AWM2022.61.385

AUSTRALIAN ARCHIVES
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WAR OF 1914-18
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AWM 25

German Gas Warfare.

and Appliances

1916- 1917- 1918.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

D.G.S. (B) No.299. J.A.32/2.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. G.O. 11/2
Date 17 OCT 1916

CARTRIDGE OF GERMAN RESPIRATOR.

Dated. 19th Septr. 1916. Marked. 11 - 11 K"
V. 2.
125.

Tho only differences from cartridges of earlier date are:-

1. Tho box is lacquered inside and tho screw thread inside and outside to prevent rusting.

2. Tho top layer of gauze is held in position by a ridge in the box instead of by soldering.

3. The Potassium Carbonate - Clay layer is more coarse-grained, presumably to facilitate breathing.

One third passes a 1/16" sieve.
" " " 1/10" "
" " does not pass a 1/10" sieve.

(OLDER SIZE: All passes a 1/16" sieve).

(Sgd) B. MOUAT JONES.
Captain,
Assistant Director.

Central Laboratory,
G.H.Q., 2nd Echelon.
14th October 1916.

Copies for information to:-
D.G.S., Adv. G.H.Q.
All Chemical Advisers.
Special Bdo, R.E,
G.S., Ia.
Colonel Horrocks.
Lt-Col. Mathoson. (5).

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL
No. G.O.11/5
Date 12 DEC 1916

Ia/24014. D.C.S.
B.305. J.A. 71/7.

x x x x x x x

1. The French recently captured a bottle of serum labelled "RAUSCHBRAUCH SERUM".

It is stated this serum is being used for the prevention of gas gangrene, and that every German wounded soldier is now getting an injection of this serum as well as an injection of the Anti-tetanic serum.

2. Prisoners, especially any captured medical officers or subordinates, should be questioned as to the above.

3. A special search should be made for this serum in any medical equipment or medical officer's kit which may be captured.

Should any be found. it should be forwarded to General Headquarters without delay.

(Sgd). D. W. Dowdler,
Lt-Colonel.
for Brigadier-General,
General Staff.

G.H.Q., I.
9-12-16.

- - - - - - - - - - - - -

- 2 -

Chemical Adviser,
Fourth Army.

Reference attached Ia/24914, please be on the look-out for samples of this serum as the matter is of importance.

(Sgd). S. J. M. Auld.
Captain.
for Director of Gas Services.

G.H.Q., 1st Echelon.
9-12-16.

- - - - - - - - - - - - -

- 3 -

Gas Officer,
4th Aust Division.

Please note above. All samples of serum of any sort which you may obtain should be sent by you to me by D.R., to be forwarded to G.H.Q.

S. J. Auld
Captain.
Chemical Adviser.

H.Q., Fourth Army.
10-12-16.

Copy to:- All Divisional Gas Officers.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. G.O. 11/4
Date 31 OCT 1916

Specimen C.L. 571. D.G.S. 280/2/29 (B). C.L. 1528. J.A. 31/10

GERMAN CARTRIDGE FOR MASK-TESTING CHAMBER.

The cartridge is presumably used to produce a lachrymatory atmosphere in chambers used to test the fit of gas-masks as described in captured documents.

It fitted the 2.6 cm. Loucht-Pistol and was of the usual type except that the flare mixture was replaced by a sealed glass capsule containing a reddish-yellow liquid.

A drawing of the cartridge attached shews its construction.

Its total weight was 33.5 grammes: the weight of the capsule and liquid 12.96 grammes and of the liquid 8.46 gms.

The density of the liquid was 1.71 and its volumn therefore 4.93.cc. On opening the bulb the liquid fumed momentarily and it had the smell and characteristics of a halogenated ketone. It was a very powerful lachrymator.

Qualitative tests shewed the presence of Bromine and a very small amount of Chlorine.

On distillation nothing passed over on the water-bath. About .75 cc of a colourless liquid, which turned yellow on standing, distilled up to 120°: the remainder distilled over with gradual but rapid rise of temperature up to 200°, a small amount of decomposition occurring at the end. The behaviour on distillation recalled that of a mixture of mono- and di-bromothylothylketones previously examined.

.2621 grammes of the lower boiling fraction gave .3252 grammes of silver bromide, corresponding to 100% of the mono-bromketone.

.2033 grammes of the higher boiling fraction gave .3214 grammes of silver bromide, corresponding to 13.6% of mono- and 86.4% di- bromketone.

The composition of the whole is therefore, 26.6% mono- and 73.4% di- bromketone.

The densities of the two derivatives are 1.36 and 1.86, and the density calculated from the composition therefore 1.70. The observed density was 1.71.

The liquid therefore consists of a mixture of about 26% Mono-brommothylothylketone and 74% of the di-brom derivative.

The presencoof the small amount of chlorine may be accidental or due to a trace of chloracetone added for stabilizing purposes.

(Sgd). B. Mouat Jones,
Captain,
Assistant Director.

Central Lab.
G.H.Q. 2nd Echelon.
29-10-16.

Copies for Inf. to:-
D.G.S. Adv. G.H.Q.
H.Q. Special Bde. R.E.
G.S. Ia.
C.As Armies.
C.A. L. of C.
Colonel Horrocks.
Colonel Mathoson (2).
Lt, Col. Starling.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

AUSTR... CLASSIFICATION ... GAS SECTION SUB-SECTION

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL
No. G.O.11/6
Date 1 JAN 1917

D.G.S. A/117. J.A.71/S.

TREATMENT OF GAS SHELL HOLES.

A German Document circulated by the 2nd Guards Res. Div., and dated 29-5-16, gives information concerning phosgene shells and methods for dealing with them.

Lime is issued at the rate of 30 kilos per Company and is made into a milk with 5 times its weight of water. This milk of lime is for use instead of pyridine against poison-gas shells. Each platoon is instructed to provide itself with a barrel to hold the milk of lime and two ladles (jam tins etc. fitted with handles) with which to remove it.

In the event of the trench being bombarded with phosgene shells, masks are to be put on and the neighbourhood of the shell holes treated with the lime by men wearing oxygen breathing apparatus in the case of large shells, or ordinary masks in the case of small shells.

The lime should be shaken over the ground affected by means of a straw whisk (a bundle of straw tied on the end of a stick). The previous so-called "Pyridine-men" are responsible for carrying out the treatment.

(Sgd). S. J. M. AULD.
Capt.
D.A.D.G.S.

G. H. Q.
23-12-16.

Gas Officer,
4th Aust Division.

For information.

A. J. Allmand
Captain,
Chemical Advisor.

H.Q., Fourth Army.
30-12-16.

Copy to:- All Divisional Gas Officers.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

S.B./1.O./15.

TRANSLATION OF EXTRACT FROM GERMAN REGIMENTAL ORDERS.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL
No. G.O. 11/8
Date 23 JUIL 1917

(40 Div.)

Gas Defence.

(Dated 3-1-17)

(a) Examination of Company books (Gas Returns) has shown that in various cases Officers themselves have visited the Gas Chamber too infrequently.

Officers are held personally responsible that they test their masks, exactly as the men do, every 6 weeks.

In the 2nd. Marine Division, Officers have been punished for negligence in gas defence. (This may refer to action taken after casualties caused by our attack at NIEUPORT in October 1916.)

(b) There is cause to remind Units that each Company has to take with it into the line a reserve stock of 6 - 10 masks of various sizes.

Men must know where these are kept.

(c) All superfluous and useless Gas Defence Materials, especially drums bearing date prior to 10-6-16 are to be handed in as soon as possible to Regimental Gas Officer.

G.H.Q.
11-7-17.

(Sgd) T.H.Adams.
I. O.,
Special Bde.

Copies:-
H.Q. Spec.Coys.Armies.
C.As.Armies(for distribution to C.As.Corps.)
C.A. Cav. Corps.

Divisional Gas Officer,

~~3rd. Aust. Division.~~
4th. Aust. Division.
~~New Zealand Division.~~

CHEMICAL ADVISER, H.Q., II ANZAC.
No. K.8440
Date 21.7.17.

For your information and retention

D.R. Edwardes-Ker
Captain,
Chemical Adviser
2nd.Anzac

Headquarters,
July 21st.1917.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

1st Anzac. C
C371 1 18
4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. 4.0.11/7
30 AVR 1917

"COPY" :-

B.280/2/29/(B). Central Laboratory No. 1953.
22:4:17.

Specimen.
C.L. 751. SECRET.

GERMAN GAS CYLINDER.

Received from Chemical Adviser, Fourth Army, on 14th April, 1917.

The cylinder had been found by IV Corps "hidden by bricks in roof of large German billet, probably gas school billet, in NESLE, 29:3:17".

A rough sketch of the cylinder, with dimensions is appended.

The only markings on it were "134" near the top and the number "3" on the screw below the D valve.

A white paint mark shows the position of the exit tube.

It appeared to be about one-half to two-thirds filled with liquid and, on shaking, loose metal - probably the broken syphon tube - could be heard inside.

In a vertical position, the cylinder delivered gas; when on its side it gave liquid.

The gas smelt of chlorine and phosgene and both were confirmed chemically.

An analysis of the composition of the gas evolved when the cylinder was vertical and the valve opened partially gave : Chlorine - 97.2 %. The remaining 2.8 % was presumably phosgene.

To obtain the approximate composition of the liquid, the cylinder was placed on its side and the valve rapidly opened, so that liquid was spurted into a nearly gas-tight chamber 1.84 cubic metres in volume. When sufficient had been introduced, time was allowed for the liquid to evaporate completely and the gas well stirred with a fan. Two samples of the gas were then drawn off simultaneously from the middle of the chamber. In one the free chlorine was determined; in the other the total chlorine. This was repeated twice at intervals of about one hour. From the results of the analyses, the ratio of the weights of free chlorine to phosgene could be calculated. The following results were obtained :-

(1)	Chlorine :	Phosgene	2.86 : 1
(2)	"	"	3.09 : 1
(3)	"	"	2.85 : 1

The relative amounts by weight then of chlorine and phosgene in the cylinder may be taken as about 3 to 1, or Chlorine 75 % : Phosgene 25 %.

The behaviour of the liquid on evaporation was compared with that of liquid White Star (containing roughly 50 % Chlorine and 50 % Phosgene) by introducing into two similar graduated glass cylinders 200 cc. each of the two liquids, exposing them side by side in the open and measuring the volumes and temperatures at intervals. A thermometer reading to -20°C. was used: temperatures below this could not be measured. After half an hour the White Star was boiling very gently; at the end of an hour, the German liquid was still boiling vigorously. The colours of the two liquids were practically identical.

The following table shows the behaviour of the two liquids :-

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

AUSTRALIAN WAR RECORDS SECTION
C
CLASSIFICATION SUB-SECTION

WHITE STAR.			GERMAN LIQUID.	
Time: (Min)	Temperature.	Volume: (cc.)	Temperature.	Volume: (cc.)
0	?		Too low to measure.	200
20	-15.5°C.	200	-do-	-
25	-15°	-	-do-	160
40	-13.75°	175	-do-	135
55	-10.75°	155	-do-	120
70	-8.75°	145	-do-	100
85	-7.25°	130	-20°C. (ca.)	85
125	-4.5°	125	-15°	70
155	-2.5°	100	-11°	60
185	-0.6°	100	-5°	50
215	-0.0°	100	-2°	50
		100		

By exterpolation, the boiling points of the original liquids are found approximately :-

White Star - -19°C.
German liquid -30°C.

These results show that there is more chlorine in the German liquid than in White Star and that the ratio of chlorine to phosgene in the former is about 3 to 1.

(The densities of liquid chlorine and phosgene are nearly the same at low temperatures : Cl_2 = 1.46/0°
$COCl_2$ = 1.43/0°

After all the chlorine and phosgene had evaporated, a small amount of a yellow liquid, with a whitish scum, remained behind: 400 cc. of liquid gas gave about 2 cc. of this residue. Analysis showed this to contain, besides water, iron chloride, a trace of lead and a noticeable amount of antimony. The amount of antimony chloride present (probably less than 5 grammes in the whole of the liquid in the cylinder) appears to have been too small to have been mixed with the gas deliberately. Its presence may perhaps be accounted for by the use of antimony to purify the phosgene in the course of manufacture.

When the liquid was liberated from the German cylinder the "cloud" produced was quite similar in appearance to that from White Star.

No substance of the nature of a "fumigene" was found in the German liquid.

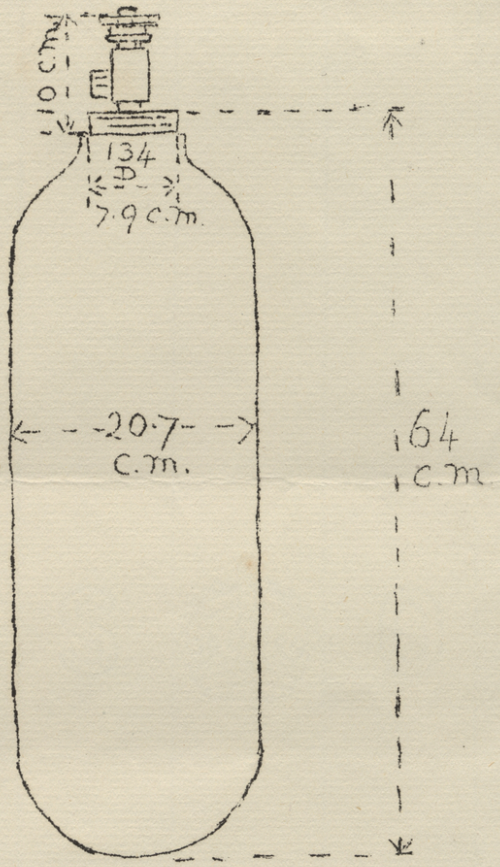
Central Laboratory,
G.H.Q.,2nd Echelon,
22nd April 1917.

(Sgd). B. MOUAT JONES. Captain.
ASSISTANT DIRECTOR.

Copies for information to :-
G.S., I. : Lt-Col. Horrocks.
C.As.,Armies. : Gen. Ozil.
C.A., Cav.Corps.: Prof. Kling.
etc. etc. etc.

G.H.Q. 1st Echelon.
26th April 1917.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664



AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

TRANSLATION.

From Ig. 1st Anzac H.C.

REPORT.

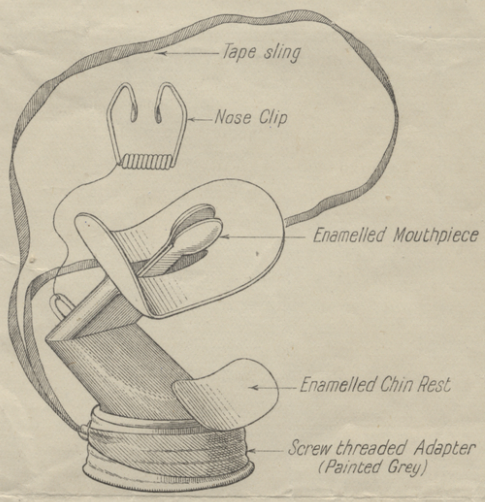
On our own (enemy) Gas Attacks of the previous month.

1	2	3	4	5	6	7	8	9	10	11
Formation or Unit.	Day.	Time.	Place. (exact location on the map.	Meteorological conditions. Temperature Direction of Wind.	In case of Gas Shells, No. of Shots, Calibre, In case of Cloud Attack. No. of cylinders Width of Front.	In case of our own attack a. Reason for the attack. b. Extent of Territory under Gas. c. Duration. d. A repeated bombardment of space referred to.- Effective or harrassing bombardmento or simultaneous application of "Brisang" Ammunition. e. Range.	In case of enemy cloud attack. Nature, Intensity, Duration.	In case of our own Gas Attack. Actual effect. In case of enemy Gas Attack. Sick and Killed amomng our troops.	Condition of Implements, and Ammunition.	Special Occurrences. and experiences. Remarks.

Ia/39506.

(ANNEXE TO ADV. G.H.Q. SUMMARY OF THE 17th SEPTEMBER, 1917).

NEW GERMAN ANTI-GAS APPLIANCE.



The appliance illustrated above has recently been captured. It consists of a labio-dental mouthpiece, with an adapter which can be screwed to the breathing drum of the German respirator. A wire nose-clip is attached by a cord.

The mouthpiece is made of enamelled metal (probably owing to shortage of rubber), and is similar to that used by the enemy with the Draeger oxygen breathing apparatus.

The appliance is described by prisoners as being intended:—

(*a*) For the use of observers and gun layers, who require full use of their eyes.

(*b*) As an improved method of using the spare drum when the first becomes exhausted.

(*c*) For attachment to the spare drum when hung round the neck, so that immediate protection can be obtained in case of a projector attack.

One prisoner stated that an ordinary pair of goggles is used in conjunction with the appliance, but no goggles have yet been found on prisoners.

The disadvantages of the appliance are:—

(i). It affords no protection against lachrymatory gas without the use of goggles.

(ii). It is unsuitable for men on the move, as there is little support for the drum.

General Staff (*Intelligence*),
General Headquarters,
17th September, 1917.

Printing Section, Depot F.S.C., R.E. Adv. G.H.Q. 5415/1500/9-17.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

Ap. 22. 1st attack
" 26 2nd "
" 27 3rd "
Gas recor still. sent for
1st resp. 2layers flannel+flake
2nd gauze in collon envelope
10c m 1 day

May 6 Black Veil
" 10 Hell 60 attack 243 used
" 24 Gas attack
July ~~Heard Germs were~~ prep CO$_2$ Sept 1 Phelmet
Dec 19 attack CO$_2$ used
Jan PH helm

Feb. 2 Trench attack

3.75 mm $= .15$ in
Normal $= .8$ mm
$13/16$ sub ft per min
for Room used

$\frac{7}{4} \times \frac{30 \times 30 \times 30}{1000} \quad \frac{15\,q}{4}$

$\frac{47}{}$

$.8 = 84$

$\frac{.8^2}{84^2} = \frac{.15}{x^2}$

$84 \times 126 = 8 x^2$
21×63

$x = 21 \times 1.732$

$\frac{1}{4}(147)$
$\frac{37}{}$

DIVISIONAL GAS OFFICER
4TH AUSTRALIAN DIVISION
CAPT.

DIVISIONAL GAS OFFICER
4TH AUSTRALIAN DIVISION
CAPT.

