E·R·SQUIBB & SONS
BIOLOGICAL LABORATORIES
NEW BRUNSWICK, N.J.

JOHN F. ANDERSON, M.D.
DIRECTOR

May 27, 1932

Colonel H.Norman Schwarzkopf,
Superintendent, State Police,
Trenton, N.J.

Dear Sir:

In accordance with the request transmitted to us through Sergeant Kubaler of the New Jersey State Police, we made a detailed examination of various materials and objects delivered to our Laboratories on Monday May 16,1932 by Sergeant Louis Kubaler.

Examination has also been made of certain materials delivered by Sergeant Kubaler on May 23rd., and also certain materials and objects delivered by Mr. Kelly to our Mr. Holaday on May 20,1932. These examinations included the following, the results of which are shown in the individual reports attached hereto, bearing corresponding numbers in Roman numerals:

I. Examination of five bags of soil described as having been dug to a depth of 14 inches at the site where the body of Charles A.Lindbergh, Jr. was found on May 12,1932.

II. Examination of three baskets of leaves labeled as collected from the ground in the immediate scene where the body was found.

III. Examination of clothing removed from body of child.

IV. Examination of Dr. Denton sleeping garment received in 10 x 13 inch envelope labeled "#10 Morristown Hdqs."

V. Examination of burlap bag containing leaves and hair found near body.

VI. Examination of pair of cotton gloves and towel.

VII. Examination of strips of burlap and piece of table cloth delivered in waste paper basket.

VIII. Examination of handkerchief delivered in envelope marked "#11 Handkerchief".

As regards the finding of any significant clue the results of these examinations are essentially negative. The 5 bags of soil and 3 baskets of leaves were examined in such a manner that no significant object larger than about 3/64 of an inch in its greatest dimension could have escaped detection. No pin or other piece of metal was found. No blood stain was found on any of the garments or other fabrics examined. Tests for blood spots on the undershirt and band removed from the body and on the sleeping garment were made by Dr. Leonard with negative results.

One toe nail and nine foot bones corresponding to 8 toe bones and one calcaneus from a child's foot were found in the soil and leaves. One of the bones was positively identified by Dr. Leonard as human bone with the precipitin test. Four of the six bones found in the five bags of soil were embodied in masses of the soil. All bones were completely devoid of any adherent tissue. All soil scraped from the bones was identical in its characteristics as revealed by microscopic examination to that in the five bags or with that in the three baskets of leaves. All objects removed from the soil and leaves have been placed in labeled tubes or bottles.

Fibres of the same type as in the fabric of the burlap sack found near the body were matted to the shirt and band. Stencil marks were identified on this sack. The sack was spotted with soil common in its microscopic characteristics to that of the immediate location and with a black humus soil not found on any other object examined. A small amount of "dirt" was found inside a finger tip of one glove which was similar to the black soil on the sack with the exception that there was a lesser proportion of humus and the sand granules were of smaller average size. A white and brown hair characteristic of human wrist hair was found at the wrist seam inside of one glove.

In addition to the 8 reports numbered in Roman numerals, referred to above, there is also sent herewith a copy of the notes made by our Mr. B.G. Thomas as a record of his examination of the articles listed below which were delivered to me in my office at 3-20 p.m. May 20,1932 by Mr. Kelly with a verbal request for examination and identification of any blood spots if such could be found. Also a copy of Mr. Thomas' notes made as a record of the examination of soil delivered in a card board box labeled "One dozen pint Ball Fruit Jars" and the following written on a white paper pasted on top of the box "To Squibb's Laboratory New Brunswick Dr. Anderson or Mr. Holaday Monday May 23,1932".

One envelope 9¼ x 13 inches - Printed on upper left hand corner "State of New Jersey, Department of State Police, Trenton,N.J. Printed in pencil on front of envelope "Hopewell".

Contents as follows: one large rubber for left foot with mass of leaves and fibrous material in the heel, one torn leather glove with cotton cuff for left hand, one piece white bag material 18¼ x 33 inches, one piece soiled cloth 7 x 31 inches, one piece of soiled cloth 38⅛ inches long in two strips.

One filing envelope 11⅝ x 9½ x 2" tied with ¼" ribbon - labeled in pencil on flap "Dr. Anderson" and on front "Communications".

