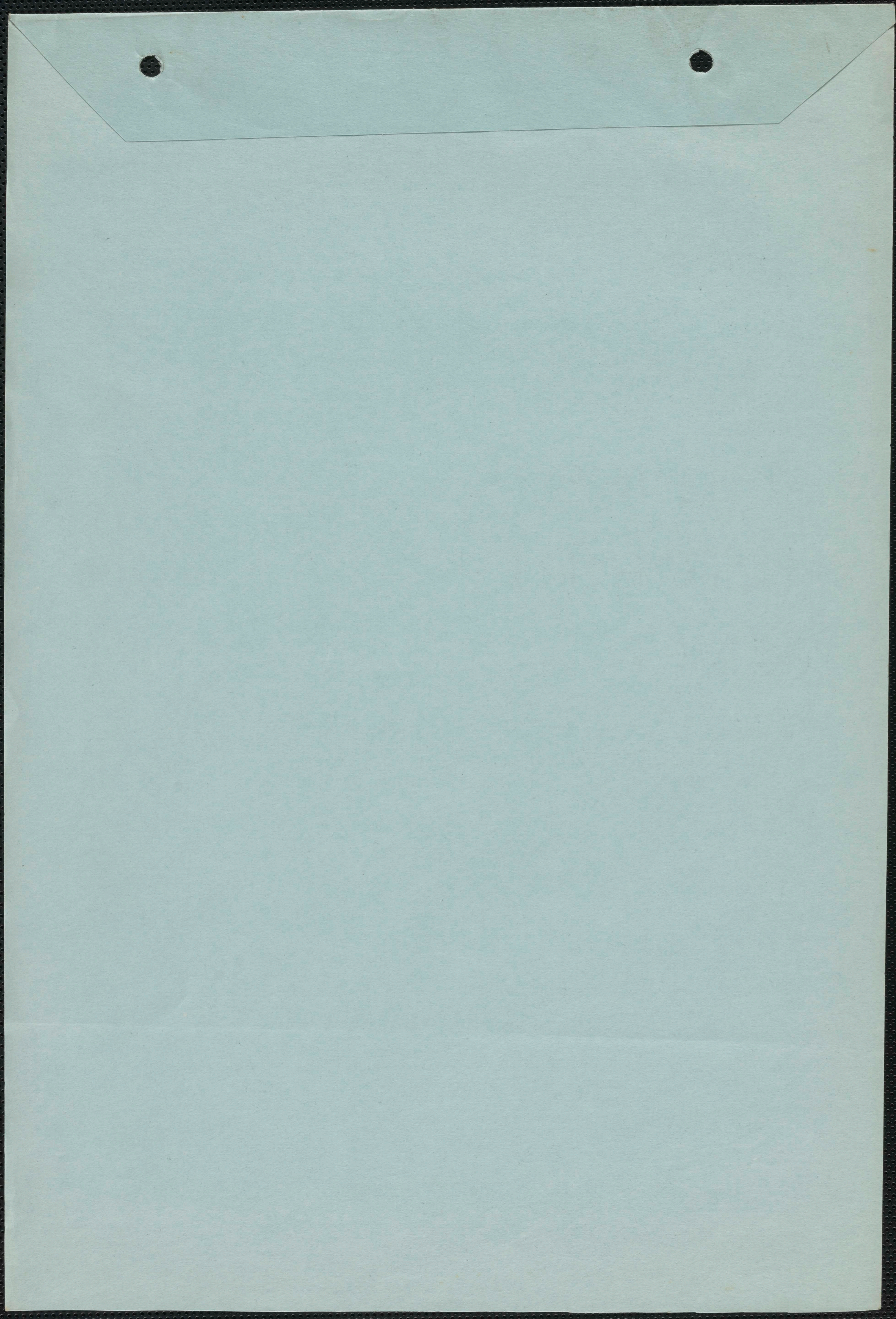
ss.

Bridgeport, October 29th, 1923.

Signed and sworn to before me the date above written.

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Notary Public



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The Winchester 32 automatic fired shell F4 Exhibit 30, was examined carefully with a Bausch & Lomb microscope and with a powerful magnifying glass. The firing pin hole shows an imperfection on the side, and the face of the flattened metal of the primer where it is set back against the breach block shows clearly defined marks and characters from the imprint of the breach block. I have observed the relation as to position of these significant markings with respect to the ejecter mark, extractor mark, and imperfection in the primer indent.

I have examined the Colt automatic pistol calibre 32 #219722 Exhibit 28, and find that the firing pin has a defect or gouge on its side. I find that the face of the breach block shows a number of machine or tool marks and other groups of characters, and that these agree as to number and shape with the markings on the fired primer in the Fraher shell F4 Exhibit 30. I find further that the location of these various tool marks or machine marks with respect to the extractor and the ejecter clearance agree as to location of the imprints shown on the primer of the Fraher shell F4 Exhibit 30.