DIVISIONAL GAS OFFICER
4TH AUSTRALIAN DIVISION
CAPT.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

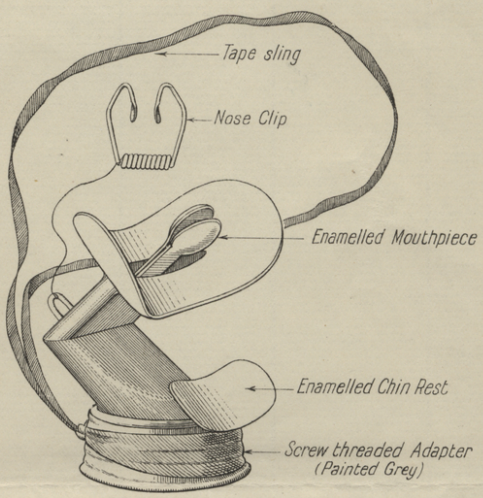
CHEMICAL ADVISER,
I ANZAC.
No. CA 7/9
Date 3/10/17

4TH AUSTRALIAN
DIVISIONAL
GAS SCHOOL.
No. G.O.11/16
5 OCT 1917

Ia/39506.

(ANNEXE TO ADV. G.H.Q. SUMMARY OF THE 17th SEPTEMBER, 1917).

NEW GERMAN ANTI-GAS APPLIANCE.



The appliance illustrated above has recently been captured. It consists of a labio-dental mouthpiece, with an adapter which can be screwed to the breathing drum of the German respirator. A wire nose-clip is attached by a cord.

The mouthpiece is made of enamelled metal (probably owing to shortage of rubber), and is similar to that used by the enemy with the Draeger oxygen breathing apparatus.

The appliance is described by prisoners as being intended:—

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One prisoner stated that an ordinary pair of goggles is used in conjunction with the appliance, but no goggles have yet been found on prisoners.

The disadvantages of the appliance are:—

(i). It affords no protection against lachrymatory gas without the use of goggles.

(ii). It is unsuitable for men on the move, as there is little support for the drum.

General Staff (Intelligence),
General Headquarters,
17th September, 1917.

Printing Section, Depot F.S.C., R.E. Adv. G.H.Q. 5415/2/250/9-17.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

J.A.31/1.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. G.O.11/3
17 OCT 1916

Gas Officer,
Division.

(1). A captured German document has recently indicated the existence of "Deodorising Cartridges" which are fired from a Verey pistol and which serve for clearing dug-outs from gas. Another variety of cartridge used in the same way serves to destroy the liquid from Gas Shells with which shell holes are impregnated.

(2). Similar cartridges, fired in a similar way, are used by the Germans for preparing the lachrymatory atmosphere of the Gas Chambers in which they test their gas masks.

(3). The document referred to above also speaks of test papers for the detection of carbon monoxide. A packet of these test papers is stated to be kept with each oxygen breathing apparatus.

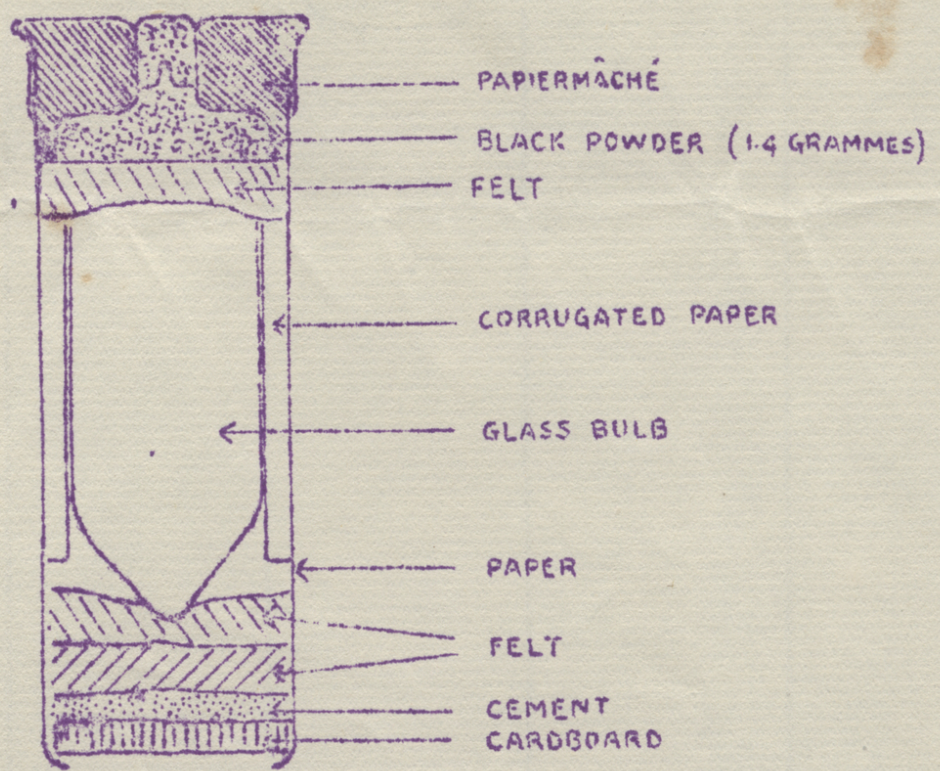
(4). It is important to procure specimens of these cartridges and test papers. Please try to examine personally captured German dug-outs at an early moment with a view to finding such specimens.

Fourth Army H.Q.
14-10-16.

Captain,
Chemical Adviser.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

AUSTRALIAN WAR RECORDS SECTION
CLASSIFICATION SUB-SECTION
371 / 1 / 18



FULL SIZE

AUSTRALIAN WAR MEMORIAL
AWM2022.1547.5664

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No G.O.11/10.
Date 25 SEP 1917

FIRST ANZAC CORPS HEADQUARTERS.

An N.C.O. of 4th. Bavarian Reserve, states:-
Leather Masks issued on 27th. August. Leather masks not issued until rubber mask is worn out. No more rubber masks are being made. No formations are issued with them in preference to others. So far only 10% of prisoners brought in have leather masks. Their Gas Officer told them that the new eye-piece would last 6 hrs without dimming. Thier masks are tested in stink chamber each time they go out of the line. Gas Officer is present when testing is done. They stay in chamber 20 minutes.
Gas dicipline very poor in this regiment. They had never been gassed. Had been on French front. Wore respirator for 20 min once because of gas shells.
Patrols go without masks slung at the alert, because they make a noise. Knew it was against orders to do so .

21/9/17

An N.C.O. of 11th. Bavarian Regiment A.R. states:-
Confirmed above statements, but dicipline much better in the Regiment. He was gas N.C.O. Had done a six months course at Hamelburg, in Bavari Would be about 3 battalions in number at the course. 2 N.C.Os. from each company sent to it. He had had no chemical training. Thought it was the only gas school in Germany. Gas was made in Nurnberg.
Yellow Cross shell gas had no smell. Blue Cross gas shell made a red smoke when it burst.

22/9/17

A Sgt Major of 457th. Regiment, 236th. Division, states:-
Masks always tested when they go out of the line. One box will last 8 hrs in gas. Gas N.C.Os. trained in Berlin. No gas schools in the field. Did'nt know Hamelburg. Knew nothing about german gas shells. Was in gas at Arras, but gas dicipline good in regiment and very few were caught. A man is alright if he has his mask at the alert. Gas mines are disliked most. They come over 8 to 12 at a time and sound like a hand grenade when they burst. Can see them coming in daylight but they were generally put over late in the evening.
11 men of his company were gassed badly by one gas mine at Arras.
The gas is around them before warning can be given. If men have to move about with the mask on, breathing becomes so difficult that the men pull the mask off sometimes and are gassed. Men are always kept very quiet if gassed and given oxygen. Sometimes carry only a box and if gas comes put screw top in mouth and hold nose with fingers. Thought he saw a number of gas cylinders on the road up but could'nt say where they were. Drill with masks often done and shooting, bombing &c practices with masks on. Officer or N.C.O. gives command to take off mask. Had seen box with litmus(?)paper for testing for C.O., but they were very scarce. It is a small wooden box with a corked tube leading from it. He had'nt seen the papers used.

Gas Officer 2nd. Aust Division has found sample of Gas-Oedem in a german dressing station at Garter Point.
Translation of directions by 1st Anzac Ig follows:-
Bottle of material forwarded t¢ C.A. 2nd. ARMY.
Protective Inoculation With
" "
GAS - OEDEM - SERUM. HOECHST.

1. Gasoedem infection is traceable to the unclesness of the wound through contact with earth, cloth or a piece of shell.
2. Gas-oedem-serum will prevent the infection of the wound until the necessary surgical operation of cleaning the wound can be carried out. It is not an absolute protection like Tetanus serum, but only a partial protection. The surgical handling of the wound must therefore be carried out as carefully and in the same manner as heretofore.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

AUSTRALIAN WAR MEMORIAL RECORDS SECTION
27/1/18
CLASSIFICATION SUB-SECTION

3. As soon as possible after receiving the wound, and at the same time as the injection of the anti-tetanus -toxin, 20 ccm of Gas-oedem should be injected in the muscles on the side nearest the wound, preferably in the region of the breast.

4. If it should be necessary on account of bleeding to bind the wound then 20 ccm Gas-oedem-serum should also be injected in the muscles below the bleeding near the wound.

5. Gas-oddem-serum must be injected in doses of 10 ccm several times during the first 14 days, after each long move and after a large amountt of exertion. This injection should be made in the muscles near the suspected wound or chief wound, and should be made intermuscularly.

6. The Gas-oedem-serum can only be used in the soft parts of the body i.e., the seat &c.
Clean head- breast- and stomach wounds will not be treated with the serum as infection is seldom met with in this class of wound.

7. The issue of Gas-oedem-serum is made in doses of 20 ccm and 10 ccm.
If a change of doses is necessary, the 20 ccm doses can be divided or two 10 ccm doses can be injected one after the other.

8. Each injection of Gas-oedem-serum, the quantity, how injected, on what part of the body and the time, must be entered on the medical history sheet.

COPY OF A GERMAN BOX RESPIRATOR RECORD LABEL.

.....3.....Kompagnie.

Name.....

.....

Verpaft.11.6.17...

Stinkraumproben.

1.11. June 17.....

2.....14. VIII.....

3.....

4.....

5.....

C.A. 2nd Army
Gas Officers.
1st. Aust. Division.
2nd. " "
4th. " "
5th. " "

CHEMICAL ADVISER, I ANZAC.
C.A. 5/1
Date 23/9/17

Forwarded, for your information, please.

Herbert M Wilson Captain.
Chemical Adviser. 1st. ANZAC CORPS.

23/9/17.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

TRANSLATION.

From Ig. 1st. Anzac.

Res. Inf. Regt. No 7.

17.9.17.

Order No 8701.

121st. Inf. Divn. Abt. G.O. No 893. Divn Staff. H.Q.7.9.17.

The 241 Infantry Brigade.

After each enemy Gas attack the Division must at once send in a return according to the accompanying form.

(Sgd) Dillenburger.
Capt. Gen Staff.

241 Inf Bde. of 8/9/17 No 1/815.

Res. Inf. Regt. 7.
Br. No 8701.

17.9.17.

1, 11, 111, Battn.
2. Forms for use.

A.B.
(Sgd) Weber.

CHEMICAL ADVISER, I ANZAC. C.A. 5/2 24/9/17

C.A. 2nd. Army.
Gas Officers.
1st. Aust. Division.
2nd. " "
4th. " "
5th. " "

The above translation and a copy of the form mentioned above are forwarded for your information. The forms had been printed by hand and reproduced by some kind of duplicator.

Herbert W Wilson Captain.
Chemical Adviser. 1st. Anzac Corps.

24/9/17.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL. No G.O.11/11 Date 25 SEP 1917

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

AUSTRALIAN ... DS SECTION
CLASSIFICATION SUB-SECTION
C 37 1 / 1 / 18

CHEMICAL ADVISER,
I ANZAC.
No. CA 7/13
Date 26/9/17

Headquarters.
1st. Anzac Corps.
26/9/17.

Gas Officers.

1st. Aust. Division.
2nd. " "
4th. " "
5th. " "

Translation of German Return of Faults in their Box Respirator, for your information.

Captain.
Chemical Adviser. 1st. Anzac Corps.

Copy to :-

C.A. 2nd. Army.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. G.O. 11/12
Date 27 SEP 1917

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

Headquarters.

1st. Anzac Corps.

26/9/17.

CHEMICAL ADVISER,
I ANZAC.
No. C.A.7/12
Date 26/9/17

Gas Officers.
1st. Aust. Division.
2nd. " "
4th. " "
5th. " "

Attached is forwarded for your information and necessary action. Unused Drums of all dates and all masks with Ring drums should be forwarded to this headquarters as early as possible.

Herbert A. Wilson Captain.

Chemical Adviser. 1st. Anzac. Corps.

Copies to:-
Ig. 1st. Anzac.
"G". " " (5.copies)

for information.

4TH AUSTRALIAN
DIVISIONAL
GAS SCHOOL.
No. G.O.11/13
Date 28 SEP 1917

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

EXAMINATION OF GAS MASK.

Mask Material. Exterior. The mask itself as a whole.		~~Mechanical~~ Mechanical damage.
		Faults in Weft.
		" " Washing.
		Rust Stains or traces.
	Interior.	Faults in Rubberising.
		Loose Rubber or Rubber cloth.
		Broken " " " "
		Porous " " " "
		Oilspots.
		Rust spots.
2 Seam		Broken Varnish.
		Loose " (eye-piece).
3 Eye-piece.	Exterior.	Joints, or Joins.
		Moveable lens.
		Spare "
	Interior.	Raw Tin Edge.
		Eye-piece Protector.
4 Mouth Piece.		Joints or Joins.
		Torn Tin.
		Rubber ring.
		Bad Worm.
5 Accessories.		Rubber bands.
		Bell band.
		Carrying band.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

Examination of a prisoner of 175 Regiment.

Prisoner stated that about 6 weeks ago his company had new breathing drums with an eliptical marking round the figures 11.11 on the right of the date(21.4.17.). The Regimental Gas Officer called these Ringeinsatze (Ring Drums) and impressed on them that all men must have these drums screwed on to the mask when in the trenches. Prisoner stated that the Gas Officer laid stress on this. Prisoner suggested that this drum might contain substances different from the drums not marked with a ring.

Directior of Gas Services.

B. 275.

23.9.1917.

(2)

Chemical Advisers.,
Armies.

With reference to the prisoners statement above, please arrange for as many as possible to be collected and all those with new marking to be forwarded to the Central Laboratory for examination. Please report what percentage of such drums are found. It is important to know whether all leather masks are fitted with drums with the new marking.

Unused drums of all dates in their original boxes are urgently needed for experimental work in England.

(Sgd) H.Hartley. Lieut. Colonel.
for Director of Gas Services.

Adv. G.H.Q.
23.9.1917.

Copy to D.C.L.
for information. (3)

Chemical Adviser.

2nd. Army.

C.A. 897.

September. 24th. 1917.

All Corps Chemical Advisers.

The above for your information and necessary action, please.

(Sgd) L.J.Barley. Major.

Chemical Adviser. 2nd. Army.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4TH AUSTRALIAN
DIVISIONAL
GAS SCHOOL.
No. G.O.11/14
Date 29 SEP 1917

No. G. 11/2501

Headquarters,

4th AUSTRALIAN DIVISION.

28th September, 1917.

4th Aus. Inf. Brigade.
12th " " "
13th " " "
C.R.A.
C.R.E.
24th Aus. M.G. Company.

A prisoner of the 175th Regiment stated that about 6 weeks ago his Company had new breathing drums with an eliptical marking round the figures (11.11.) on the right of the date. The Regimental Gas Officer called these Ringeinsatze (Ring Drums) and impressed on all of them that all men must have these drums screwed on to the mask when in the trenches. Prisoner stated that the Gas Officer laid stress on this, and suggested that this drum might contain substances different from the drums not marked with a ring.

G.H.Q. are anxious to obtain samples of unused drums, of all dates, in their original boxes to forward to ENGLAND for experimental purposes.

Any samples collected by you, please forward to the Divisional Gas Officer.

J Stanley Rogers Capt
for Lieut-Colonel,
G.S., 4th AUSTRALIAN DIVISION.

Copy to Div. Gas Officer.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL
No. G.O. 11/15
29 SEP 1917

CHEMICAL ADVISER, I ANZAC.
No. CA 7/15
Date 29/9/17

Head Quarters.
1st. Anzac Corps.
29/9/17.

Chemical Adviser.
2nd. Army.

Will forward later a German S.B.R. having a leather mask and also a leather washer round each eye-piece.

It was brought in by D.G.O.4th. Aust. Division.

The Intelligence Officer told him that the prisoners had stated that it was difficult to keep the joint between the leather and the ring of the eye-piece air-tight, hence the leather washer.

5th. D.G.O. found a ring drum attached to leather mask. He also had obtained a respirator with a metal cup, with perforations in bottom which can be screwed on to the "mouth-piece" of the respirator to prevent moisture to a certain extent passing into the chemicals in the box, Otis it to keep a man's beard out of the box.

Prisoners of the 73rd. Regiment who came in on 27th. inst. had good gas discipline.

In all boxes the mask was well wrapped in a piece of soft fabric to prevent rubbing against the tin and though not many of the drums were of late date they were ptactically all a new issue and had been used very little. Their Gas Officer inspected them about once a fortnight, and N.C.Os. made a daily inspection when in the line.

The Regiment had been gassed at Verdun and on the Somme last October.

Herbert H Wilson Captain.
Chemical Adviser.
1st. Anzac Corps.

Copies to :-
Gas Officers.
1st. Aust. Division.
2nd. " "
4th. " "
5th. " "
1st Anzac

C.A.

C.L. 2430. 23.10.17.
D.G.S.275A. 24.10.17.

AUSTRALIAN WAR MEMORIAL
CLASSIFICATION SUBJECT
371 1 18

GERMAN RESPIRATOR DRUMS MARKED

(11 11)

Chemical examination of the contents of three of these drums showed no difference from the ordinary three-layer pattern.

A series of comparative tests in gas between drums with an oval and similiar drums without the oval have been made, with the following results.:-

In Phosgene 0.1% by volume.

Oval.		Ordinary.	
Date.	Life. (mins)	Date.	Life. (mins)
27.4.17.	16.	23.3.17.	8.
28.3.17.	20.	23.2.17.	13.
18.4.17.	11.	22.1.17.	8.
9.4.17.	11.	17.1.17.	11.

In Chloropicrin, 0.1% by volume.

13.4.17.	7.	1.3.17.	8.
25.4.17.	3.	19.1.17.	8.
11.4.17.	30.	7.3.17.	18.

It would appear that the life in phosgene and chloropicrin is to all intents and purposes the same with the 11 11 drums and the ordinary.