Contents as follows: one handkerchief 9 x 9½" with blue border design, one piece soiled loosely woven cotton cloth 52 x 8", one piece light brown cloth 6" long x 1" at greatest width, 1 torn leather glove with cotton cuff for left hand, six masses of waste, one piece torn very dirty white paper approximately 16 x 4½".

No indications of blood stains were found on any of the articles examined by Mr. Thomas. Much of the soil on these articles is characterized by particles of cinder, slag and coal dust. The types of soil found on these articles and that received in the fruit jar box on May 23rd are distinctly different in microscopic characteristics from any of the soil found on the articles described in sections I to VIII of this report.

The examination of these various materials and objects has been very painstakingly carried out and the examination has been most minute, most of them being done by our Mr. B. G. Thomas and our Mr. H. A. Holaday. In addition certain tests looking to the identification of material as of human origin were carried out in detail by our Dr. George F.Leonard.

It is of great regret that the results were practically barren of any significant clues which in our opinion would be of value in the investigation of the case now under consideration.

Very truly yours,
E. R. SQUIBB & SONS.

JOHN F.ANDERSON M.D.
DIRECTOR.

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I

I. Treatment and Examination of soil received in five burlap bags.

The following mechanical operations were carried out by Mr. T. D. Gerlough

(1) All the soil from the five bags was spread out over an area of 12' x 12' x 2" to dry.

(2) The soil was broken up with a rake and when sufficiently dry was screened through a 4 mesh sieve.

(3) The fine portion was then further screened - part through a 16 mesh sieve and part through a 20 mesh sieve.

(4) The fine dirt, i.e. the material less than 16 or 20 mesh, was examined after each screening.

(5) The material which did not pass through the 4 mesh sieve was further dried and broken up and then screened through the 4 mesh sieve.

(6) The final lumps greater than 4 mesh, consisting mostly of gravel and rocks, were carefully examined by hand and then washed clean.

The following exhibits were obtained by means of the above described examination of the soil.

(1) A piece of plain brown paper about 6" x 9/" soiled with grease or oil - microscopic examination negative - no food particles found.

(2) A strip of lavender paper 2-3/4" x 3/8" - microscopic examination negative.

(3) a piece of wool fabric about $1\frac{1}{2}$" x $\frac{1}{2}$" irregular outline corresponding to piece of edge material from underarm of undershirt found on body.

(4) A piece of wool fabric about 2" x 1" irregular outline corresponding to piece from edge of shirt found on body.

Soil from 5 burlap bags.

(5) Four phalanges and two metatarsel bones corresponding to foot of infant. One of these bones found loose while sieving soil. Four of these bones found embedded in lumps of greyish blakk soil which were dried and broken up a second time for the second screening on the 4 mesh sieve. The sixth bone was found on washing the gravel and rock. One of the phalanges was cut into small pieces, extraced with ether, ground to a powder, the powder extracted with physiological salt solution and the salt solution submitted to Dr. George F. Leonard for a precipitin test for human protein which was found by Dr. Leonard to be strongly positive. This bone was thus identified as human bone. Microscopic examination of the soil adherent to the bones revealed no particles not common to the soil in which the bones were found.

(6) One piece red pepper about 3/4" x 1/2".

(7) Four small pieces less than 3/4" x 3/4" of white material which appears to be very thick paint scale. Has the odor of paint and contains lead carbonate.

(8) Moist lump of soil about 3/4" x 1/2" containing a few fine light brown hairs corresponding to locks of hair found in leaves and hairs on shirt.

(9) A small mat of fibers corresponding to the burlap bag number 02240.J.L.entwined with rootlets.

(10) A small white round disk slightly oblong 15/64 in. wide x17/64 in. long by 1/32 in.thick - edges smooth. Flat surface on both sides coated with a dark reddish black crackled homogeneous material which looks very much like dried blood and is dark red under the surface. This material however is not blood. It is insoluble in water and salt solution in which finely divided particles of the material were allowed to soak over night, - gave a negative precipitin test. (tested by Dr. Leonard).

Microscopic examination and staining test (crystal violet) indicate that the white object is not composed of bone or cartilage. It is insoluble in acid and therefore not composed of shell. It appears to be composed of some synthetic material - but probably not of the nature of celluloid or pyralin - since the material does not swell or dissolve when allowed to remain in acetone. It may be a casein derivative since it dissolved to some extent in caustic soda and the solution gives biuret test. The solid material also gives a strong xanthoproteic acid test.