I found on the face of the breach bolt one definite series of tool or machine marks consisting of the Roman numeral V and four marks on one side, and seven marks on the other side, of that V. This series of marks is near the firing pin hole opposite the ejecter cut. There is also a tool mark extending at right angles from the bottom of that V; also a tool mark at right angles to the top of that V extending in the opposite direction to the first mark. This same series of tool or machine marks appears on the flattened surface of the fired primer in the so-called Fraher shell F4, Exhibit 30, and also appears in the Winchester Lowell shells, Exhibit 34, known to have been fired at Lowell in the Colt automatic pistol #219722, Exhibit 28.

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I have examined three Winchester fired bullets, Exhibit 35, known to have been fired at Lowell in the Colt automatic pistol #219722, Exhibit 28. These bullets have been examined under a Bausch & Lomb microscope and have also been examined carefully with a strong magnifying glass. I find that each bullet shows two distinct scratches or grooves located on one of the lands of bullet or that portion corresponding to the groove in barrel. I have measured the location of these grooves or scratches. One groove or scratch is located <sup>at</sup> .038 inches, .038 inches, and .033 inches from the side of land on the three bullets respectively. The other groove or scratch is located at .052, .051 and .040 inches <sup>from the side of the land</sup> on each bullet respectively.

From my careful examination and measurements I am satisfied that the Fraher shell F4, Exhibit 30, was fired from Colt automatic pistol #219722, Exhibit 28.

From my careful examination and measurements of the fired Winchester bullet known as the mortal bullet, Exhibit 18, I am satisfied that this bullet was fired from Colt automatic pistol calibre 32, #219722, Exhibit 28.

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Norfolk, ss.

October 21, 1923.

Then personally appeared the above-named

Merton A. Robinson,

and made oath to the foregoing affidavit by him subscribed, before me,

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Justice of the Peace.

COMMONWEALTH OF MASSACHUSETTS.

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Mr. Hamilton states that the knurling on the six Winchester cartridges, Exhibit 31, with one exception shows that the knurling is perpendicular to the ~~access~~<sup>axis</sup> of the bullet. A large percentage or the major portion of the knurling is beneath the mouth of the shell, and it is impossible to determine whether the knurling is perpendicular to the ~~access~~<sup>axis</sup> of the bullet or not.

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Mr. Hamilton states that the knurling on the six Winchester cartridges, Exhibit 31, with one exception shows that the knurling is perpendicular to the ~~access~~<sup>axis</sup> of the bullet. A large percentage or the major portion of the knurling is beneath the mouth of the shell, and it is impossible to determine whether the knurling is perpendicular to the ~~access~~<sup>axis</sup> of the bullet or not.

I was shown a fired Winchester shell, calibre 32 automatic, known as the Fraher shell, F4, part of Exhibit 30, and asked to determine whether or not this shell was fired in Colt automatic pistol #219722, Exhibit 28. I was also shown a fired Winchester metal jacket bullet known as the mortal bullet, Exhibit 18, and asked to determine whether or not this bullet was fired from Colt automatic pistol mentioned above.

I have examined the so-called Fraher shell, F4 part of Exhibit 30, a Colt automatic pistol calibre 32 automatic #219722 Exhibit 28, three Winchester fired shells calibre 32 automatic Exhibit 34, three fired Winchester bullets fired at Lowell Exhibit 35, and a deformed fired Winchester bullet known as the mortal bullet Exhibit 18.

The Winchester 32 automatic fired shell F4 Exhibit 30, was examined carefully with a Bausch & Lomb microscope and with a powerful magnifying glass. The firing pin hole shows an imperfection on the side, and the face of the flattened metal of the primer where it is set back against the breach block shows clearly defined marks and characters from the imprint of the breach block. I have observed the relation as to position of these significant markings with respect to the ejecter mark, extractor mark, and imperfection in the primer indent.

I have examined the Colt automatic pistol calibre 32 #219722 Exhibit 28, and find that the firing pin has a defect or gouge on its side. I find that the face of the breach block shows a number of machine or tool marks and other groups of characters, and that these agree as to number and shape with the markings on the fired primer in the Fraher shell F4 Exhibit 30. I find further that the location of these various tool marks or machine marks with respect to the extractor and the ejecter clearance agrees as to location of the imprints shown on the primer of the Fraher shell F4 Exhibit 30.