It is to be noted that all the drums with the oval mark come from the same factory (mark "AGFA"), and it seems probable that this factory happens to have a stamp with a raised edge and that the oval has no significance.

Central Laboratory.
G.H.Q. 2nd. Echelon.
23rd October. 1917.

(Sgd) W.WATSON. Lt-Col.
Director.

Chemical Adviser.
Second Army.
C.A. 233.
October 26th. 1917.

All Corps Chemical Advisers.

For your information. please.

(Sgd) L.J.BARLEY. Major.
Chemical Adviser. Second ARMY.

Headquarters.
1st. ANZAC Corps.
27.10.17.

Gas Officers.
1st. Aust. Division.
2nd. " "
4th. " "
5th. " "

Forwarded, for your information, please.

Herbert M Wilson Captain
Chemical Adviser. 1st. ANZAC Corps.

CHEMICAL ADVISER, I ANZAC. No. CA 7/21 27-10-17

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL. No. G.O. 11/14/2 Date 1 NOV 1917

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

A Chemist taken by I Corps

C.A. 2nd. ARMY.
C.A. 363.

FURTHER EXAMINATION OF PRISONER
Gefreiter OTTO WAGNER. 76th. I.R.

1. Posters were placed in all villages about the middle of August stating that the British had lost 15,000 men killed or gassed during the preceeding month.
This had an excellent effect on the morale of the enemy.

2. Prisoner worked at LUDWIGSHAFEN during last winter after having been wounded, filling Yellow Cross Shell.

3. RED CROSS SHELL. Prisoner states that these exist and that they have been recently used on the Italians.
He is obviously unwilling to give any definite information which may be of use to us, but he is quite willing to talk otherwise.

The following statements with regard to Red Cross Gas Shells may be considered for further examination.

(a) The liquid is Yellow with a rosy tint and pours like water.

(b) It is a mixture which is harmless when filled into the shell but is changed either on explosion or shock of discharge. A material either in the fuze or gaine helps this change to take place.

(c) The mixture contains an "amino-acid" or an "amide".

(d) The effects are immediate on the lungs, the gas also has a property which clogs chemical granules and persists in the ground for 7 days. It corrodes metal parts.
Prisoner states that in Italy the guns which were captured were corroded but otherwise fit for use.

(e) The gas was not being made in bulk at LUDWIGSHAFEN but was being experimented with in the Laboratory.

4. YELLOW CROSS. Yellow Cross is made by a difficult process which is kept very secret and which he does not know.

Yellow Cross Gas Shells were to have been used against us at ARRAS on April 9th. The British however captured a large dump near the railway South of BAILLEUL. The Prisoners regiment was ordered to make an immediate counter-attack and re-capture this dump and destroy it. He himself blew up the dump with dynamite, winning the Iron Cross 1st.Class.

5. Other gas shells besides Red Cross are now in preparation but it is the practice of the Germans to accumulate a large number in order to gain surprise and maximum effect at a critical moment.

6. Prof. NERMAN.(?) had invented a large gas bomb which has not yet been used, but his son having been killed by German gas he has now given up all offensive gas work.

7. He was attached to the Gas Officer of the ARMY for some time, who was a personal friend of his.

(Sgd) L. J. Barley. Major.
C.A. Second ARMY.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. G.O. 11/18.
17 NOV 1917

(8)

Gas Officers.
1st. Aust. Division.
2nd. " "
4th. " "
5th. " "

CHEMICAL ADVISER, I ANZAC.
CA 43/126

For your information, please.

Herbert A. Wilson
Captain.
Chemical Adviser. 1st.ANZAC Corps

14/11/17.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

[S.S. 711.]

4TH AUSTRALIAN
Ia/40839. EXPEDITIONAL
GAS SCHOOL.
No. G.O. 11/19
Date.

TRANSLATION OF A GERMAN DOCUMENT.

GAS BOMBARDMENTS.

(*Extracted from "Provisional Instructions for the use of Artillery Gas Shell," dated 1-7-17, issued by the Chief of the General Staff of the Field Army.*)

1. Time for gas bombardments.—In the attack, the times which are of particular importance for gas bombardments, with a view to neutralizing the enemy's artillery, are:—

(*a*) Before and during the infantry assault.
(*b*) Before and during movements of batteries.
(*c*) After a successful advance by the infantry.

In the defence, a gas bombardment is most effective before, during and immediately after the enemy's attack, at those places where the enemy's troops are most concentrated, and at times when the infantry is most in need of protection.

2. Employment of gas shell.—If good results are to be obtained, *gas shell* must be employed concentrated as regards both time and space, so as to produce as dense a cloud as possible on the target. Single rounds are valueless.

Gas shell barrages are, as a rule, inexpedient, as the ammunition expenditure involved is rarely proportionate to the probable results.

Blue Cross shell (which causes sneezing) may, on emergency, be employed in rather unfavourable ground and weather conditions. If the gas diffuses rapidly, there still remains the powerful H.E. effect.

Yellow Cross and H.E. shell combined will be usefully employed against places which the enemy frequents regularly, and especially by night.

3. Protection of gun detachments.—The German masks afford complete protection against all German gas shell except Green Cross (2) and Blue Cross; special precautions must, therefore, be taken to guard against the danger resulting from direct hits on gas shell dumps.

(*Note.*—An official German document states that the British box respirator affords satisfactory protection against Green Cross (2) and Blue Cross shell.)

4. Protection of troops in front line.—*In calm weather*, gas bombardments of large areas are only permitted when the areas are at least 2,000 metres from the German front line.

The same applies to small shoots with Green Cross (2) or Blue Cross, while 1,000 metres will then suffice for Yellow Cross, or even less for Green Cross (1).

Trench mortars must be used if there is any fear of "shorts" falling within 200 metres of the German front line.

If there is a fairly strong wind, the distance of the target from the German front line, measured in the direction of the wind, must never be less than 2,000 metres in the case of Green Cross (2) and Blue Cross, except when the wind is blowing directly towards the enemy, when the distance may be decreased up to a point at which it is certain that no "shorts" will fall within 200 metres of the German front line.

In the case of Yellow Cross, the minimum distances (2,000 metres for large shoots and 1,000 metres for small shoots) laid down for calm weather are to be observed.

With Green Cross (1) the same distances will be observed as in calm weather.

5. Warning troops.—In the case of a combined Yellow Cross and H.E. bombardment, particular care must be taken to warn the troops, who will be ordered to wear gas masks during the bombardment. The distance behind the line to which this order will extend will depend on the quantity of gas shell to be expended. The period during which it will obtain will be fixed by the Gas Services.

6. Entry into the bombarded area.—If the troops have to enter a large area which has been bombarded with gas shell, the period during which the gas persists on the area will be reckoned from the time of disappearance of the visible drifts of gas, and not from the time of the conclusion of the bombardment.

Attention is drawn to the following considerations when Blue Cross and Yellow Cross gas shell are used:—

(*a*) With *Blue Cross*, the action of the gas is entirely confined to the cloud; when this has disappeared there is no after-effect.

(*b*) With *Yellow Cross*, there is first of all a dangerous concentration in the cloud, and, in addition, the gas still persists in dangerous concentrations for a considerable time in sheltered places, such as dug-outs, deep trenches and shell holes.

GENERAL STAFF (INTELLIGENCE),
GENERAL HEADQUARTERS,
20th November, 1917.

PRINTED IN FRANCE BY ARMY PRINTING AND STATIONERY SERVICES. PRESS A—11/17—5287B—200.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

C4/0/12

~~Gas Officer 16th Division~~
~~" " 21st "~~
~~" " 4th Australian Division~~
~~Canada VIII Corps Gas School~~

For information

13/12/14

F. Blair
Captain
Chemical Advisor
VII Corps

[S.S. 711.]

CHEMICAL ADVISER,
G.H.Q.
No. CAS/20
Date 14/12/17

TRANSLATION OF A GERMAN DOCUMENT.

Ia/40839.

GAS BOMBARDMENTS.

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Trench mortars must be used if there is any fear of "shorts" falling within 200 metres of the German front line.

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GENERAL STAFF (INTELLIGENCE),
GENERAL HEADQUARTERS,
20th November, 1917.

PRINTED IN FRANCE BY ARMY PRINTING AND STATIONERY SERVICES. PRESS A—11/17—5287B—200.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4th D.G.O.

CHEMICAL ADVISER, I ANZAC. No. ..... Date .....

Headquarters.
1st. ANZAC Corps.
14/12/1917.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL. No. GO 11/19 Date .....

Gas Officers,
1st. Aust. Division.
2nd. " "
3rd. " "
5th. " "
Commandant, Corps Gas School.

Herewith 1 copy of an extract from the translation of a German document "Provisional Instructions for the Use of Artillery Gas Shell", dated 1/7/17.

Herbert A. W. Wilson
Captain.
Chemical Adviser. 1st. ANZAC Corps.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

Headquarters,
1st. ANZAC Corps.
1/1/1918.

Gas Officers,
1st. Aust. Division.
2nd. " "
3rd. " "
4th. " "
5th. " "
Commandant, Corps Gas School.

CHEMICAL ADVISER, I ANZAC. No..... Date.....

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL. No. GO.11/20 Date.....

The following documents are forwarded for your information :-
S.B/1.0/70 d/27-12-17. Translation of Extract from "Special Instructions" issued by II German Army dated 12-12-17 on Anti-gas Appliances.

D.G.S. B.280/4/293., d/27-12-17. Central Lab. Report on 10.5 cm. Howitzer Gas Shell and 7.7 cm. Field Gun Gas Shell.

Captain.
A/Chemical Adviser, 1st. ANZAC Corps.

S.B/1.0/70. G.A. 53.

Translation of Extract from "Special Instructions"
issued by II German Army, No.293,
dated 12-12-1917.

CHEMICAL ADVISER, I ANZAC. No. CA 5/26 Date.....

9. Anti-gas Appliances.

1. Deodorising Solution and Sprayers. No further issue will be made of these, as absolute success of their action can no longer be relied on, in face of the variety of gases used in warfare.

2. Masks made to Measure. Henceforth these will be made of leather. Rubber masks made to measure will, in exceptional cases, be issued to men wearing spectacles, who would otherwise be inconvenienced owing to the narrow space under the leather face piece.
Men with scars from wounds, who cannot be fitted with masks, are to be employed, by the combatant unit they belong to, in places where they will not require masks.
(War Ministry 868/4.17. A.X.)

3. Large size Canvas Carriers. On the issue of leather masks with sealed drum, the use of large size canvas carriers will be discontinued. The latter will be handed in to the Army Anti-gas Depot.

4. "Frame" Rubber Masks. These are to be exchanged as soon as possible for leather masks.
When indenting, the Gas Officer must add the following note:-
"Exchange of "Frame" Masks for Leather Masks".

(St.O. Gas).

Staff Officer for Gas at
Army H.Q.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

S.B./I.O./75.

Fourth Army
C.A. 62.
16/1/1918.

TRANSLATION OF A GERMAN DOCUMENT.

H.Q. of First Army. Id. No. 2565. Secret.

11-4-1917.

Strictly Confidential.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL
No. GO. 11/21
Date

EXPERIENCES DERIVED FROM THE ARRAS BATTLE.
(from information received up to date).

Counter Battery work was carried out by the enemy with considerable success--

---- The enemy made extensive use of gas ammunition against our front positions as well as against batteries; these gas shoots, moreover, apparently took place during the H.E. bombardment.

It has not yet been established with any certainty whether the enemy used a new gas. There is no doubt that our gas*masks afforded complete protection; however the fighting resistance of the men suffered considerably from the wearing of the mask for many hours. * Horses were greatly affected by the gas. In many cases the failure of the ammunition supply is to be attributed to this. From the same cause, it seems that, in many cases, the timely withdrawal of batteries could not be effected.

During the artillery preparation the enemy fired cylindrical gas mines about ½ m. long, on to our trenches as far back as the support line.

(* Underlined in original).

Our Artillery appears to have suffered heavily from hostile counter battery work, especially latterly and just before the assault. Material was badly damaged, and artillery activity seems to have been paralysed by the effect of the gas.

- - - -

Headquarters,
AUST. Corps.
25/1/1918.

CHEMICAL ADVISER, I ANZAC.
No. CRS/30
Date

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. G.O. 11/22.
Date

Gas Officers,
1st. Aust. Division.
2nd. " "
3rd. " "
4th. " "
5th. " "
Gas Officers, A.A.,
Right Sector.
Centre "
Left "
Commandant, Corps Gas School.

The following Translation is forwarded for your information.

H.W. Wilson
Captain.
Chemical Adviser,
AUSTRALIAN Corps.

S.B./I.O./76.

TRANSLATION OF A GERMAN DOCUMENT.

Extracts from "Special Instructions" of Second German Army.

A. dated 26-9-1917.
B. dated 29-9-1917
C. dated 24-10-1917.

A.

1. Irritant substances for Gas Chamber tests. Gas Alert.

(a) All units not provided according to establishment with "Light" pistols are to use so-called "irritant substances instead of lachrymatory cartridges for Gas Chamber tests. Any pistols on hand are to be sent in to the Pioneer depots concerned.

(b) "Irritant substances" together with "Instructions for Use" will be obtained from the Divisional Anti-gas Depot.

Gas Alert is fixed, for the Army area, at 15 km. from the front line Masks always to be carried.

2. Repairs to "Alarm" Sirens. Issue of Compressed air cylinders.

(a) Sirens (so-called "Membrane of Oxygen" sirens.), which are faulty or have become damaged, are to be returned for repairs to the Army Anti-gas Depot.

(b) Only compressed air is to be used for working the sirens.

(c) Until further notice, empty siren cylinders may be sent to the Army Anti-gas Depot at Le CATEAU for refilling. Later, these cylinders will be refilled at the Divisional Anti-gas Depot, by means of refilling pumps.
Compressed air is provided in steel cylinders (contents 150 l. under pressure).
In order to avoid confusion with oxygen cylinders, compressed air cylinders will be twice marked, longitudinally, with the inscription in red:- "Compressed air for Alarm Sirens. (Army Gas Staff Officer).

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

B.

Gas Defence.

(a) Exchange of drums for masks.

All drums bearing a manufacturing date prior to 1st March 1917, are to be exchanged, in order that their contents may be renewed. Time limit for handing in :- 30-11-1917. Supplementary supplies are to be indented for by Corps at Army H.Q. (Gas Staff Officer) before 20-11-17.

(b) Sealed drums.

Drums of most recent manufacture, so called sealed drums, are protected from dirt and damp by an oil-paper disc on the gauze at base of drum, and by a tin cap on the screw-piece of the drum.
These must be removed for use. As long as the paper disc is undamaged, breathing resistance tests are not to be undertaken.

C.

Gas Services.

(a) Construction of Anti-gas dug-outs. (Gasschutzstollen).

In every Company sector, and every minenwerfer and battery position arrangements are to be made for an Anti-gas dug-out, which will be occupied by the Gas N.C.O. as commander of the Rescue Section.
In addition to rescue apparatus a store is to be kept of masks and drums, CO test paper, deoderising sprayers and solution, hand-fans, fire-boxes, reserve cylinders for compressed air sirens etc.
The dugout is to indicated by a notice board, with list of objects contained.

(b) Taking over permanent Gas Defence Materials.

lists are to be kept by units of all permanent gas defence appliances, and the storage places of such materials are to be clearly indicated.
Relieving divisions are to report the taking over of these stores, by telephone to Army (Gas Staff Officer).

(c) Repairs at Army Anti-gas Depot.

Sirens are repaired and, particularly, leaky valves on compressed air and oxygen cylinders.
On informing the Gas Staff Officer at Army, Divisional Gas Officers will be permitted to inspect the Army Depot, in order to obtain instruction as to procedure in repairs etc.

(d) Handing in of superfluous mask boxes.

When a worn our rubber mask box is exchanged for a leather mask the latter is issued together with a new box. The old mask box thus remains spare. Divisions will see that these old boxes are regularly and speedily returned to Army Depot.

(e) Re-testing of fit of masks.

Attention is drawn to the necessity for retesting, at certain intervals of time, masks that have already been fitted. Differences occur even in masks marked as same size, it is therefore not sufficient to provide a man with a mask of the size shown in his pay book; the mask must be tested in the gas chamber.
During this test particular attention must be paid to the fit against the forehead and temples, on account of the stiff edge of the mask. In the case of very small heads, correct adjustment can be affected by a corresponding shortening of the tapes.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

(f) Sealed drums.

No separate issue is made of oil-paper discs for sealing drums. Drums without discs or with damaged discs are, therefore (providing that their breathing resistance is normaland that they are in good condition), to be used in the mask in place of the older drums, or to be returned to Army Depot.

Metal caps, for attachment to the screw neck of the drum, can be obtained in small numbers, on indenting, to replace missing ones.

In general, however, it will suffice if a small store is accumulated, of caps which become available as the drums are used.

(g) Improvements regarding the refilling pumps.

Old refilling pumps in the field are to be provided with a protective box and a folding footboard, in order to facilitate packing when on the march.

These improvements can be carried out gradually in the Army Anti-gas Depots.

As long as there are new refilling pumps in store, they will be issued in exchange for the older pattern. A special order follows in each case, regarding exchange.

(h) Cleansing of clothing contaminated by Yellow Cross liquid.

The clothing is to be hung up in the air for 24 hours, and then treated at least three times with hot water, for an hour each time. The water is to be changed on each occasion.

Chamical means of cleansing do not at present exist.

(Army Gas Staff Officer).

(Sgd) T. H. ADAMS.
Captain.
for D. G. S.

19/1/1918.

C.A., AUST. Corps.

C.A. 45.

4th AUSTRALIAN DIVISIONAL GAS SCHOOL. No. G011/23 Date

The attached copy of Ia/44591 (Prussic Acid Stick Grenade) is forwarded for your information and retention.

(Sgd) H.P.BUTTRICK. Lt.
for Chemical Adviser,

H.Q., Fourth Army,
27/1/18.

(2)

CHEMICAL ADVISER, 1 A. & C. No. C/36/14 Date

Headquarters,
AUST. Corps.
29/1/18.

Gas Officers,
1st., 2nd, .3rd., 4th., 5th., Aust. Divns.
Commdt, Corps Gas School.
Gas Officers, H.A. (3)

Herewith 1 copy for your information.

A W Wilson
Captain.
Chemical Adviser, AUSTRALIAN Corps.

Ia/44591.

PRUSSIC ACID STICK GRENADE.