(11) With the addition of a piece of acorn, and two small pieces of shell similar to snail shell the above listed items include all foreign objects found in the five bags of soil. No pins or pieces of metal were found.

II. Examination of Leaves and Soil contained in the three baskets on each of which was pasted a strip of white paper bearing the following typed description "Leaves collected from ground in immediate scene where body of Kidnaped Charles A. Lindbergh, Jr. was found on May 12, 1932 just off Princeton-Hopewell Road in Mount Rose, Mercer County, N.J.".

The following operations were carried out by Mr. T. D. Gerlough.

(1) The material in each basket was carefully and thoroughly examined.

(2) The matted leaves were pulled apart leaf by leaf and after inspection deposited in another container.

(3) The soil with the leaves was also hand picked into small bits and then placed on a 20 mesh sieve and dirt sluiced away with water.

The following exhibits were obtained from the three baskets of leaves by means of the above described examination.

(1) One toenail which corresponds to the large toe of a small child. Found in the greyish black top soil.

(2) Two phalanges corresponding to foot of infant were found on the sieve.

(3) One phalange and one calcaneus corresponding to foot of infant were found in small masses of the greyish black top soil with the leaves. In the portion of the top soil in which the bones were found putrifaction and decomposition were evident. Numerous maggots were present. Dirt scraped from the bones is seen by microscopic examination to be characteristic of the soil in the bags and with the leaves (i.e. consists of fine sand mostly white grains and humus).

(4) One small rib bone and a portion of vertebra with which the rib articulates were found in the greyish black top soil. These two bones have the appearance of chicken bones and are differentiated from any of the foot bones in that all of the latter are oily whereas the rib and vertebra are not. They are thoroughly bleached out. The wide flat portion of the rib bone is torn for a distance of 1/2" with a hole 1/32" diameter punched through as if by a round tooth.

(5) Piece of woolen fabric 1" x 1¼" same knit as undershirt found on body.

(6) Mass of leaves and soil (5 oz. air dried) with numerous curly light brown hairs loose and in locks identical to those found on undershirt. Hair found intermixed with disintergrated and partially decayed wet leaves and also embedded in small masses of wet greyish black top soil. No signs of blood in soil or on leaves. This soil of the same character as scraped from bones except that it contains a higher percentage of humus.

(7) A small additional amount of hair - fine light brown curly hair - was found scattered through the leaves.

(8) Piece of paper towel about 2 x 1". Yellowish stain on paper and small spot of adherent dark brown material on paper not identified.

The above list includes all foreign objects found in the 3 baskets of leaves.

Examination of exhibits by H. A. Holaday assisted by [illegible]

III. Examination of Contents of Collapsable brown filing envelope 15 x 10" tied shut with ribbon knotted between two eyes in the flap of the envelope. The following label typed on white strip of paper pasted on side of envelope, "Clothing removed from body of small child, later identified as the kidnaped Charles A. Lindbergh, Jr. Body found in woodland just of Princeton-Hopewell road, Mercer County, N.J. on May 12, 1932."

Contents of envelope - woolen infant's undershirt or vest bearing W. Altman & Co. tag and woolen garment hand sewed with blue thread and pinned at shoulder with safety pins.

Woolen undershirt plastered with mud. Quite a few fine light brown curly hairs were matted into the mud both inside and outside of the garment. A few small clots of material which had somewhat the appearance of blood stains was found on the inside of the garment about ¾ inch below the arm pit. This portion of the garment was cut out with scissors submitted to Dr. Leonard who extracted the material with physiological salt solution and conducted tests for blood which were reported as negative. The cut piece of the fabric was pinned back to the garment after the extraction was completed.

One white hair 5/8" long tapered at the end and one hair 7/16 in. long white at one end, shading into brown at the other end were found on the garment also two brown fibres of jute 5/8 in. long corresponding to the fabric of the burlap bag stencilled "0224 O.J.L.". No additional fibres of this type were found on the garment. One blue fibre was found which corresponded to the thread with which the other garment was sewed.