I found on the face of the breach bolt one definite series of tool or machine marks consisting of the Roman numeral V and four marks on one side, and seven marks on the other side, of that V. This series of marks is near the firing pin hole opposite the ejecter cut. There is also a tool mark extending at right angles from the bottom of that V; also a tool mark at right angles to the top of that V extending in the opposite direction to the first mark. This same series of tool or machine marks appears on the flattened surface of the fired primer in the so-called Fraher shell F4, Exhibit 30, and also appears in the Winchester Lowell shells, Exhibit 34, known to have been fired at Lowell in the Colt automatic pistol #219722, Exhibit 28.

I have examined three Winchester fired shells known to have been fired from a Colt automatic pistol, calibre 32, #219722, Exhibit 28. These shells were examined under a Bausch & Lomb microscope and with a powerful magnifying glass. All of these shells show the same significant imprint from the tool marks or machine marks found on the above pistol. I also found that the relative position of the various imprints, both on face of primer and in firing pin indent, to be the same as that observed on Fraher shell F4, Exhibit 30.

I have examined a deformed fired Winchester bullet known as the mortal bullet, Exhibit 18. I have examined this bullet and measured the width of lands and grooves with a Bausch & Lomb microscope. I have examined it carefully with a powerful magnifying glass. I find <sup>on</sup> that one of the lands of this bullet, or that portion corresponding to a groove in the barrel, there are two characteristic grooves or scratches caused while passing through the barrel. I find that one of these grooves or scratches is .040 inches from the side of land and that the other groove or scratch is at a point .056 inches from the side of land.

I have examined three Winchester fired bullets, Exhibit 35, known to have been fired at Lowell in the Colt automatic pistol #219722, Exhibit 28. These bullets have been examined under a Bausch & Lomb microscope and have also been examined carefully with a strong magnifying glass. I find that each bullet shows two distinct scratches or grooves located on one of the lands of bullet or that portion corresponding to the groove in barrel. I have measured the location of these grooves or scratches. One groove or scratch is located <sup>at</sup> .038 inches, .038 inches, and .033 inches from the side of land on the three bullets respectively. The other groove or scratch is located at .052, .051 and .040 inches <sup>from the side of the land</sup> on each bullet respectively.

From my careful examination and measurements I am satisfied that the Fraher shell F4, Exhibit 30, was fired from Colt automatic pistol #219722, Exhibit 28.

From my careful examination and measurements of the fired Winchester bullet known as the mortal bullet, Exhibit 18, I am satisfied that this bullet was fired from Colt automatic pistol calibre 32, #219722, Exhibit 28.

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Norfolk, ss.

October 21, 1923.

Then personally appeared the above-named  
Merton A. Robinson,  
and made oath to the foregoing affidavit by him subscribed,  
before me,

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Justice of the Peace.

INSERT AT END OF FIRST PARAGRAPH, PAGE THREE  
OF ROBINSON AFFIDAVIT

0. V. 1  
The Winchester Repeating Arms Co., which manufactured the bullet known as Exhibit 18 has always grooved the bullet with a knurl parallel to the axis of the bullet. If any individual bullet is found with a knurling which is slightly off from the parallel, it must be caused by stretch or distortion of the surface when engaging the lands and not by the process of manufacture.

Referring to Page 1 of Gill's <sup>was</sup> Supplementary Affidavit, ~~the~~ measurements taken across the base <sup>of a land</sup> of a land in a pistol and across the bottom <sup>of a groove</sup> of a groove and adding them together in order to obtain the bore circumference of the pistol would be less than the measurements taken across the tops of the lands and grooves, because the periphery figure made by the 12 cords of the first measurements would be smaller than the periphery represented by the sum of the cords of the second measurements; in other words, the cords measured from ~~ix~~ base to base would be inside the cords measured from top to top and must necessarily be less, so far as the total is concerned.

Second insert on Robinson Affidavit. Referring to Page 1 of Prof. Gill's Supplementary Affidavit, concerning the discrepancy in measurements as taken by himself and Mr. Hamilton, it is stated that in practice, the grooves of pistol barrels are wider at the bottom than at the top and that in the case of the so-called Sacco pistol, Prof. Gill measured the groove at the bottom and Mr. Hamilton measured the groove at the top, between the corners of the lands.

The statement is made that this causes the larger measurements of Prof. Gill as compared to Mr. Hamilton. The grooves of a pistol are made wedge-shaped; that is, wider at the top than at the bottom. This is done to facilitate cleaning of the barrel. This is accomplished by stoning away the lower left and right face of the rifling head, making it narrower than at the top. This, in theory and practice, gives the perfect groove-cut.

If Prof. Gill measured the groove at the bottom and Mr. Hamilton measured the groove at the top, then Prof. Gill's measurements should have been shorter than Mr. Hamilton's, rather than longer.

Prof. Gill has suggested the same error in reference to the measurements of the bullet on Page- 2 - Paragraph 3.

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Prof. Gill has suggested the same error in reference to the measurements of the bullet on Page- 2 - Paragraph 3.