A report said to be from a reliable source, gives the following description of a new stick grenade, which, according to information obtained from a German deserter, is not yet in use, but is being made in very latge quantities in the MAUSER Munition Factories, and in COLNEHRENFELD These grenades are filled in a factory at SIEGBURGER and in the Dynamite Factory at WAHN, whence they are sent daily to SPANDAU for testing. The body of the grenade is 15.5 cm. in lenght and consists of 3 sections, left, right and centre (with the head of the grenade attached to the right section). The handle is either screwed or fixed into the left section. The head of the grenade is made of cast steel as also apparently are the walls of the bodywhich are non-porous and of the following thicknesses :- left section 3 mm. centre section 2 mm. right section 1 mm. The grenade is filled with pikrine, trihl and prussic acid, and, according to the deserter, the left section is filled with pikrine and the other two sections with prussic acid. The interior wall between left or bottom and middle sections is 1½ mm. thick and of stamped tin with holes pierced in order to distribute the force of the explosion through the body of the grenade. A hook is fitted to the top of the grenade to fasten to the equipment. The grenades are packed in boxes of 18 and an explanatory card is placed inside the lid warning soldiers to put on their masks before using the grenade.

General Staff (Intelligence).
GENERAL HEADQUARTERS.
25/1/18.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

The Employment of Gas in a German Offensive.

As it is probable that the enemy will make an extensive use of gas in his next offensive, the following points are emphasized :—

(*a*) **Projectors.**

Range at least 1,400 yards ; any wind direction may be utilized, provided there is no danger of the gas drifting back towards the enemy's lines.

The localities attacked are comparatively small, and high concentrations of gas are created in them.

The discharge is easily recognized by the flash and report, and its nature should be apparent instantaneously to the occupants of the whole of the area that is likely to be affected ; moreover, the bombs can be heard in the air and the sparks from the time fuzes seen.

Only about 20 seconds' warning is given.

Projector positions and the tracks leading to them are very difficult to camouflage successfully, and aeroplane photographs should be carefully scrutinized with a view to their detection.

(*b*) **Cloud.**

Much greater areas are affected than with projector gas, and the effects may be felt many kilometres behind the line.

The limits of wind are more restricted, however, the most dangerous winds being those blowing from the enemy and making an angle of 45° or less on either side of a line drawn perpendicular to the general run of his trenches.

The safety of the troops depends on the utmost vigilance being observed *in our front line*, and on the alarm being given immediately by means of Strombos horns, telephone and other devices.

(*c*) **Artillery gas bombardments.**

(i) It is probable that sudden bursts of fire with *lethal* shell will be directed on infantry in strong points and billets, and that the enemy will attempt to cause a large number of slight casualties by means of *Yellow Cross* shell.

It must be noted that, even if the wind is blowing towards the enemy, any point more than 2,000 yards from the German front line is liable to be subjected to a gas shell bombardment.

Owing to the persistence of Yellow Cross gas, if it is fired into our forward areas, the targets would be selected in such a way that they might be avoided by the attacking infantry, who would otherwise be affected by the gas. Special attention should therefore be directed to the gaps which may be left between gas-infected areas.

Red and purple dyes, which are harmless in themselves, are added to the filling of certain German gas shell, probably to indicate contaminated shell holes to the advancing infantry. This should be brought to the notice of our own troops, in order that they also may take advantage of the indication afforded.

(ii) The enemy will, however, probably direct his main efforts to the neutralization of our artillery during the preparation for and at the moment of his assault.

Counter-battery work will probably commence with an intense surprise gas bombardment, and it may be continued at a slower rate of fire for a number of hours, with the object of compelling the continuous wearing of masks and so impairing the efficiency of the gunners and preventing the formation of an effective barrage when the German attack begins.

Prolonged wearing of masks results in the gunners being exhausted, if anti-gas training has been neglected.

It is essential, therefore, that gas proof shelters should be constructed wherever it is feasible, so that all personnel not actually employed in manning the guns may rest without having to wear their respirators.

Such a bombardment will have the greatest effect if there is little or no wind, and if battery positions are sited in broken, wooded or well built-over country.

(iii) It should be specially noted that *little registration* will be necessary, owing to the fact that areas rather than specific targets will be taken under fire.

(iv) For headquarters of formations and for troops holding positions in reserve, alternative positions should be prepared in advance, provided with gas-proof shelters, for use in case of a heavy concentration of gas shell on the headquarters or other shelters.

(*d*) **Protective measures.**

The box respirator gives complete protection to the eyes and lungs against all gasses employed by the enemy.

General Staff (Intelligence),
General Headquarters.
24th February, 1918.

Printing Section, Depôt F.S.C., R.E., G.H.Q. 982x

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4th AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. G.O.-11/23.
Date

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No. CA 44/36
Date 2/3/18

U R G E N T

C.As., Armies (2) C.S.Cs., R.E.
C.As., Corps (2) Os. C., Special Coys., R.E. (2)
D. G. O's. (2)

With reference to the attached memorandum on the "Employment of Gas in a German Offensive", there is a strong probability that the enemy will employ new gases and new methods and it is of vital importance that the most careful look-out is kept with a view to their immediate recognition. The attention of all officers of the Gas Services is drawn to the following points :-

Any information in regard to peculiarities or unusual symptoms should be reported immediately for examination to G.H.Q., together with as many details as can be collected without causing delay. This will enable prompt warning to be sent to other parts of the front so that precautions may be taken to minimise any effect due to surprise.

Gas Officers will ensure that vacuum bulbs are readily accessible so that samples can be taken in case of a cloud gas attack. Blind shell and earth samples should be collected and forwarded without delay to a Corps or Army Chemical Adviser who will arrange for their immediate dispatch to the Central Laboratory for examination.

The following instructions with regard to specimens sent to the Central Laboratory must be strictly carried out :-

1. All specimens will be accompanied by a covering letter and will be labelled with the reference to the covering letter. Labelling must be clear and done in such a way that it is not obliterated in transit.

2. Covering letters will contain any information that may be of use in connection with the examination of the specimens. Covering letters sent with blind enemy shell, fragments of shell, or earth samples will contain short particulars of the bombardment to which they relate and the effects produced. Reference will also be made to any report on the bombardment which may have been forwarded.

3. Army Chemical Advisers will arrange for specimens to be sent to the Central Laboratory and will see that in the case of enemy samples two copies of the covering letter are sent to D.G.S. In the case of other samples only one copy need be sent.

4. Enemy specimens and other specimens will not be included in the same covering letter.

G. O. 4th. Aust Div
for necessary action

C. Foulkes
Brig.-Gen.
D. G. S.

B. 299.
28/2/1918.

H. Wilson.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4th AUSTRALIAN DIVISIONAL GAS SCHOOL.
G.O. 11/26.

(Specimen No.)
(C.L. 1096)

SECRET.

D.G.S. B275A. 22-3-18.
C.L.No. 2803 21-3-18.

GERMAN DRUMS WITH EXTENSIONS.

2 German masks and drums have been received from the C.A., Fifth Army. These respirators were taken from two prisoners of the 227th R.I.R. 107th Div. in a raid at VILLERS GUISLAIN on the night 18/19th March 1918. The prisoners state that they had just had them issued (on the 17th) in preparation for an attack.

The masks are of ordinary leather pattern and the drums, dated 4-1-18 and 7-7-17, are of the usual three layer pattern.

The 4-1-18 drum is marked; 973 4.Jan.18. 13(in red) 4 (in black) there is no 11-C-11 973 appears to be a marker's or inspector's mark and has been met with before.

Each drum is fitted with an extension which clamps on over the open end of the drum. This extension consists of a metal cap which is held in place on the drum by means of 3 spring clips. The circular face of the cap consists of 3 zones. The outer zone is flat, the next zone is raised up and perforated with holes similar to those in the closing plate of the drum. Next there is a depressed ring in the metal, and finally the centre part is perforated. Inside the cap is a disc of filter paper to the centre of which is fastened by two wire staples a disc of wire gauze, this wire gauze is on the side next the drum. When the cap is in place the disc of filter paper is clamped between the outer zone of the cap and the rim of the box. Owing to the perforated portions of the cap being raised up the filter paper does not come in contact with the perforated portions of the cap, so that the incoming air can distribute itself freely over the surface of the filter paper. The depressed ring in the midst of the perforations also assists in preventing the filter paper coming in contact with the perforated plate. The wire gauze attached to the inside of the filter paper is in the same way intended to prevent the filter paper coming in contact with the perforated plate on the drum, it also stiffens the disc of paper so that it will not collapse during inspiration.

The filter paper is 0.4 mm. thick and appears to be of good quality close texture.

The resistance of the drum fitted with the extension at the standard rate of air passage (83.3 litres per minute) is 1.9 inches of water, that of the drum alone being 0.72 inches. The resistance of the old pattern German drum which was discarded on account if its high resistence was 1.6 inches. Hence the new combination has a higher resistance than the old drum. With the leather mask however, the resistance of the drum is of less importance than with the rubber mask since the dead space is much reduced.

Breathing through the drum with extension for an hour on a dry day did not appreciably increase its resistence nor did breathing for an hour in a room of which the air had been rendered moist by boiling water.

On spraying water with an atomiser, on to the filter paper disc it was found that when the weight had increased by 2 grams the resistance did not increase appreciably. With 4 grams of water the resistance increased to 7.7 inches. When allowed to dry when the weight of water was 3 grams the resistance was 4 inches.

The drum with extension was tested in diphenylchlorarsine with the following results. The substance was evaporated and the concentrations used calculated on the supposition that it exists as a perfect gas. An N.C. container was tested at the same time. In order to avoid any error due to leakage round the mask the German drum was fitted to one of our masks, a mouthpiece being employed but no expiratory valve.

	Concentration by volume. Parts per million.	LIFE. Quiet breathing.
German	1	0
German	1	4 minutes.
N.C.	1	28 "

Tested in stannic chloride, detonated, the following results were obtained. The concentration is by volume on the supposition that the substance is a perfect gas.

(P.T.O.)

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

	Concentration by volume. Parts per ten thousand.	LIFE. Quiet breathing.
German	1	2 minutes.
N.C.	1	5 "
Gorman	15	4 "
N.C.	5	12 "

Thus the German drum with its extension affords less protection against particular clouds of substances such as diphenylchlorarsine and stannic chloride than does the N.C. box.

Central Laboratory,
G.H.Q., 2nd Echelon.
21st March, 1918.

(Sgd). W. WATSON, Lt-Colonel.
Director.

Chemical Adviser,
AUST. Corps No.C.F.42.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No.....
Date.....

D. G. O.,
1st Aust. Division.
2nd " "
3rd " "
4th " "
5th " "

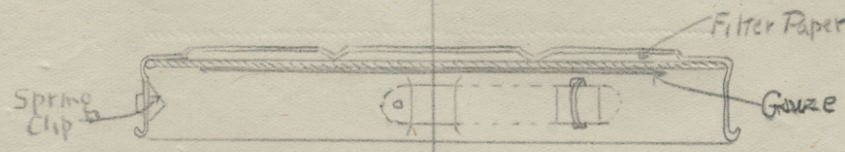
For information.

A. W. Wilson
Captain,
Chemical Adviser.
AUSTRALIAN CORPS.

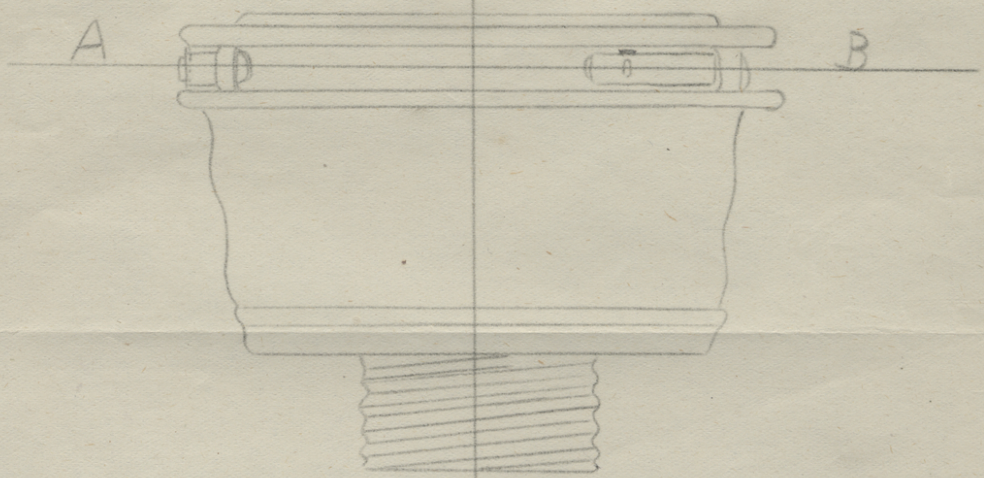
Headquarters,
16-4-18.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

ANNEX TO GERMAN RESPIRATOR DRUM



SECTION ANNEX on LINE AB



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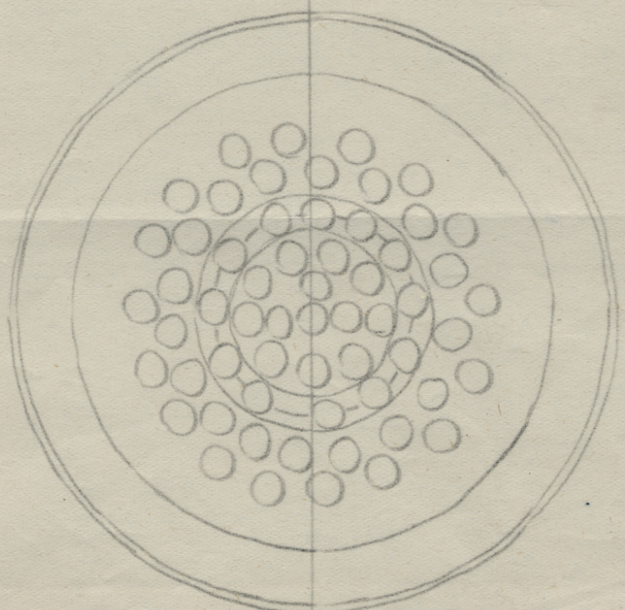


PLAN

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL
No. G.O. 11/27
Date.....

DIRECTOR OF
GAS SERVICES.
B.
No. B/276.
Date. 3.5.18.

Chemical Adviser,
Fourth Army.

Reference D.G.S. B/276 dated 1/5/18, forwarding Proof of Notes of German Shells, Parts 1 and 2.

Attention is drawn to the list of German shell other than gas shell required by Intelligence for examination, which is given at the end of the pamphlet. Efforts should be made to collect and forward to the Central Laboratory specimens of the shell required.

3/5/18.

(Sgd) H.C.SISSON. Captain.
for Director of Gas Services.

-2-

Chemical Advisers (III Corps.
(XIX Corps.
(AUST. Corps.

2169.
4/5/18.

Reference my No. 2168, dated 3/5/18.
Above is forwarded for your information and necessary action

Headquarters,
Fourth Army,
4/5/18.

(Sgd). W.MALDON. Lt.,R.E.,
for Major.
Chemical Adviser, Fourth Army.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No. CA 43/194
Date.....

-3-

Gas Officers,
2nd, 3rd, 4th, Aust. Divisions.
47th Division.

The above is forwarded for your information and necessary action, with reference to my C.A. 43/193 dated 5/ 5/18.

H.C.M. Sisson

Captain.
Chemical Adviser,
AUSTRALIAN Corps.

H.Q., AUST. Corps.
5th May, 1918.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

(Specimen Nos.)
(C.L.1157 A&B.)

CENTRAL LABORATORY.
G. H. Q.
No. - 3026.
Date - 6/5/18.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. GO. 11/32.
Date.....

D.G.S.

C.A., IV.

Attached reports on two samples.

With reference to specimen C.L.1157A, C.A., IV reports :-
".....found on dead German, who is stated to have been killed in the act "of smearing it on his face".
This seemed to indicate that the substance might be intended to protect the skin against Yellow Cross, and hence be "Celbolin". The analysis and the consistency do not, however, support this idea. From the following extracts from Intelligence reports it would appear that "Celbolin" is a liquid, not a solid.

S.B./I.O./83 of 11-10-17: ... Leaky shell not to be handled -- sprinkle with Celbolin and cover up with earth -- skin tissue severely attacked by it, wash off straightaway with Celbolin.

S.B./I.O./79: ... Celbolin must be used for washing off.

The composition of C.L.1175A is very like that of a grease taken from a minenwerfer tool-box (I(g) 271/17 of 12-3-18), which is Presumably an anti-fouling composition.

C.L.1175B., the origin of which is not given, since it contains zinc seems to be a medicinal ointment.

The fact that these two specimens of grease are contained in identical tins Points to a general issue, unless these tins have originally contained some other substance which is an issue and the men on whom they were found have utilised them for carrying ointment after they had been emptied.

6/5/18.

(Sgd) W. WATSON. Lt-Colonel.
Director of Central Laboratory.

Chemical Adviser,
Fourth Army.

C.A, Fourth Army.
1936
8 - 5 - 18.

C.A, AUST. Corps. -2-

Attached reports on two samples of grease forwarded for information.

(Sgd) W. MALDONS. Lieut. R.E.
for Major.
Chemical Adviser, Fourth Army.

-3-

Gas Officers,
1st, 2nd, 3rd, 4th 5th Aust Divisions,
Commandant, Corps Gas School.

Forwarded for your information.

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No. CA/43/18
Date.....

H.Q., AUST. Corps.
10th May, 1918.

Captain.
Chemical Adviser,
AUSTRALIAN Corps.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

COPY.

SECRET.

1ST AUSTRALIAN DIVISIONAL GAS SCHOOL. No. GO.11/31

Chemical Adviser
Fourth Army.

It is important to ascertain what is the scale of issue of the extension to the German Box Respirator, and whether it has now been issued in all Divisions. Please instruct Corps Chemical Advisers to arrange for the interrogation of prisoners on this point, and to report what proportion of the captured respirators contain an extension.

Is the extension carried loose in the box, or as it usually attached to the drum. ?

D.G.S. No.275a.
26-5-18.

(Sgd) H.HARTLEY. Lt-Col.
For Director of Gas Services.

-2-

Chemical Adviser.
AUST. Corps.

No. 2282.
27-5-18.

For information and necessary action.

H.Q., Fourth Army.
27-5-18.

(Sgd) G.W.MONIER WILLIAMS. Maj.
Chemical Adviser, Fourth Army.

CHEMICAL ADVISER. AUSTRALIAN CORPS. No. C.A. 7/32. Date.....