Woolen garment hand sewed with blue thread - pinned at shoulder on one side with two medium sized safety pins. Garment cut full length on one side. Garment matted with dirt, leaves and quite a few hairs both inside and outside. Three areas on the garment (one on outside of garment 2 inches from center and 1 inch below the neck, one on inside of garment 2 inches in from the cut down the side and even with the neck, and one on inside of garment 3½ inches from the bottom and ¾ inches in from the edge of a U shaped area cut or torn out at the edge,) appear as though they might have been stained with blood. The first described area 2 inches in from the center of the neck was cut out with scissors and submitted to Dr. Leonard who extracted the material with physiological salt solution and conducted tests for blood which were reported as negative. The cut piece of fabric was pinned back to the garment after the extraction was completed.

One white and dark brown hair 1-1/8" in length gradually tapered at the brown end was found on the garment - has the appearance of an animal hair. Three jute fibres corresponding to the fabric of the burlap bag stencilled "0224 O.J.L." were found on the inside of the garment. The fibres were 2½", 1-3/8" and ½" in length.

Examination of exhibits by H. A. Holaday assisted by B. G. Thomas

IV. Examination of Contents of Envelope 10 x 13 inches labeled "#10 Morristown Hdqs."

Contents consisted of a child's sleeping garment marked "No. 2 Dr. Denton sleeping garment 28 inch," on a printed tag sewed inside the front of the neck.

Garment in good condition - no holes and all buttons intact excepting left outside back button at hip pulled out with piece of fabric and piece from strip of cloth sewed under fabric as button reinforcement.

Feet of garment clean and pressed flat as though garment had not been worn since laundered. Seven out of the nine button holes show no evidence of having been used since the garment was washed. Two button holes slightly spread (i.e. center button hole back flap and third button hole from top in back). Deposit of very fine black particles assumed to be of rubber on under surface of 5 buttons and in fabric under these buttons and where center back button was torn out. Deposit assumed to be rubber because it is partly soluble in carbon bisulphide and insoluble in ether.

Spots and stains. Yellowish brown stain about 3/4 x 5/8" in front of left shoulder immediately below neck band, up to and including seam on neck band. Stain penetrates fibres.

Faint yellowish stain 1 inch below and 2 inches to left of front pocket.

Small yellowish stain between two middle buttons on back - also similar stain one inch below neck band and 3" from right shoulder seam and 1½" below neck band and 2" from right shoulder seam.

Neck band somewhat darker than remainder of garment - appears to have been soiled before it was washed the last time.

None of the above described stains have the appearance of blood stains. A piece of the fabric containing the first described stain was cut out with a scissors and submitted to Dr. Leonard who extracted the material with physiological salt solution and conducted tests for blood which were reported as negative. The cut piece of fabric was pinned back to the garment after the extraction was completed.

Some lavender colored spots were inadvertantly made on the back of the garment while examining the buttons and fabric under the microscope. The spots came from traces of crystal violet dye which were present on the microscope stage.

Examination by H. A. Holaday assisted by B. G. Thomas

V.

V. Examination of Burlap Bag 36 inches long by 27 inches wide containing mass of leaves and hair which weighed 4 oz. when air dried.
(Bag as received was turned inside out)
A card board tag bearing the following typed description was tied to the bag: "Burlap sack found near body of Charles A Lindbergh Jr. in woodland off Princeton Hopewell road in Mount Roase Mercer County N.J. on May 12th 1932".

(1) Markings

a) Stencil "0224 0.J.L." on inside of bag as received 12" from top.

b) Stencil "ANIMAL FOOD" on inside of bag as received 8" from bottom.

c) Bag stiched together with white cord (1/32 in. thick) same stick as used on side and bottom of bag. White stiching extends 2½ inches in from unsewed edge 6 inches from top and parallel to top.

d) Similar stiching 4 inches from top beginning 1 inch in from sewed edge of bag and extending for 1 inch parallel to top.

e) Tuft of white cord (3/32" - 10 thread) in good condition sewed into fabric 4 inches from unsewed side and 7 inches from top of bag.

(2) Materials on bag.

a) Careful examination of the entire surface of the bag on both sides of the fabric failed to reveal any evidence of blood stains.

b) Clump 3/64 inches in diameter of black particles having the characteristics of coal found in side seam - 6 inches from bottom of bag.

c) Plant hull - 3/64 x 11/64" - looks like oat hull found 6 inches from bottom and 1½ from side seam on outside of bag as received. Broken pieces of hull of similar appearance found along bottom and side seams.

d) Bag soiled with reddish brown soil and with black soil. In some places the black soil overlies the reddish brown soil. The reddish brown soil consists mostly of fine sand with a small proportion of fine humus and corresponds to the types of soil found in the baskets of leaves and in the 5 bags, whereas the black soil on the bag is characterized by a large proportion of humus and the sand particles are 3 to 6 times larger than most of the sand particles found on the bones and in brown dirt on the bag - also many of the lafger grains are colored yellowish brown as contrasted to the preponderance of white granules in the brown soil.

Results of examination of leaves, twigs, and soil found inside bag.

(1) No evidence of blood stains on the leaves or twigs.

(2) Numerous fine curly light brown hairs and locks of hair corresponding to that found on undershirt from body matted with leaves and pressed between leaves.

(3) Found one phalange corresponding to foot of infant.

Examination of exhibits by H. A. Holaday assisted by B. G. Thomas

VI. Examination of Contents of Filing Envelope 12 x 9½ x 1-1/3 inches labeled #12, Gloves, Hopewell.

Contents consisting of piece of board 5¼ x 3½ x 3/4 inches placed between a dirty cotton towel and a pair of brown cotton gloves, wrapped in newspaper.

Towel - 35½ x 20½ inches - ¼ inch hems on short sides - very much weathered and rotted. Irregularly soiled with grey, black and brownish materials with numerous scattered specks and droplets of black tar like material - no sighs of blood stains could be detected. No hair was found on this towel. Numerous small holes in the fabric - which appear to have been eaten out by insects.

Cotton Gloves - dyed brown. Knit material, inner surface of fingers fleece like. Dye not faded or "washed off" inside of gloves. Dye irregularly faded and "washed off" on outside - particularly palm of left hand and most of back of right hand and parts of palm of right hand. Fabric in fairly good condition - is not rotted. Small holes (probably worn through) in tip of middle finger of right glove and forefinger of left glove.

No evidence of blood stains were detected on inside or outside surface of either glove.

A number of fine white flakes were found on the inside surface of each glove. These corfesponded in appearance under the microscope to flakes of dandruff.

A curved white hair 7/16" long with part of hair root was found at the wrist seam on the inside of one glove. This hair is white at the root and is gradually tapered and brown colored at the tip end. For a short distance beginning 11/64 inches from the tip the hair shaft bulges to about twice the diameter on either side of bulge.

Very small tufts of fibre were found on the inside of the gloves which correspond to the fabric of the above described cotton towel.

A small amount of loose "dirt" was found and collected at the tip of the inside of the third (ring) finger in one of the gloves. This "dirt" corresponded in appearance (i.e. type and color of sand particles) to the black soil found on the burlap bag except that the size of the particles average somewhat smaller and the proportion of humus was much less than in the black soil on the burlap bag. A different type of soil was found throughout the fibres of the gloves inside and out. This soil corresponds to the soil received in the 5 bags.

Examination by H. A. Holaday assisted by B. G. Thomas

VII. Examination of Contents of Brown Waste Paper Basket

Contents of Basket: One 22 foot strip of burlap, one 5½ foot strip of burlap one piece blue striped table cloth.

Burlap strip 22 feet in length and 4 to 5 inches in width. Jute threads run parallel to the strip.

Burlap strip 5½ feet in length and 3½ inches in width. A piece of burlap 1 foot in length sewed to one end of the strip.

Many irregularly outlined soiled areas on both strips of burlap. The soil found by microscopic examination to consist essentially of humus material with rootlets and vegetable matter and a small proportion of fine white sand. The proportion of humus in this soil is much greater than that found on the burlap sack or in the 5 bags of soil or the three baskets of leaves. No sign of any blood stain was found on either burlap strip.

Piece of cloth 20" x 25" two sides hemmed - irregular edge on two sides as if torn. Piece looks like the corner of a cheap loosely woven cotton table cloth. Blue border on each edge approximately 6½ inches wide consisting of 5 stripes of blue leaving 4 stripes of white. Laundry tag 1-7/8 " x 3/8" fastened at one corner with metal fasteners. Tag is stamped "XX 612" the last numeral is very faint and not identified with certainty. No indication of blood stains on this piece of cloth.