-3-

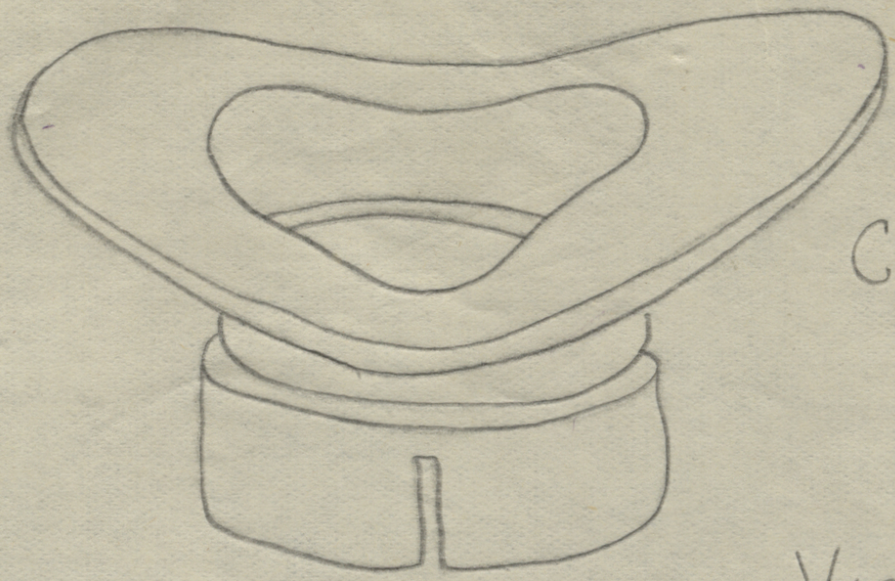
Gas Officers.
1st,2nd,3rd,4th & 5th Aust. Divisions.

For information and necessary action.

H.M.Wilson
Captain.
Chemical Adviser,
AUSTRALIAN Corps.

H.Q., AUST. Corps,
29th May, 1918.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664



C.L. SPECIMEN
Nº 1215

View of
Attachment.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

AUSTRALIAN CORPS

CHEMICAL ADVISER, AUSTRALIAN CORPS. No. C.F. 42. Date.....

HEADQUARTERS 4TH AUSTRALIAN DIVISION GAS SCHOOL No. GO 11/28 Date.....

Gas Officers,
1st, 2nd, 3rd, 4th & 5th Aust Divisions.

Headquarters,
4th May, 1918.

Reference my C.F. 42 dated 16/4/18, "German Drums with Extensions

The following correction should be made :-

Concentration by volume. Parts per million.		LIFE. Quiet breathing.
German	1	0
German	.1	4 minutes.
N.C.	.1	28 "

Concentration by volume. Parts per ten thousand.		LIFE. Quiet breathing
German	1	2 minutes.
N.C.	1	5 "
German	.5	4 "
N.C.	.5	12 "

H Wilson

Captain.
C.A., AUSTRALIAN Corps.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

(S E C R E T .) S.B.I.O./95.

EXAMINATION OF (OFFICER) PRISONER OF 51 LWD REGT.(1st.LWD. DIV.

AUSTRALIAN DIVISIONAL GAS SCHOOL. No. GD11/29 Date.

GERMAN GAS WARFARE.

OFFENSIVE.

GAS SHELL. Prisoner stated that there were two kinds of Blue Cross, Blue Cross (i)&(ii). He knew that Blue Cross was intended to cause sneezing but was not acquainted with the effects of the other types of Blue Cross he mentioned.

The Prisoner had heard from another Prisoner captured at the same time that the Artillery also had a Red Cross shell, but this had not yet been used. "Buntschiessen" ("Colour" shoots) means ~~this~~ the combined employment of Blue and Yellow Cross in a bombardment. Artillery use leather gloves to fire Yellow Cross shell.

AEROPLANE GAS BOMBS. Germans had very large numbers of gas bombs for use against towns. These would be used as soon as Allies gave them an excuse by their employment of aeroplane bombs.

DEFENSIVE.

LEATHER MASK. Men had confidence in it. The strings for "binding" round the mask(to decrease dead space) were now tied under the eyepiece and round the back of the head. This was a fairly recent order. The former method of "binding" the mask caused discomfort owing to the Pressure exerted on the eyepieces.

When the mask has to be put on in the middle of a sudden gas cloud in order to Prevent a man being gassed by the gas enclosed in the face Piece, the man presses the mask, when adjusted, against the face with his hands and blows through the mouth-opening. (Men are not supposed to approach areas which are being bombarded with Blue Cross). If German gas (Blue Cross) comes through mask, the handkerchief is to be Pressed against bottom of drum.

PROTECTED DUG-OUTS. No special apparatus, dug-out curtains supposed to be wetted (water) but rarely are.

TRAINING. Prisoner's Division came from the Russian front. Before Prisoner's unit went into line, from February to March, 1918, training with the mask took place daily for one or even two hours. Gas discipline on whole good.

TESTING OF MASKS. Takes place at frequent Periods, each time a unit is in rest. An irritant substance with a fuze attached is thrown into the chamber. Men adjust masks on explosion of substance. The fuze burns 10 seconds, shorter fuzes are used when men are more expert, until the time limit of nearly two seconds is reached.

ISSUE OF NEW DRUMS. Prisoner stated that at THOUROUT on March 10th 19 12 days before they entered the line, all those men in his battalion, who were not already in possession of the drum marked 11-0-11, received this more recent issue.

BRITISH GAS WARFARE.

OFFENSIVE.

RESULTS OF RECENT GAS SHELLING. About 14th April 1918, a Battalion of German Marines who were working at a large dump near HOUTHULST, suffered heavy casualties from gas shell, the men were mostly gassed and not killed outright.

German Artillery constantly suffer casualties from a gas that has no smell. Men have died many hours after carrying on with their ordinary work.

English gas shell are easily recognised by small burst. If more H.E. were contained in the shell surprise would be affected.

(Sgd) T.H.ADAMS. Captain.
for
Director of Gas Services.

5/5/18.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

Copy.

(C.L. Spec).
(No. 1215).

Central Laboratory,
No.3091.
24 - 5 - 18.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. GO 11/30
Date.....

ATTACHMENT TO GERMAN MASK?
Received from C.A., FOURTH ARMY, 19-5-18.

This attachment was obtained from a mask taken from a prisoner who stated that ten days ago 40 were issued to each company.

The attachment(see attached sketch) consists of a saddle shaped plate of some white material like celloidin with a central hole which is attached by a short cylindrical portion to a metal sleeve. This sleeve fits over the portion of the plate of the mask into which the drum screws.

From the size of the attachment it is obvious it cannot be intended to place it inside the lips. Although by holding the drum afairly satisfactory joint can be made betweeh the attachment and the outside of the lips, merely tightening the suspension string of the mask does not give a satisfactory joint.

It looks as if the primary intention of the attachment is to prevent the chin accidently closing the air inlet from the drum, which it does quite satisfactorily.

(Sgd) W. WATSON. Lt-Col.
Director,
Central Laboratory, B.E.F.

24th May 1918.

-2-

Chemical Adviser,
AUST. Corps.

No. 2112.

For information reference your C.A.7/30 dated 19-5-18.

(Sgd) W. MALDON. Lieut, R.E.
for Major,
Chemical Adviser, Fourth Army.

H.Q., Fourth Army.
27-5-18.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No. C.A. 7/33.
Date.....

-3-

Gas Officers,
1st, 2nd, 3rd, 4th & 5th Aust. Divisions.
Gas Officers, H.A., (11).
Commandant, Corps Gas School.

Forwarded for your information.
The above specimen was sent in by 2nd Aust.Divnl.Gas Officer.

A.W. Wilson
Captain.
Chemical Adviser,
AUSTRALIAN Corps.

H.Q., AUST. Corps.
29th May, 1918.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. G.D.11/38.

EXTRACT FROM FOURTH ARMY "SUMMARY OF INFORMATION" No. 172.
Dated 8th June 1918.

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10. GERMAN GAS MASK. (From G.H.Q. Summary dated 7th June, 1918).

The enemy has not yet equipped his troops with a new type of gas mask, but, since the middle of March this year, an extension has been added to it.

Single specimens of a new mouth plate attachment and a new mask box have also been captured. These may be an experimental issue.

The following are the latest developments in connection with the german gas mask. ;-

(a) The extension is the most important modification. It consists of a perforated metal cover, which fits over the bottom of the drum and is held in place by three spring clips. It consists of a disc of porous paper, which serves as a filter for fine particles. Tests shew that, while the extension more that doubles the resistance to breathing, the protection obtained is not nearly so as that afforded by the British Box Respirator. Prisoners state that the extension is intended for use against Blue Cross shell. It is carried loose in the mask box and is fixed on the drum whenever troops are in the vicinity of areas which are being bombarded with Blue Cross shell.

(b) The mouth plate attachment consists of a saddle shaped plate with a central hole, which is attached by a short cylindrical portion to a metal sleeve. This sleeve fits over the portion of the mask into which the drum screws. It may be intended to enable a man to breathe directly through the drum by pressing the plate against the mouth.

(c) The new mask box differs from the previous pattern in the bottom and cylindrical portion are made of 3-ply wood instead of iron, resulting in a reduction of weight of 5 ozs. It does not appear to be very serviceabl

---

/a.

"G.S".
AUST. Corps.

The 2nd Division secured the specimen of new mouth plate for respirator mentioned, in this summary.
4 or 5 extensions have been obtained also.

(sd) H.W.WILSON. Capt.
C. A.

Gas Officers,
1st,2nd,3rd,4th & 5th Aust. Divisions.
Commandant, Corps Gas School.

---

for imformation.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No. CA6/7
Date.....

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

TRANSLATION.

ADVISE FOR GAS PROTECTION.

3711/1/18

1. Have confidence in your mask. It protects you if fitting well and in good condition, free from holes or cracks, and if you put it on quickly & properly
2. Have confidence in the absorption box, and do not change it during a gas attack. It protects you absolutely even if the attack lasts for hours.
3. Always observe the direction of wind and state of weather. The enemy uses principally the night and early morning hours for his gas attacks. Never be without your respirator, whether sleeping, eating or working etc. If you have to take it off for awhile you can easily pick it up and adjust it.
4. Take care of your respirator as you do your rifle and keep it clean. Protect the mask and box from the wet. Do not use any fat on the metal in fabric as the rubber parts will be injured and rendered useless thereby.
5. Follow exactly the directions for use given you and take particular care about the rubber washer in the mouthpiece.
6. If you notice cloud gas, or smell gas, or hear a gas alarm, if you hear shells with a small burst, or which burst and give out a white cloud of smoke which hangs to the ground in your vicinity, immediately warn your comrades, for gas spreads quickly, shout G-a-a-s, put your mask on, sound the gong and stand-to.
7. Breathe gently and slowly and do not get alarmed if the box is warm. That makes no difference. Avoid running about and so disturbing the position of mask by knocking against anything. If you become "rattled", that is the best help the enemy can have.
8. Use your rifle in the ordinary manner.
9. Cover is no protection against gas unless you have your mask on.
10. If your mask is injured, as an emergency put the screw part of the box in your mouth and hold your nose.
11. Only put your mask off after an attack, when you can see no more gas, and only with the greatest caution. Put the mask away only when you can smell no more gas.
12. Clean your rifle of grease after a gas attack and grease it afresh. Wipe cartridges dry and oil them again.
13. Do not leave your dugout after a gas attack without gas helmet on. See that ventilation of dugout and trench is good.
14. Wipe metal parts and mop fabric parts carefully in and out before you put the mask away again. If you have no dry cloth, dry the fabric in the air, on warm sunny day in the shade, in rain or mist dry it in the dugout, not in the open air.

REMARKS ON ABOVE TRANSLATION BY C.A.

1. Note well what a German needs to give him good protection.
2. The German drum protects from Phosgene for about 4 hours. N.C., Green Cross 2 and Blue Cross penetrate the drum.
3. Note that emphasis is laid on wind and weather observation. Good wind observation means a great saving in casualties especially from Yellow Cross.
4. N.B. Protection from wet and grease. This was before the introduction of the leather mask.
5. Note shells with small burst - C.G. gives hardly any cloud- just a faint bluish smoke on a dry cold day- a faint opalescent cloud at night, but this soon disappears. N.C. gives dense white cloud. Green cross- similar to C.G. Blue cross gives dense white cloud in darker cloud of H.E. Yellow Cross gives practically no cloud.
6. Don't get the "wind up". The heating of the German drum is caused by the action of the moisture on some of the chemicals in the box.
10. A necessary instruction as they have no mouthpiece -also worth remembering if you have a case where you cannot fit a mask on or your mask & tube are injured.
11. A wise precaution and very necessary.
12. Not so necessary after a gas shell bombardment, unless it is a very concentrated one, but very necessary after a cloud gas attack, projector attack or a concentrated gas shell bombardment.
13. Apparently the Germans are now using their gasproof dugouts in the same way as we do- get inside and let down the doors -some time ago the instruction was to let down the doors and get outside. It is going to be more difficult to kill them with gas shell if they do this -hence need of the sudden burst of lethal shell at commencement of a bombardment. Surprise becomes a greater Factor in gas shell bombardments.
15. A necessary precaution. Masks soon become filthy and rotten if they are not dried after use.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

Gas Officers,
1st, 2nd, 3rd, 4th & 5th Aust. Divisions.
Commandant, Corps Gas School.
Gas Officers, H.A., (12).

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. G.O.11/86.
Date 23.6.18

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No. C175/67
Date

Herewith copy of a Translation of "Advice for Gas Protection".
It is in the form of a printed leaflet and is pasted inside the Pay Book of German Soldiers.
It was sent in by 4th D.G.O.
Attached are a few remarks on the main points.

H.Q., AUST. Corps.
21st June, 1918.

Captain.
Chemical Adviser,
AUSTRALIAN Corps.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

COPY.

GERMAN RESPIRATOR DRUM WITH NEW FILLING.
(Extracts from Central Laboratory Reports).

The first specimen examined was taken from a prisoner on 3rd June, 1918. The prisoner stated that the new drum marked 11.c.11 did not require any extension and that all extensions had been withdrawn before they went into the line.

The drum was marked M.L. 11.c.11 AGFA 14.4.18. 611.

Other specimens have been obtained marked M.3. and M.4. respectively in place of M.1. All specimens so far examined are dated 14th April 1918 and were made by the same manufacturer.

The drums are externally exactly similar to the ordinary pattern, but the filling is different in that the usual bottom layer of potassium carbonate on brick or pumice is replaced by a charcoal layer containing about 9 percent of zinc, partly in the form of chloride but mainly as oxide or hydroxide. The new drum thus contains :-

Bottom layer	41 grams	charcoal and zinc oxide.
Middle layer	35 "	" zinc oxide and about 5 percent of hexamine.
Top layer (nearest the mouth)	29 "	Hexamine and potassium carbonate on brick.

The zinc oxide would appear to be added for the purpose of increasing the protection against phosgene.

The following tests have been made with the new drum :-

Phosgene. 1/200

New filling,	life in	minutes	29
Old /"	"	"	12

1/100

New filling	lives	"	20, 11.
Old	"	"	2½, 2½, 1½.

Chloropicrin.

One drum tested against 1/10,000 chloropicrin gave a life of 6.5, mins, being no better than the old type drum.

Diphenylchlorarsine

One drum tested against 1/5,000,000 appeared to give slightly more protection than the old type drum, but less than the old type drum with extension.

Tested in 1/1,000,000 breakdown occurred in ½ minute in each case.

It will be seen that the filling gives greatly increased protection against phosgene, but is not appreciably better than the old type against chloropicrin and diphenylchlorarsine.

D.G.S. B/275 a.
29-6-18.

(Sgd) H.A.SISSON. Capt.
for D. G. S.

Chemical Advisers, Armies ,
" " Corps.

Reference above.
It is important to obtain a large number of specimens of the drums containing the new filling for field trials.
These should be forwarded immediately to this office.

DGS/B.275 a.
29-6-18.

(Sgd) H.A.SISSON. Capt.
for D. G. S.

Gas Officers,
2nd, 3rd, 4th, 5th Aust. Divisions.

For your information and necessary action, please,

W.B.Barclay Lieut.
Chemical Adviser,
AUSTRALIAN Corps.

H.Q., Aust. Corps.
3-7-18.

Copy to Corps Gas School, for information.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. G.D 11/37.
Date 4.7.18

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No. CA 1/35
Date

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

"COPY".

C.L. No. 3305.
5/7/18.

Director of Gas Services.

A report from Monsieur KLING states that they have received two 77 mm. shell having a bottle containing Diphenylarsenious Cyanide.

Could the C.A's be asked to send in any blinds from Blue Cross bombardments as it is important that we obtain specimens of $(C_6H_5)AsCN$.

(Sgd) W.WATSON. Lt-Col.
Director.
Central Laboratory.

Central Laboratory,
B.E.F., 8th July, 1918.

-2-

Director of Gas Services.
B.
No. :- 29/B.
Date. 6-7-18.

Chemical Adviser,
Fourth Army.

For information and necessary action.

(Sgd) H.A.SIBSON. Capt.
for Director of Gas Services.

687-18.

-3-

C.A., Fourth Army, No. 2486.

Chemical Adviser,
Aust. Corps.

Forwarded for information and necessary action, please.

(Sgd) - - - - - - -Lieut.
for Major,
Chemical Adviser, Fourth Army.

H.Q., Fourth Army.
7-7-18.

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No. C.A., 43/355.
Date.

-4-

C.A., Aust. Corps No.

Gas Officers,
2nd, 3rd, 4th & 5th Aust. Divisions.
Commandant, Corps Gas School.

For your information and necessary action, please.

W.B.Barclay. Lieut.
Chemical Adviser,
AUSTRALIAN Corps.

H.Q., Aust. Corps.
8-7-18.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

AUSTRALIAN CORPS.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. G.O.3/26.
Date 11/6/18

Headquarters,
9th July, 1918.

Gas Officers,
2nd, 3rd, 4th & 5th Aust. Divs.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No.
Date

Reference my C.A. 43/353 of 8-7-18.

In the fifth line for :- $(C_6H_5)AsCN$.

read :- $(C_6H_5)_2AsCN$.

J Parnell 2/Lieut

for Lieut.
Chemical Adviser,
AUSTRALIAN Corps.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
G.O. 11/38.
10.7.18

SUPPLY of EXTENSIONS USED WITH GERMAN RESPIRATORS.

(from Prisoners' Statements).

These extensions (SCHNAPDECKEL) have not yet been issued throughout the German Army, though the distribution appears to be proceeding rapidly. 50 per cent. of a batch of prisoners taken recently were supplied with them. In most cases they are found loose in the box, though at times they are attached to prisoners' masks.