Examination by H. A. Holaday assisted by B. G. Thomas

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VIII. Examination of Contents of Envelope 7½ x 10½ inches labeled "#11 Handkerchief."

Contents consisted of one white cotton handkerchief 15 x 16 inches with ¼" hem. No laundry marks.

Fabric in good condition. No signs of decomposition of the cloth. No mildew. No fine grains of sand (i.e. soil) found between threads of fabric as with other exhibits. Light brown colored stains of irregular outline as follows: Small spot at each of two corners on same side, one spot about 4½ x 2" - edge of spot in about 3" from a third corner, one spot 9 x 4½" extending from middle of edge on one side toward center. One faintly stained spot about 4" toward center from the fourth corner. These stains penetrate into the fibres of the fabric and appear to be slightly oily. Three small red stains 3/32" diameter which have the appearance of a dye. Two spots of mucous discharge on faintly stained area, one spot of mucous discharge on two larger stained areas and one spot of mucous discharge with almost no stain. None of the stains on this handkerchief have the appearance of blood stains.

Examination by H. A. Holaday assisted by B. G. Thomas

Handkerchief what was dye.

Mr. Holliday states no way of finding out. ondye

Copy of record of examination by Mr. B. G. Thomas of the following articles by Mr. Kelly delivered to H. A. Holaday in his office in the Biological Laboratories of E.R. Squibb and Sons, New Brunswick, N. J. on May 20, 1932.

Examination of contents of Envelope 9⅛ x 13".

Envelope marked "Hopewell" and in left upper corner, when opening to left hand side "State of New Jersey
Department of State Police
Trenton, New Jersey"

Loose dirt in envelope consisted of coal dust and larger, white, yellowish, and red mineral particles. On microscopic examination many of the particles were aggregates of small white particles and black material. The articles were loosely wrapped in a brown paper 33" x 19".

Article 1. Rubber for left foot. The soles were red and the red rubber extended ¼" up sides above the soles. There was a band of gray rubber at the top which was 7/32" wide. The length of the bottom of the rubber was 12½" on the outside and 11¾" on the inside, the width of the sole was 4¾" on the outside and 4-1/8" on the inside. The outside width of the heel was 3-5/8", and the inside width was 3". The rubber was in poor condition. It was torn on the inside of the foot for 5¾". The tear began 6½" from the back seam and extended down to 1/8" of the red rubber on the side and thence toward the toe of the rubber ending 3/8" from red rubber on side. 3 pieces of rubber were missing on the inside of foot which were 2 areas of red, 11/16" x 2/16", and the other 17/32" x 11/32" in the shape of a V and a piece of gray band approximately 1½" long at the top of the rubber. The lining on the inside of the rubber was torn 4 places. A piece of rubber was missing on the side corresponding to the outside of foot, beginning 10¼" from back seam. The red portion of the rubber missing was approximately 7/8" x 3/8" and the black portion of the rubber was 1" x 3/8". The rubber was torn 1-9/16" back from the missing portion next to the red. The lining of the rubber was torn.

A mat of fibrous material was found in the heel approximately 3" x 2½" x 1". Leaf, dirt, and coal particles were also found in the heel of the rubber. The dirt found on the leaf in the fibrous material on microscopic examination consisted mostly of fine small particles of sand and humus. The particles were mostly white a few of which were yellow to red in color. The fibrous material was not identified. There was a considerable amount of coal dust in the dirt. There were six pieces varying in size from 4/32" to 13/32". There was no evidence of blood on the rubber or on microscopic examination.

Article 2. A leather glove with canvas cuff for the left hand. The lumps of dirt found in the glove on microscopic examination consisted mostly of small white sand particles and a few larger black particles, a few small yellowish particles and black material.

The thumb seam of the glove was ripped on the palm and the back side. A seam was ripped on the back of the hand of the glove where the two middle fingers were sewed. A piece of canvas for the back of the hand of the glove was missing. The canvas tore very easily. No signs of blood stains were found on the glove on microscopic examination.

Article 3 A piece of rag 38½" long, in 2 strips. The shorter strip was 24½" long and torn, the hole measured 15½" long. There was a machine stitch of white cotton sewing thread along the long edge. Most of the stitch was ripped out. White thread was sewn through the cloth in 4 places 1¾" from the machine stitch and 5 to 5½" apart. There were two button holes 5½" apart which were in line with the 4 above stitches. One of the button holes was 5" from the ripped end. Parts of fabric were discolored a light brown. The microscopic examination of the above discolored areas disclosed a large number of small white sand particles and a few small black particles embedded between and on the fibres of the cloth. The non discolored portion of the cloth on microscopic examination had only a few small black particles embedded between the fibres.

Article 4. A piece of white bag, 33 inches by 18¼ inches. White cord was sewed along the long edge. Six areas of the cloth were discolored which appeared like brown rust. The discolored areas were irregular in shape and from 2 to 6 inches in diameter. On microscopic examination the red color penetrated into the fibres of the cloth and small black particles were on the fibres of the cloth.

There were 4 black, gray greasy ~~and~~ or oily appearing spots 1 to 5 inches in diameter on the cloth. On microscopic examination there were many fine white sand granules in the mesh of the cloth, few yellowish brown, reddish and black granules.

There was no evidence of blood stains on the cloth.

Article 5 Grayish black soiled cloth, cloth originally white. The cloth was 31 inches long and 7 inches wide. There were numerous small holes in the cloth. On microscopic examination there were many fine very small granules mostly white between the fibres of the cloth. There were also a few to moderate number of small black particles. There was no evidence of blood stains.

Examination of contents of yellow envelope folder type 11¾" x 9¼" x 2" tied shut by ribbon ¼ inch wide. Labeled "Communications Dr. Anderson".

Article 1. Handkerchief white with blue and black edging. The colored edge of the handkerchief was 2 inches wide. The handkerchief measured 9" x 9¼" and was in good condition, that is no holes in cloth and it was strong. A large portion of the handkerchief, approximately ⅓, was discolored a light brown and there were many small light brown lumps of dirt on the light brown areas. On microscopic examination of the above areas and soil there were many fine white and light brown sand particles and a small number of small dark particles. On one side of the handkerchief there was a brownish black material appearing to be soil. Microscopic examination of the smudge showed it consisted mostly of black particles with a moderate number of small light brown and white particles. There was no evidence of blood stains on the handkerchief.

Article 2. A piece of soiled waste weighed 26 grams and approximately 5⅛" x 2½". There were no signs of blood on the waste on microscopic examination. Dirt was shaken out of the waste. There were 6 pieces of klinker or slag like material ranging from 1/8 to 1/2 inch in diameter. The fine material consisted of moderate sized particles. On microscopic examination the particles were chiefly aggregates of small particles which were mostly black. There were a few clumps of white and light brown particles which were of moderate size. There were a few larger particles of black material as some of which resembled coal and others as if they were clinker or slag. The dirt was gritty.

Article 3. A dirty piece of waste which weighed 50 grams when in a ball measured 4½" x 4". The dirt was shaken out of the waste. There were 18 pieces of cinders or slag shaken out which measured 1/8 to 1/2" in diameter. On microscopic examination the appearance of the dirt was the same as the dirt from article 2 above. There were no signs of blood stains on the waste.

Article 4. A dirty piece of waste which weighed 6 grams. The dimensions were approximately 3½" x 5". The dirt was shaken out of it which was small and gritty. There was one larger piece of clinker or slag, 7/16 in. diameter. On microscopic examination the appearance of the dirt was the same as for articles 2 and 3. There were no signs of blood stains on the waste.

Article 5. A dirty piece of waste which weighed 58 grams. The dirt shaken out was gritty and consisted mostly of a few fine particles (about 5 particles 1/8" to 1/4"). On microscopic examination the material was the same in appearance as the dirt from articles 2, 3, and 4. There were no signs of blood stains on the waste.

Article 6. A piece of waste which was relatively clean and weighed 62 grams and was approximately 12" x 4". The dirt shaken out was gritty and consisted mostly of fine particles but there was one piece of cinder or slag which was 3/8" long. On microscopic examination the particles were mostly small and black and white and a few brown and a very few red particles. There were also many larger particles of above materials or aggregates of the above materials. No signs of blood stains on the waste material.