According to the statements of prisoners, the extensions are only to be used on the receipt of definite orders from Officers. It is often said that they are intended for protection against Blue Cross gas shell.

A number of prisoners taken during June were in possession of new drums dated 14/4/18 or later, which contained a new filling. One man with such a drum stated that it did not require an extension, and that all extensions had been withdrawn before they went into the line.

(Reference D.G.S. B/275.a., dated 29/6/18). This statement is contradicted by the fact that several drums containing the new filling have since been found fitted with extensions.

Further reports are required as to the proportion of prisoners who are equipped with extensions.

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No. CA7/38
Date 9/7/18

Chemical Adviser,
Fourth Army.

DIRECTOR OF GAS SERVICES.
B.
No:- B/275.a.
Date 6.7.1918.

For information.

6/7/1918.

(Sgd). J.A.CARPENTER, Captain.
for Director of Gas Services.

set up on a [illegible]
receive the bottom of the projector.

A wooden slab, about 1½ inches thick, is placed between the bottom of the projector and the base plate. The slab is provided with a hole to allow for the insertion of the electric firing device, which is screwed into the base of the projector. The projectors are set up side by side in trenches about 2 feet deep, cut to a V Section.

The bomb.- It appears that Yellow Cross bombs are now in use in addition to Blue Cross and phosgene bombs.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

GAS PROJECTORS. From Intelligence Summary 20-6-18

A prisoner, recently captured by the French, supplied the following details about German gas projectors, which differ somewhat from those given in para. [illegible] of a Summary No.460 dated 5.6.18:-

The projector weighs about 150lbs and requires 2 men to carry it into position. It consists of a metal tube about 4 feet long and $\frac{1}{12}$" thick, with a flat base which is rounded off to meet the walls. It is set up on a circular base plate about 2 feet in diameter and shaped to receive the bottom of the projector.

A wooden slab, about $1\frac{1}{2}$ inches thick, is placed between the bottom of the projector and the base plate. The slab is provided with a hole to allow for the insertion of the electric firing device, which is screwed into the base of the projector. The projectors are set up side by side in trenches about 2 feet deep, cut to a V Section.

The bomb.- It appears that Yellow Cross bombs are now in use in addition to Blue Cross and phosgene bombs.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

S.B./I.O./118.

TRANSLATION OF A GERMAN DOCUMENT.

21 Inf. Div. Div. H.Q. 20-6-18.

SECRET.

4th AUSTRALIAN DIVISIONAL G.S. SCHOOL G.O. 11/47 4.8.18

DIVISIONAL ORDER.

Concerning Gas Warfare.

1. 11-C-11 drums have been further improved. New drums are ready for issue, destined for troops in the front line who are exposed to gas projector attacks.

2. The drums bear the dates :-

14., 21., 28., April 1918.
5., 12., 19., 26., May 1918.
1., 6., 18., and later.
1, 9, 16, 23, 30 June
7, 14, 21, 28, July
4, 11, 18, 25 Aug.

CHEMICAL ADVISER, AUSTRALIAN CORPS. No. CA5/86 Date 29/8/18

3. Issue :-

80 Fus. Regt.	2,000
81 Inf. Regt.	2,000
87 Inf. Regt.	2,000
21st Pioneer Battn.	600
Artillery	400

etc., etc.

4. Units will draw the drums immediately at the divisional anti-gas depot.
Distribution in consultation with the Gas Officer.

5. The equipment of these troops not in the immediate zone of gas projectors will be carried out gradually according to the supply from Germany.

6. The 11-C-11 drums no longer required will be immediately handed in to the divisional anti-gas depot and receipt for them obtained. They must be clean andprotected from rain and mud.

(Sgd) WAHLEN. M-G.,
for C.O.C., Division.

For information.
These appear to be the so-called "Sunday" drums.

(Sgd) T.H.ADAMS. Captain.
for D. G. S.

27-8-18.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

D.G.S. No. B/526.

ANALYSIS OF AUSTRIAN MASKS.

(Sent by the 8th Italian Army H.Q., Chemical Meteorological Section, 30.7.18 - Folio 1827).

Several samples, with dates and different signs, were selected from the filters and masks sent up for examination. There was no marked difference in shape or composition from those already examined on other occasions.

Results of analysis :-

No.1 Mask. K.u.K. - A 6 - N F - P 2.

88 (red) - 95 (black) -13 - 12 - 17.

The first layer (external) weighed 55 gr.
" second " " 20 "
" third " " 30 "

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL. No. G.O. 11/48 Date 5.9.18

The first contained :-

Carbonate of Potassium.
Granules of brick.
Powdered Charcoal.
(Absence of Marcury).

The second contained :-

Small granules of charcoal.
" quantity of hexamine.
"

The third contained :-

Hexamine.
Carbonate of Potassium.
Granules of brick.
(Absence of Mercury.)

No.2 Mask. A.G.D.

725 (red) II-CC-LL - B - 7 March 1918.

The first layer (external) weighed 60 gr.
" second " " 35 "
" third " " 20 "

The first contained :-

Mercury (basic carbonate).
Potassium Carbonate.
Powdered charcoal.
Brick granules.

The second contained :-

Hexamine.
Charcoal granules.

The third contained :-

Hexamine.
Carbonate of Potassium (small quantity).
Absence of Mercury.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

No. 3 Filter (without bonnet) painted black, illegible marks.
The first layer (external) weighed 70 gr.
" second " " 40 "
" third " " 45 "

The first contained :-
Mercury (basic carbonate).
Carbonate of Potassium.
Powdered charcoal.
Granules of brick.

The second contained :-
Hexamine.
Charcoal granules.

The third contained :-
Mercury (basic carbonate).
Hexamine.
Carbonate of Potassium.
Granules of brick.

No. 4 Mask - c - N - D - 24 - 4 - 1917.

Like No 1.

No. 5 Mask. G. G. 4. - (N-F) - 108 (red) 14/2/1918.

The first layer (external) weighed 65 gr.
" second " " 30 "
" third " " 25 "

The first contained :-
Mercury (basic carbonate).
Carbonate of Potassium.
Charcoal Powder.
Brick granules.

The second contained :-
Hexamine (small quantity).
Charcoal granules.

The third contained :-
Hexamine.
Traces of Carbonate of Potassium.
Brick granules.
(Absence of Mercury).

From analysis reports Nos. 2 and 5, we notice Mercury to be only in the first layer, and not in the first and third, as in No. 3 and in the masks of which we spoke in our No. 103 of the 1st of July and No. 118 of the 24th of July.

Translated.
2/Lt. Evans. R.E.

(Sgd) The President of the Committee.
Prof. A. ANGELI.

Copies to :-
Gas Officers,
1st, 2nd, 3rd, 4th & 5th Aust. Divs.
32nd. Division.
Commandant, Aust. Corps Gas School.

for information.

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No. CA7/48
Date

J Parnell
2/Lieut.
A/Chemical Adviser,
AUSTRALIAN Corps.

H.Q., Aust. Corps.
4-9-18.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

"COPYE S.B./1.O./78.
-1-

AUSTRALIAN WAR MEMORIAL
CLASSIFICATION SUB-CLASS
C371 / 1 / 18

TRANSLATION OF A GERMAN DOCUMENT.
For official use only.
Not to be taken into the front line.

"OFFICIAL INSTRUCTIONS FOR GAS WARFARE
and
GAS DEFENCE".

Part. IV.

Forward Weather Observation Stations.

BERLIN. September 1917.
Printed at War Ministry.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No. CA 5/31
Date 14/8/18

---

1. Stabsoffizier vom Gasdienst beim A.O.K. - St. O.Gas.(Stogas).
(Staff Officer for Gas at Army Headquarters).

2. Gasoffizier (Gas Officer). - G.O.

3. Armeewetterwarte beim A.O.K. - A.W.W.
(Army Meteorological Station).

4. Frontwetterwarte. - Fr.W.W.
(Forward Meteoroligical Station).

5. Gassammeletelle - G.S.S.
(Divisional collecting station for forward weather observations).

6. Gaswetterposten. - Gas. W.P.
(Weather observation post for Gas).

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL
No. G.D 11/40
Date 17.7.18

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

METEOROLIGICAL SERVICES OF THE FORWARD AREAS.

1. The successful employment of gas in warfare is largely dependent on meteoroligical conditions.

The wind is, primarily, a decisive factor. For each type of gas operation there exist maximum and minimum wind-velocities, within which limits satisfactory results may be reckoned upon.

Special attention must be given, with reference to the wind direction, regarding the protection of our troops. Of the other meteoroligical factors, on the whole, considerable importance only attaches to the effects of sunshine, condensation and temperature.

2. As gas operations are thus dependent on meteoroligical conditions, it becomes necessary to advise command posts regarding the latter, in order that the most successful results may be obtained offensively and the safety of our own troops ensured.

This advisory capacity is the duty of the Army Meteoroligical Stations which latter must maintain the closest contact with the Staff officer for Gas at Army Headquarters.

Command posts will not requisition the services of other units occupied with atmospheric observations (i.e., Sound ranging Sections, Sections for calculation of error of the day) as this only leads to confusion. Exceptions are made in the case where special Gas Warfare troops who are provided with their own forward weather observation units, are brought up as responsible operators in the execution of a gas attack. During this period, the forward weather observation stations of such troops, at the same time keeping in continually in close touch with the Army Met. Station, will advise the command post to which the special troops are attached.

Such special units at present consist of :-

Artillery staffs allotted special duties.
Gas units.
Gas minenwerfer Battalions.

Other special units to whom the exceptions likewise apply may be laid down by Army.

3. Meteoroligical guidance is provided by
(a) Ordinary weather forecasts, notingnparticularly such observations as are of importance for offensive gas operations.(Weather forecasts for gas offensive).
(b) Estimate of ground and weather conditions according to circumstances in each case, on the occasion of an impending hostile gas attack, or should we propose to carry out a gas operation.

4. The ordinary weather forecast is based upon (a) Naval Observatory telegrams which combine the reports sent in from home and foreign Observation stations; and (b) upon observations made from stations and balloons of the Army Meteorological Services. Besides the regular and rapid transmission, by wire, of information, the possibility of a speedy exchange of reports, by telegram, between the various Army. Met. Stations, is a preliminary condition for the timely production of a reliable weather forecast.

The forecast is sent out generally twice a day, corresponding to the morning and evening weather conditions. In the case of sudden atmospheric changes a special report will be sent out in addition.

The weather forecast for gas offensive will inform simply and concisely regarding clouds and condensation (i.e., bright night, dull day), wind direction and velocity (i.e, wind N to E, decreasing), and regarding conditions of temperature, as far as these have anyspecial importance(i.e., change from fresh to thaw, very severe cold).

Instead of describing single atmospheric phenomena in numerical terms, the use of which requires meteorological training, such data will be appropiately adduced, after close co-operation with the staff officer far gas at Army, as directly concerns the possibility of the employment of gas. It will, in general, not be expedient, to create a distinction between an impending hostile gas operation and our own possibility of employing gas. The possibility of a cylinder gas operation is only to be indicated, when it exists from the point of view of the enemy, as far as our own cylinder gas attacks, the command post concerned is directly advised by the Forward Weather Observation Stations of the gas unit employed.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

Regarding the possibility of the employment of gas shell, it is expedient to distinguish between near and distant targets, as the gas shelling of distant targets is far less dependent on wind direction than in the case when short range targets are dealt with by gas. Where the line consists of salients and re-entrants, it is advisable especially to distinguish those sectors from which gas shelling of close range enemy targets may be possible, dependent on the wind direction and excluding any element of danger to our own troops. It is not possible to know whether the enemy exercises a corresponding care regarding the endahgering of his own troops when he is gas shelling near targets. Hence the danger incurred by our own troops from an enemy gas shell bombardment is not to be considered in any way dependent on the wind direction.

5. A correct estimate of atmospheric and ground conditions, according to circumstances, in each case, is of great importance during suitable preparations for more considerable gas operations, particularly when the ground possesses abrupt changes of level, on account of the effect on the enemy as well as for the safeguarding of our own troops.

Such an estimate will be formed, as the case may be, from maps and ground reliefs or from direct local observation. On all occasions this estimate must be undertaken with the closest co-operation with the Army Gas Officer, who will supplement the meteorological information of the Army Station by adding his own knowledge of the nature, effect and manipulation of offensive gas weapons. A careful examination and estimate of the nature of the terrain by the Army Station and the Army Gas Officer, when hostile gas attacks appear eminent from circumstances observed, may be of importance with reference to the protection of our own troops, and also regarding the choice of strong ~~main~~ points, positions in reserve, lines of approach and like matters for decision during trench warfare.

6. Between the Army Stations and the front line there exist with all Corps, on main battle fronts if possible with all divisions, Intermediate Meteorological Stations -i.e., Forward Weather Observation Stations. These make their own observations in accordance with instructions received from the Army Stations, co-ordinate the observations sent in from the front, and serve as meteorological information centres.

7. The Forward Weather Observation Stations are under the control of the Army Met. Station, to whose area they are allotted. Should need arise they may be withdrawn to serve with other Armies by the General Commanding the Air Forces.

The number of such Forward Stations allotted to individual Army Met. Stations is therefore variable.

These Forward Stations are attached to other units, by decision of the Army Concerned, for purpose of rationing and disciplinary matters (i.e., to balloon detachments, divisional headquarters staffs and Sound Ranging Sections

8. In all other matters they are under the control of, and function directly with, the Army Met. Station. The Chief of the Army Met. Station is responsible for the correct execution of the duties of the Forward Stations.

As regards the duration of our own gas operations, command posts and the Army Met. Stations will make use of the observations made in the front Sectors.

9. These observations undertaken in the foremost trenches or in their proximity are made by the weather observation posts for gas. The number of these posts depends upon the nature of the ground. Where the line is held in average strength, in general for each Regimental Sector there will exist one post of 3 men strong, of whom one man will always be on duty at the observation post. These posts will observe the velocity and direction of the wind. They will report by telephone to the Collecting Station for Forward Weather Observations (see para.11). The frequency of observation incumbent on these posts will be decided by the Army Gas Officer after Consultation with the Army. Met. Station.

10. Choice of observation positions for these posts in the divisional Sector is the duty of the Div. Gas Officer. The latter will forward a map sector, with the posts marked in, both to the Army Gas Officer and the Army Met. Station; he will also decide the number of men to man the post and will ensurethat, in case of a shortage of observers, there are reserve man at disposal

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

S.B./I.O./103.

TRANSLATIONS OF EXTRACTS FROM AN OFFICIAL GERMAN DOCUMENT DATED FEBRUARY 1918.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No G.D. 11/59
Date 17.7.18

Official Instructions Regarding Gas Warfare.

PART II.

GAS DEFENCE.

The following more important extracts from the February 1918 edition are given, being matter which (a) was not contained in the earlier editions or (b) has undergone alteration, or been added to, in later editions.

Procedure during Gas Attacks.

The possibility of surprise being effected in a gas bombardment with shell or mines - this is particularly great. In projector bombardments warning is frequently given by the concussion (similar to a violent explosion) on discharge and the bright flash.

It will often be possible to recognise hostile preparations for projector as well as for cylinder attacks. Special gas sentry posts are allotted for observation in connection with impending hostile gas attacks and for the communication of alarm. Gas sentries will adjust masks immediately they notice gas. If special means of alarm are lacking, gas sentries will shout " gas" before adjusting masks, when time and circumstances permit. In communicating the alarm telephonically , the sector affected and the approxi)-mate direction of the travel of the cloud are to be given. Within the limits of the area affected, special sentries are to be posted, who will prevent men, who have not received the alarm, from entering a contaminated sector. Wind instruments and light signals are not to be used, nor sirens or horns etc which are set apart for other kinds of alarm. Effective communication of the gas alarm must be ensured under all conditions, even during the noise of battle.

Individual and Collective Protection.

(In italics in 1918 edition). Entrances of dug-outs are to be kept closed during a gas attack by means of doors or protective curtains, as far as this is possible; but the men must not be hampered as regards their readiness for action.

A.m.E. (Atemschl auch mit Einsatz,breathing tube and drums) issued to cyclists & mechanical transport drivers, may also be used for men with scars on the head,unless a special apparatus for the mouth is employed for this purpose.

Reserves of Masks

In each division,etc., a reserve of masks (with appurtenances), amounting to 20 per cent of the ration strength, is to be provided. (Note :- Formerly 10 per cent of Establishment, - see April/17 edition.) Half of this reserve will be kept with the unit and half with Divisional Gas Store. Small reserves at Dressing Stations are advisable.

All units will carry with them constantly the Gas Defence apparatus laid down in their establishment,inclusive of the 10 per cent reserve.

Life of Drum.

..... Drums which have been breathed through for whole days together may under circumstances offer increased breathing resistance

As a precaution, after every hostile cloud gas attack,which may consist of several waves, and, after every surprise attack with projectors(in this case,however,only as regards those men who were in the target sector), further, after every prolonged gas shell bombardment, by means of which considerable persistency and high concentration is aimed at, the used drum is to be exchanged for a new one.

.....(Printed in italics in latest edition Feb/18). it is dangerous and needless, and therefore forbidden, to exchange drums during a gas attack.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

-10. To this end he will see that with the Division there are constantly at disposal men trained in weather observation duties. Men will be set aside from minenwerfer troops, infantry companies and from artillery observers
For training and supervision of the weather observation posts for gas see para 12.

/s.

11. With each Division there is a Collecting Station for Forward Observation It is under the control of the Div. Gas Officer and consists of 2 Corporals or Lance Corporals (see para III Section 2). This collecting Station moves with the Division.
Matters concerning reserve personnel are the duty of the Gas Officer.

12. These Collecting Stations train the weather observation posts for gas and supervise their activity.
The Collecting Station must be continually ready for duty and constantly acquainted with the prevailing wind conditions in their sector of the line, in order to be able to give the necessary information.
Observations made in the front trenches will be sent regularly to the station without delay, and a written account will be kept thereof.
The station will transmit to the Army Met.Station concerned all time-schedule observations, in accordance with detailed instructions of the Army Gas Officer, who will previously consult the Army Station.

13. Provision of the Collecting Station with writing material will be undertaken by Divisions; the Gas Officer at Army will place at disposal the necessary report forms.

14. N.C.O's and men are to be selected for duty with the Collecting Station and Armt Met. Station, who from their education are particularly fitted for work of this kind. The choice falls primarily on men possessing scientific knowledge: Students of Physics, Mathematics and Natural Science, Engineers, Teachers, Technicians.

15. The N.C.O's of the Collecting Station will receive instruction at the Army Met.Station before taking up his duties. Such instruction comprehends the general nature of atmospheric phenomena with particular reference to wind as well to the setting up and manipulation of windgauges.

16. As regards the duties of the Army Gas Officer see "Official Instructions for Gas Warfare" part III., para 10. ∅
"In Gas Warfare, Offensive and Defensive, the Staff Officer for Gas at Army, in closest co-operation with the Army Met. Station, will furnish troops concerned with the necessary guidance in weather observation, and will form them, in every direction into a reliable section of the Gas Services". ∅ (Already translated and circulated to (British) Gas Services, etc.).
The Staff Officer for Gas at Army is sanctioned to satisfy himself regarding the efficiency of the Meteorological Services at the Army Station and with Divisions.

17. The only wind apparatus supplied to Collecting Stations and Weather Observation Posts for Gas is a windvane. These can be turned out provisionally at the Army Pioneer Park, and should react smoothly to any wind direction. They should show the smaller degrees of wind velocity with sufficient exactness.

18. All such experimentorized wind-vanes must be tested regarding indication of wind direction, and adjusted for use in observation of wind velocity. Adjustment is undertaken by the Army Met. Station.

19. Constant care must be taken in handling wind measuring apparatus. It is a permanent issue and will be indented for by the Army Met.Station through the usual channels. This Station will also provide the Forward Weather Observation Stations with meteorological apparatus.

20. Weather Observation Posts for Gas will be provided by their unit with a compass and pocket lamp.

(Signed) T.H.ADAMS. Captain.
for D. G. S.

23-1-18.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

Testing of Drums.

Special valve attaches to the treatment and careful examination of the drum. The examination of the drum applies to its visible metal parts and its breathing resistance.

Resistance tests for all drums, particularly those belonging to troops coming out of the line, and freshly issued, unused and reserve drums, (as well as practice drums) should take place at least once a month and as far as possible in connection with the gas chamber test.

An exception is made in the case of sealed drums, as long as the seal is undamaged. The confidence of men in their drums is increased if they are present during the test.

.....Regarding the withdrawal of drums which are no longer new, owing to long storage, the Chemical Dept. of the War Ministry will issue instructions from time to time giving the oldest permissible date of manufacture for drums in use.

Gas Defence Training.

Mask exercises are to be gradually developed, also their duration increased; they will be generally carried out with battle masks and drums. In the case of reinforcements at home and at Field Recruit Depots behind the FRONT, exercises will be carried out with practice drums and masks. These troops, however, before they take the field, must have executed, at least once, all important exercise with the ordinary mask (range practice, marches, working the gun). Every man belonging to the units mentioned above must be in possession of a tested practice mask and drum, which he will retain as a personal article of kit, as long as he remains with the unit. The number required will be indented for through the usual channels. In the case of troops resting behind the line, practice apparatus will only be lent by the Army; the latter can accumulate a store of 1000 for this purpose.

Prolonged wearing of mask in rest, during movement and over every sort of ground. Keeping eyepieces clear (wiping fluids, anti-dimming discs). "M.Spectables " for those who need to wear them. Breathing exercises during movement and sleep (the facepiece of the mask always tied up).

Shouting of orders etc., to be practiced (especially in the case of the leather mask which muffles sounds more). Working the telephone (especially in the case of leather mask), repairing wires. First aid to wounded (with mask.) Practice for Stretcher Bearers (with mask).

Tying of Facepiece of Mask.

The face-piece of the leather mask must always be "tied up" after the mask has been adjusted; when the mask is taken off, the string used for "tying up" the mask should be loosened, so that the mask can be replaced in the box according to manner laid down, and so that the rapid adjustment of the m ask is not hindered by this string.

Treatment of Weapons, etc.

(Treatment of Weapons, ammunition, etc.), where it can be carried out, boiling with 3 per cent soda solution helps to remove oil and to cleanse the more inaccessible parts, and prevents rusting afterwards due to residue of old oil.

Weapons which have become useless owing to bad rusting are to be handed in as soon as possible to the armourer for repair.

Optical instruments are not to be oiled.

For the protection of medical instruments it is sufficient to oil them with a mineral oil free from ~~xx~~ acid.

G.H.Q., 2nd Echelon.
18-6-18.

(Sgd) T.H.ADAMS. Capt.
for D. G. S.

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No. C.A., 5/69.
Date.....

Gas Officers,
1st, 2nd, 3rd, 4th & 5th Aust. Divisions.
Commandant, Corps Gas School.

Forwarded for your information.

H.Q., Aust. Corps.
4-7-18.

H.Wheatley Lieut.
Chemical Adviser,
AUSTRALIAN Corps.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

(Spec.No.)
(C.L.1393)

4TH AUSTRALIAN DIVISION G.S. SECTION
G.O. 44/46
31 - 8 - 18

C.L.3449

15.8.18.

GERMAN GAS HELMET for
CASES of HEAD WOUNDS, received from D. G. S.

The Helmet is similar in general shape and appearance, (see attached diagram), to the British P.H.Helmet. It is made from two pieces of stout, impermeable, rubber fabric, A, sewn together at the edges, the seams being made gas-tight with dope. The skirt extensions at the bottom corners are made by sewing on two additional triangular pieces of fabric. (Note: the bottom figure of the diagram shews the helmet turned inside out).

The goggles, B, are the same as those used in the ordinary leather mask, and are provided with leather washers, C, both inside and out, to prevent chafing of the fabric. On the inside the goggles are provided with lint pads, E, fitting tightly round the rims to prevent the latter from pressing on the wearer's face.

The adapter, D, into which the drum is screwed, is exactly similar in pattern to that on the ordinary mask, but rather smaller, 2.5 inches in diameter instead of 3.2 inches. In addition, to the inside of this adapter is screwed a cylindrical metal piece, F, perforated on the top and round the sides. This prevents the inlet hole from becoming stopped up by resting on the wearer's chin or face.

To the inside surface of the back of the helmet is sewn a four-sided piece of grey flannellette, to prevent chafing of the fabric by the back of the head in a stretcher-case. The needle-holes are doped.

The helmet can be secured round the neck of the wearer by a piece of grey tape 6½ feet long, sewn at its middle point to the back of the helmet just below the bottom edge of the flannellette.

The helmet is kept in a metal box 9½ x 6½ x 2¼ inches, carried by a cord as shewn on which the lid can slide. The box is marked with a Red Cross and the words "Gasschutzhaube fur Kopfverletzte."

In the inside of the lid are the following "Instructions for Use" (translation) :-

"Screw the drum into the helmet: draw the helmet over the bandaged head and pull down as far as possible. Button the coat over the skirt (halsteil) to close it and then twist the two tapes several times round the neck and tie them. Then press the helmet everywhere to the head and bandage it round so as to leave as small a space as possible inside in front of the face."

The weight of the helmet, without drum - 416 grms.
" " " " box 370 "
" " " " complete outfit 786 "

CENTRAL LABORATORY.
B.E.F. 15 Aug.1918.

(Sd) B. Mouat Jones,
Major,
ASSISTANT DIRECTOR.

G.S.
G.S. Ia.
M.G. R.A.
D.G.M.S.
C.A's., Armies.
Army Gas Schools.
C.A., Cav. Corps, & School.
C.A., L. of C. (11)
C.A's., Corps & Schools.
D.G.Os.
G.O., Tank Corps.
C.S.C., R.E., Armies.
No.1 R.T.C.
No.2 R.T.C.
Capt. Lefebure (2)
1 for Lt. Malvano
Gen. Ozil.
Prof. Kling.
Prof. Lebeau.
M.M. Flandin.
M.M. Paul.
M.M. Mazel.

French Mission for G.Q.G.
Belgian do do
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1 for S.D.4.D.
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P/ T. O.

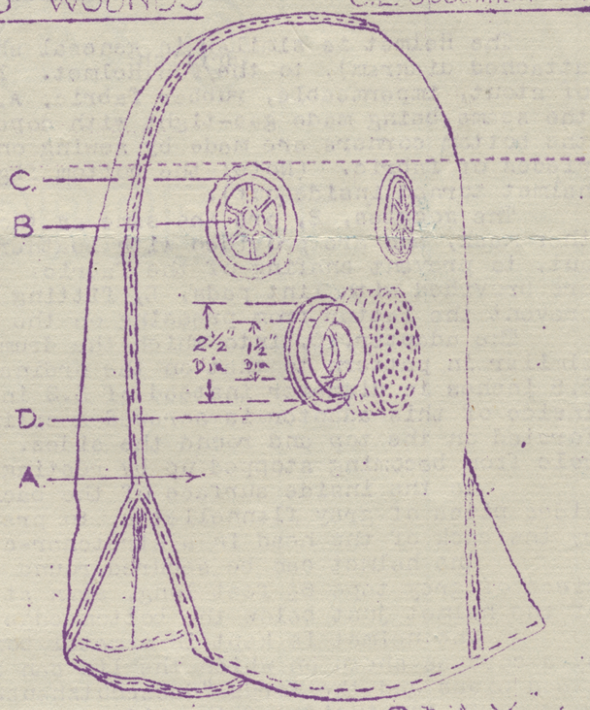
AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

GERMAN GAS HELMET FOR CASES OF HEAD WOUNDS

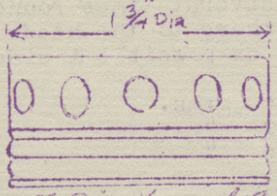
Scale 1/4

C.L. Specimen No 1393

Tin for Gas Helmet

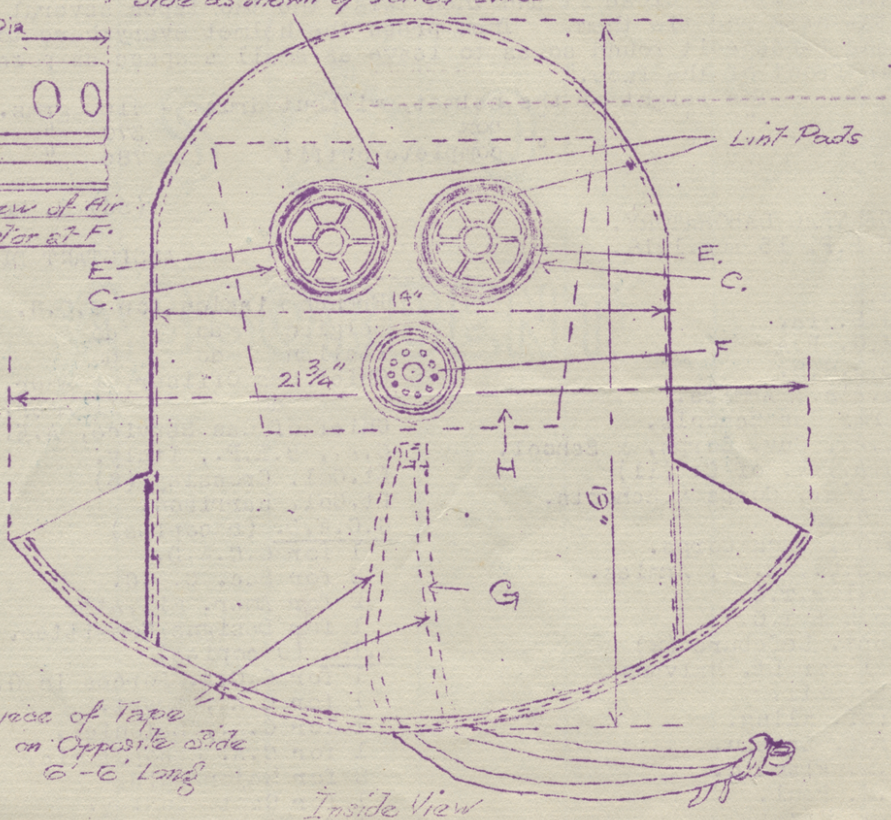


Outside View.



Full Size View of Air Inlet Protector at F.

Piece of Cloth on Opposite Side as shown by Dotted Lines



1 piece of Tape Sewn on Opposite Side E-E Long

Inside View

For information.

DGS. B/275a.

18.8.1918.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No. CA 7/44
Date 27/8/18

E. A. Carpenter
Captain,
for
D. G. S.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

C.L. 3403.
4.8.1918.

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No G.O. 11/41
Date 20.8.18

GERMAN "RECORD CARD" for GAS MASK.

This was found among some German drums received from Chemical Adviser, SECOND ARMY, on 3.8.18.

It resembles a small "tie-on tab" luggage label, 9½ cm x 4 cm., and is printed and filled up thus :-

. . . . . KOMPAGNIE
NAME. . . . . .
. . .Herrbach Albert. . . .
Verpaszt. . . .17-10-17 . .

STINKRAUMPROBEN
1 . . . . . .17-10-17 . .
2 . . . . . .
3 . . . . . .
4 . . . . . .
5 . . . . . .

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No. CA7/41
Date 17/8/18

It is evidently intended to record only the dates on which the mask has been tested, and not the number of hours worn in cloud or shell gas as well.

(Sd) B. Mouat Jones,
Major,
ASSISTANT DIRECTOR.

CENTRAL LABORATORY.
B.E.F.4th Aug.1918.

Copies to G.S.,Ia., D.G.S., C.A.II, C.C.W.D.

G.S.
M.G. R.A.
D.G.M.S.
C.A's., Armies. (2)
C.A., Cav. Corps. (2)
C.A., L. of C. (2)
C.A's., Corps.
D.G.O's.
G.O., Tank Corps.
No.1 R.T.C.
No.2 R.T.C.
C.S.C., R.E., Armies.
Capt. Lefebure (2)
1 for Lt.Malvano.
Gen. Ozil.
Prof. Kling.
Prof. Lebeau.
M.M. Flandin.
M.M. Paul.
M.M. Mazel.
French Mission for G.Q.G.
Belgian do. do.
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Chief G.O., H.Q., 1st Army,A.E.F.
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2 for Major Auld.
1 for Capt. Dudley.
1 for S.D.4.D.
1 for A.IX.

For information.

B/275 a.

8.8.1918.

J. A. Carpenter
Captain,
for D. G. S.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

(Specimen No. C. L.1392.)

C.L. 5443.
13.8.1918.

1ST AUSTRALIAN DIVISIONAL GAS SCHOOL
G.O 11/42
Date 20-8-18

GERMAN GAS-SAMPLING VACUUM BULB.

This was received from D.G.S. on 12.8.1918.

It consists essentially of the bulb of an Incandescent Filament lamp. At the end where the filament is usually sealed in, the bulb is sealed on to a short piece of quill tubing, sealed at the end to a breakable point. Bowteen the point and the bulb is a constriction in the tube made by allowing the walls to sink in. This is probably intended to prevent loss of gas by diffus-ion after the point of the tube has been broken off and the sample taken. This end of the apparatus is protected from damage by a metal cap which screws over the quill tube on to the usual metal contact piece which pushes into and fixes the bulb to the lamp-bracket. Inside the cap were found three small stripes of a plastic material, like a rubber cement, intended probably to seal the point of the tube after breaking. The other end of the bulb still has sealed on to it the quill tube used in evacuating the bulb. This is also drawn out to a point, which was broken when received. The approximate volume of the bulb is 200 cc.

CENTRAL LABORATORY.
B.E.F., 13 Aug.1918.

(Sd) B. Mouat Jones,
Major,
ASSISTANT DIRECTOR.

G.S.
G.S. Ia.
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D.G.M.S.
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Army Gas Schools.
C.A., Cav. Corps.
Cav. Corps Gas School.
C.A., L. of C. (11)
C.A's., Corps.
Corps Gas Schools.
D.G.O's.
G.O., Tank Corps.
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No.2 R.T.C.
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1 for Lt. Malvano.
Gen. Ozil.
Prof. Kling.
Prof, Lebeau.
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1 for C.A., Mesopotamia.
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1 for Capt. Dudley.
1 for S.D.4.D.
1 for A.IX.

For information.

DGS.B/275a.

15.8.1918.

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No. CA 7/42
Date 17/9/18

J. A. Carpenter
Captain, R.E.
for D.G.S.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No. G.O. 11/44
Date 31. 8. 18.

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No. CA 7/47
Date 27/8/18

CHEMICAL ADVISER, FOURTH ARMY.
27/16
25.8.18

(Specimen No:)
(C.L. 1419.)

C.L. 3474
21 . 8 . 18.

GERMAN HORSE RESPIRATOR
(Received from CHEMICAL ADVISER, CAVALRY CORPS).

Attached diagram of the respirator shows the construction.

The main body of the respirator, A, is a bag consisting of two layers of a rather coarsely woven material of paper fibre, separated by six layers of a coarse paper gauze. The upper portion, B, is stiffened by an additional thick layer of paper material inside.

The respirator protects only the nostrils of the horse, as in the British respirator. The horse bites with both upper and lower teeth on the two metal plates, D, which are let into the respirator and secured inside and out by leather plaques. The fit of the respirator round the nose is obtained by a padding of felt-like material of vegetable fibre, covered with a pliable leather covering, C, stitched to the respirator.

The respirator is held in place by the tape and buckle, E, which is attached to the nose-band (poobably by a hook fixed to the latter) and by the two watch-chain fasteners, F, which are fixed to the respirator by metal elastic springs, attached to the cheek straps. By pulling both cords, G, through the buckles, H, the tension is transmitted to the four cords, K, which are threaded through the fixed rings, L, in such a way as to draw the two pairs of these rings towards each other and so cause the padding to bulge inwards and fill up the hollow part of the horse's jaw. (This pulley system is shown enlarged).

The respirator is impregnated with a mixture of Potassium Carbonate and Hexamine.

The whole is enclosed in a box, M, made of two layers of stout paper fibre material, provided with straps of paper-fibre, N, which serve to keep the box closed by means of the buckle and strap, P, and to secure it to some support by the strap and buckle, Q, and the metal watch-chain fastener, O.

The box is stiffened and protected inside by a brown cement-like material of a resinous character.

The bottom of the box was stencilled in white paint E Gr II.

The respirator weighed.....1132 grms.
The Box and straps.....1100 "
The complete outfit.....2232 "

(Sgd) B.MOUAT JONES,
Major,
ASSISTANT DIRECTOR.

CENTRAL LABORATORY,
B.E.F. 21 Aug.1918.