Article 7. A clump of waste material which weighed 74 grams. The dimensions were approximately 8" x 5". The dirt was shaken out of the waste and was gritty and cinder like in character. It was composed of black, yellowish white to dark red particles. Microscopically many of the particles were larger than observed from the other pieces of waste. The larger pieces of white particles were more numerous than those from the other samples of waste. A few blades of dried grass, leaves and stems of vegetable matter were in the waste. Part of the waste material was slightly greasy in appearance. There were no signs of blood stains on the waste material.

Article 8. A soiled piece of cotton cloth 52" x 8". The cloth was lossely woven and originally white in color. There were 26 holes in the cloth, the largest of which was 5" x 2". The cloth tore easily. There was a faint pink stain 4" from one end nest to two small holes which was not blood. There was a faint pink stain near the edge of the largest hole which was not blood. There were brown stains around edge of largest holes and also other smaller and holes and on cloth 5½" from one edge. On microscopic examination the stain panatrated into the fibres and did not appear like blood. 12" from one end there were approximately 10 small particles which appear to be old food.

There were clumps of dirt with fibres and hair matted in it on one end of the cloth. The hair was darker in color than that found in the burlap sack (0224 O.J.L . with leaves in it). The hair was curly. A few white hairs were also present, which were not identified whether they were human or some type of animal resembling human hair. A clump of dirt was removed 12" from the other end. It had fibres and hair matted in it. There was a small clump of the above type still left on the cloth about 1 inch from where the other clump was picked off. A clump of dirt with hair and fibres in it was picked off the cloth approximately 2 inches from the largest hole.

Parts of the cloth were discolored with brown soil which on microscopic examination showed numerous small particles mostly light brown in color some white and few black. The parts of the cloth discolored black showed on microscopic examination numerous small particles which were mostly black and relatively few white, brown and red particles. There was no positive evidence of blood stains on the cloth.

Article 9. A strip of light brown cloth which was 6 in. long and the widest portion was 1 inch. On microscopic examination there were numerous small particles embedded between the fibre of the cloth. The particles were nearly all either white or black in color. There were no signs of blood stains on the cloth.

Article 10. A piece of irregular torn dirty white paper which was approximately 16 inches long and 4½ inches wide. On microscopic examination the paper was covered with numerous small particles which were mostly white and black with a few slighly larger brown and reddish brown rounded particles. There were nosigns of blood stains on the paper.

Article 11. A leather glove with canvas cuff to fit the left hand. The fingers, thumb, and palm of the glove were made of leather. The back and cuff of glove were made of canvas. The leather parts of the glove were covered with a black grimy dirt which was slightly greasy in appearance. On microscopic examination the leather was covered with numerous small black particles and few white particles and occasional reddish-brown particles. There were also a few larger particles of white with brown and black particles in it and also brown and light brown color areas in the larger white particles. The dirt on the canvas portion of the glove on microscopic examination was of the same type as on the leather portions. The glove was approximately $11\frac{1}{2}$" long from finger tip to end of cuff and $4\frac{3}{4}$" wide across the palm of the hand. There was no evidence of blood stains on the glove.

Dirt or soil from pasteboard box (1 doz pint Ball Fruit Jars) labeled: "To Squibb Laboratory, New Brunswick Dr. Anderson or Mr. Holaday, Monday, May 23, 1932".

The soil was light brown in color and the clumps were easily broken between the fingers. On microscopic examination soil was composed almost entirely of small sand particles mostly white and light brown in color. There were a moderate number of reddish brown particles present. No humus was visible under the low power of the microscope. This soil was distinctly different in appearance from any of the other soils examined except the light brown soil on the loosely woven cotton strip 52" x 8" wide in envelope marked "communications Dr. Anderson" and also on the handkerchief in same envelope.

Soil scraped from portion of burlap bag (0224 O.J.L.) stained black and compared microscopically with dirt from the waste material appeared different, that is, the former had many times more fine white and light brown sand particles in it. A few of the larger particles resembled those found in the waste material.

COPY

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#9

Examination of Hair

Name: For H. N. Schwarzkopf - Col. State Police Date May 16, 1932

No. 1. Microscopical and chemical examination of hair from envelope - labeled- "Charlie's hair- Cut, February 23, 1932.

No. 2. Microscopical and chemical examination of hair from envelope labeled- "Wisp of hair". Co. Col. Schwarzkopf.

Examination of samples No. 1 and No. 2 are identical in all respects

Examination made for size- texture- color and chemistry.

(Sg) Thomas B. Christian

Pathologist