D.G.S., C.A.Cav. Corps.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

G.S.
G.S. Ia.
M.C. R.A.
D.G.M.S.
C.A.'s., Armies.
Army Gas Schools.
C.A., Cav. Corps.
Cav. Corps., Gas Schools.
C.A., L. of C. (11)
C.A.'s., Corps.
Corps Gas Schools.
D.C.O.'s
G.O., Tank Corps.
C.S.O., R.E., Armies.
No. 1 R.T.C.
No. 2 R.T.C.
Capt. Lefebure (2)
1 for Lt. Malvano.
Gen. Ostil.
Prof. Kling.
Prof. Lebeau.
M.M. Flandin.
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French Mission for G.Q.G.
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1 for C.A., Mesopotamia.
2 for Major Auld.
1 for Capt. Dudley.
1 for S.D.4,D.
1 for A.IX.

For information.

J. A. Carpentary

B/275A.
24/8/18.

Captain, R.E.
for D. G. S.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4th AUSTRALIAN DIVISIONAL GAS SCHOOL.
G.O. 4/45
31-8-18.

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No. CA7/45
Date 27/8/18

(Spec. No.)
(C.L.1391)

C.L. 3448
15-8-18.

GERMAN IRRITANT CARTRIDGE
for MASK-TESTING CHAMBER received from D.G.S.

The cartridge consists of a sealed glass vessel A, 8½ cm. long and 1.8 cm. in diameter, containing 20 grms. of Bromketone (D_{15} = 1.412) B. Into the bottom of the tube is sealed a re-entrant glass tube, C, containing a bursting charge of 1 grm. of fine grain black powder, D, ignited by 10 cm. of safety fuze, E, kept in place by a metal ring, F, and Portland cement, G.

The safety fuze is of the usual type, except that it is covered by paper fibre painted white.

The whole can be suspended from a suitable support by a thin iron wire, H.

The cartridge is packed in Kieselguhr in an ordinary incandescent gas mantle box, which is closed by a printed label of instructions, of which a translation follows :-

Irritant cartridge with fuze (REIZKÖRPER mit Zündsh)
Open here ! (R) Open here !
Take out the glass vessel and hang it up. Light the fuze and then retire.
Explosion follows after 10 seconds.

(Sgd.) B.MCUAT JONES,
Major,
ASSISTANT DIRECTOR.

CENTRAL LABORATORY,
B.E.F.,15 Aug.1918.

D.G.S.
Monsieur A.KLING.

G.S.
G.S. Ia.
M.G.,R.A.
D.G.M.S.
C.As. Armies.
Army Gas Schools.
C.A., Cav. Corps.
Cav. Corps Gas Schools.
C.A., L. of C. (11)
C.As. Corps.
Corps Gas Schools.
D.G.Os.
G.O., Tank Corps.
C.S.C.,R.E., Armies.
No. 1 R.T.C.
No. 2 R.T.C.
Capt. Lefebure (2)
1 for Lt. Malvano.
Gen. Ozil.
Prof. Lebeau.
M.M.Flandin.
M.M.Paul.
M.M.Mazel.
French Mission for G.Q.G.
Belgian do do.

Italian Mission for G.Q.G.
Chief of Gas Service, A.E.F.(2)
Chief Gas Officer, 1st American Army.
do II American Corps
C.A., B.E.F.,Italy.
Lt. Col. Crossley (3)
Lt. Col. Harrison.
C.C.W.D.
6 copies:-
1 for C.C.W.D.
2 for Sec. C.W.C.
2 for Amer. Mil. Att.
1 for Designs Committee.
A.IX.
9 Copies:-
1 for C.C.A., Forces in Great Britain.
1 for C.A., Egypt.
1 for C.A.Salonika.
1 for C.A., Mesopotamia.
2 for Major Auld.
1 for Capt. Dudley.
1 for S.D.4.D.
1 for A.IX.

For information.

L. A. Carpentery
Capt., R.E.
for D. G. S.

DGS.B 275a
18-8-18.

P. T. O.

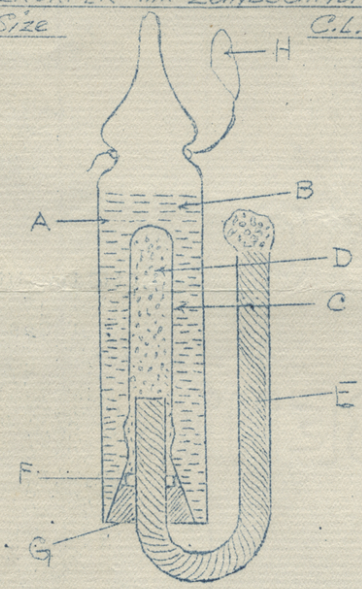
AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

GERMAN IRRITANT CARTRIDGE FOR MASK TESTING CHAMBER.

REIZKÖRPER mit ZÜNDSCHNUR

Scale - Full Size

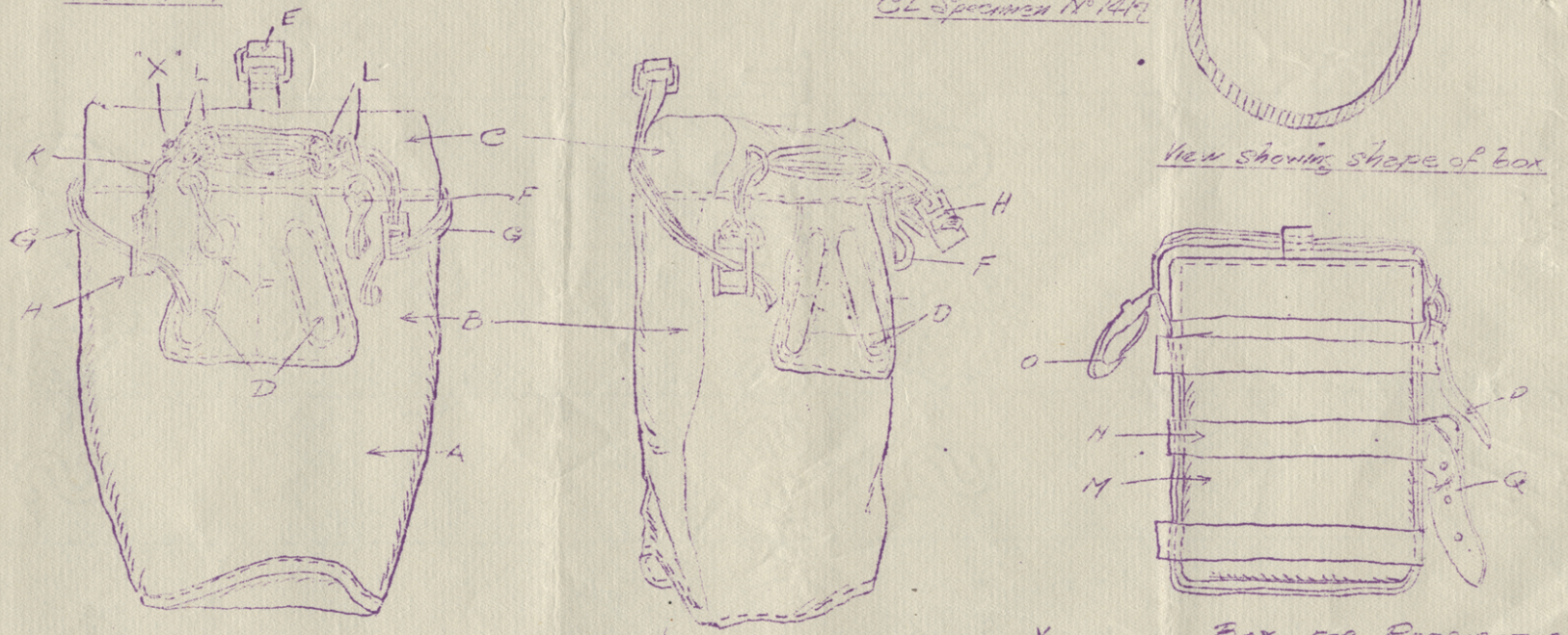
C.L. Specimen No 1391



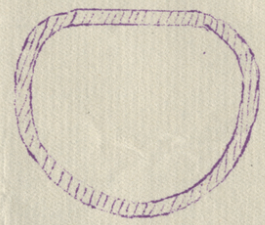
German Respirator for Horses

Scale - 1/4

C.L. Specimen No 1417

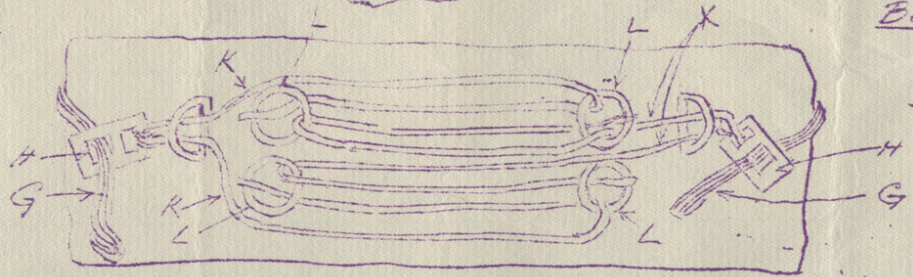


Back View



View showing shape of box

Box for Respirator



Enlarged View of Adjustable Cords at "X"

AUSTRALIAN WAR MEMORIAL
AWM2022.1547.5664

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL
G.O. 11/43
31 · 8 · 18

SECRET

GERMAN RESPIRATOR DRUMS WITH NEW FILLINGS.

In continuation of D.G.S. B/275a of 29.6.18 and 4.7.18.
(Extracts from Central Laboratory Reports 3303, 3317, 3347 & 3390.)

Further tests by the Central Laboratory show that the Drums introduced in April, 1918, have a marked superiority over the old ones against C.G. and P.S., though against chlorine (conc. 1/1%0) there is very little difference.

Tests. Comparing them with the 11.C.11 three layer type introduced in June, 1917, the following numbers have been obtained:-

Filling.	Concentration.	Old Respirator life (mins.)	New Type. life(Mins)
C. G.	1/1,000	92	
	1/500	30	
	1/200	12	29
	1/100	2 - 4	18 - 20 and down to 10
P. S.	1/10,000	39	65
	1/2,000	31	77
	1/500	3	66
	1/500	3	60 (unfinished); others down to 35

The resistance to breathing remains the same, (0.8 to 1.0 inches). The results of the first experiments, reported in C.L. 3303 showed that with N.C. (detonated) these new drums appeared to absorb P.S. selectively. At low concentrations the K.J. is kept out also, but when the concentration is of the order of 1/1000 to 1/2000 the K.J. comes through rapidly. If the concentration is not sufficiently high to penetrate the drum and cause irritation (by the K.J.) the new German drum will hold up longer than the older type as it has a better life in P.S. Even with extensions the same is true, though there is slightly increased protection. Further experiments with N.C., reported in C.L. 3390, showed that in high concentrations, the new drum broke down to K.J. before it was penetrated by P.S., this break to K.J. being the determining factor.

The old drum, which gave a similar protection against K.J. broke down either to K.J. or P.S. or both.

With lower concentrations, both broke down to K.J. only after considerable time.

In the results tabulated below, the concentrations were obtained by detonation of N.C. in a large gas chamber, and the figures refer to the nominal value of the P.S. concentration.

Observers wore well fitting German leather masks and drums in the chamber.

Conc. equivalent in P.S.	No. of minutes various observers were able to remain in chamber.			
	Old Pattern Drum.		New Pattern Drum.	
	Without Ext.	With Ext.	Without Ext.	With Ext.
1 in 2,000			Average 9 (7 drums)	Average 12 (3 drums)
1 in 1,000	Average 8 (2 drums)	Average 10½ (2 drums)	Average 7 (5 drums)	Average 7 (4 drums½
1 in 500	Average 1⅓ (4 drums)	Average 1½ (2 drums)	Average 1 (3 drums)	Average 4⅔ (3 drums)

2 broke at once.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

With 1 in 500 concentration, the old drums mostly broke down to P.S.

The observers all remained at rest for comparative purposes. It was found that even on very slight exertion, much more rapid breaking down occurred, due always to K.J. In the concentrations tried, K.J. always passed through the drum from the start and the breakdown was due to the observer's limitations rather than those of the drum. This was shown by the fact that a drum which had broken down to one observer in a certain time would last just as long again with a fresh observer. This could be repeated indefinitely till the drum broke to P.S.

If however the drum broke down to P.S., it could no longer be worn in N.C. even by fresh observers.

The above experiments deal with concentrations of N.C. that cannot be expected to occur in the field more than momentarily. As regards concentrations that may be considered possible over extended periods, the protection afforded by the German drum and extension must be considered as adequate.

Analysis of Drums.

The new drums are either three layer or two layer, according to the maker, the majority of the later May and June 1918 ones being of the two layer type. In two two-layer drums the particulars are:-

	B. 5 Mai 1918. 11.C.11.	11.C.11. 8 June 1918. Kahlbaum.
First Layer (further from mouth).	52 grams.	68 grams.
Second Layer (nearer mouth).	30 "	28 "

The First Layer shows an analysis of charcoal with ash,

	1.43 %	3.35 %
Containing Iron (as Fe_2O_3).	0.62 %	1.22 %
Zinc (as ZnO).	0.68 %	0.30 %
Alkali Salts.	Traces	0.67 %
Silica and insoluble salts	Nil	0.67 %

The alcoholic extracts (Hexamine) amount to 0.40 % and 0.50 % respectively.

The Second Layer is normal in each case and contains:-

Hexamine.	6.06 %	6.40 %
Potassium carbonate	13.60 %	8.40 %
Zinc Oxide.		1.50 % (high)

The change in the pattern of German Respirator Drums seems to have occurred in April, for up to the present all the March Drums examined have been of the old pattern. Comparing the old and new patterns the old Potassium Carbonate pumice layer is replaced in the new drum by charcoal.

The Hexamine Layer containing Hexamine and Potassium Carbonate has remained substantially the same in constitution, but in the new drum, its amount has been increased by about 25 %.

It is difficult to compare the charcoal layers in the old and new drums, for the charcoal prepared by various firms may vary considerably. In the case of four makers (Kahlbaum, Bayer('B'), Schering ('Sch'), and Riedel) the amounts of Iron Oxide and Zinc Oxide in both the old and new drums are of the same order and thus the increased efficiency of the new drum cannot be put down to these constituents. The drum of one firm (A.G.F.A.) shows far more variation.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

This firm is the only one which has continued to make the three layer drums during May, two of the layers being of charcoal; an A.G.F.A. drum dated 5th June 1918, however, was of the two layer type. The ash from the charcoal is higher in both the new and old pattern boxes than that produced by any of the ot other firms.

The only essential difference between the old and new charcoal is that whereas the former contains a fair amount of soluble Potassium Salts the latter contains practically nil. The difference may be accounted for, however, by the removal of the Pumice-Potassium Carbonate layer.

To sum up, chemical analysis does not seem to indicate any change in manufacture of the charcoal of the old and new drums, and consequently the increased efficiency of the new drum is probably to be attributed to the increased amount of charcoal in the drum.

L. a. Carpenter
Captain, R.E.
for D.G.S.

DGS. B/275a.

18/8/1918.

G.S.
G.S. Ia.
M.G. R.A.
D.G.M.S.
D.C.L.
C.A's., Armies.
Army Gas Schools.
C.A., Cav. Corps.
Cav. Corps Gas School.
C.A., L. of C. (~~11~~) (2)
C.A's., Corps.
Corps Gas School.
D.G.O's.
G.O., Tank Corps.
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No.1 R.T.C.
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M.M. Paul.
M.M. Mazel.
Aust. Gas Services.

French Mission for G.Q.G.
Belgian do. do.
Italian do. do.
Chief of Gas Service, A.E.F. (2)
Chief Gas Officer, I Amer. Army.
do. II Amer. Corps.
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1 for C.A., Salonica.
1 for C.A., Mesopotamia.
2 for Major Auld.
1 for Capt. Dudley.
1 for S.D.4.D.
1 for A.IX.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No. CA7/46
Date 22/8/18

S.B./I.O.10.1.

TRANSLATION of Document taken from Prisoner of 87th R.I.R., 21st. Res. Div.

DIVISIONAL GAS SCHOOL. No. G.O. 11/38.

Not to be taken into the front line.
Divisional Orders concerning Gas.

1. LEATHER MASKS. All combatant troops are to be equipped with leather masks. Indents up to 12/5/18 to division.
At the same time formations. other than combatant troops, will report as to their present supply of rubber masks.

2. METHOD OF CARRYING THE MASK. Recently, in a division on the West Front, a company Commander had to be censured because his company , before moving into the trenches, were wearing both mask and box slung. 80 casualties were caused in a gas shell bombardment, as masks were , in consequence, put on too late.
When a gas alert has been ordered, it is advisable to affect the shortening of the sling of the mask box, not be using the sliding buckle, but by pulling one end of the sling through the eyelet on the box and winding it two or three times round the other end of the sling.

3. PRACTICE WITH MASK. Practices must be especially carried out in the following :- Rapid and careful adjustment of the mask, while holding the breath; efforts should be directed to reducing the time of adjustment to 2 seconds; adjustment of the mask in separate movements is to be avoided; the steel helmet is to be knocked forward on to the ground and not backwards over the head on to the neck ; adjustment of the mask in the lying position and during movement. When the mask is worn during firing practice, aim should be shortened as the foresight appears somewhat larger through the eyepieces.

4. TYING ROUND OF THE FACE-PIECE. The face-piece of the mask must be tied round every time the mask is put on, even during practice, the only exception being in the case of tests in the gas chamber. Besides the considerable reduction in breathing resistance affected, this process of tying also ensures that the upper end of the string and the mask sling do not get caught between the rim of the mask and the forehead, an occurrence which is generally not noticed even when the rim of the mask has been smoothed down according to instructions. The string for tying round the face-piece is to be loosened when the mask is taken off. Care must be taken not to employ too thin a string for tying round the facepiece

5. Attached memorandum sheet for mask inspection.

6. In gas chamber tests only the prescribed amount of irritant substance is to be used. (One lachrymatory cartridge for 40 men in a room of 50 cubic metres content). Too liberal a use of the irritant substance will use up the charcoal layer of the drum.

7. When it is not possible, in the case of men proceeding on leave, to hand masks into the transport section, owing to the latter being in the danger zone (20 k.m. behind the front), it is permissible for men to take their masks with them to Germany.

8. The newly issued anti-gas sheeting of paper material is liable to damage from exposure to wet, and must therefore be protected from rain.

9. When oxygen cylinders are handed in, they must be accompanied by the valve cap in order to avoid damage to the screw thread and to keep the valve opening free from dirt.

10. Rations infected with Yellow Cross must not be consumed.

(Sgd) BRIESE.

Distributed down to :-
Companies, Batteries and independent formations.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

EXTRACTS FROM FURTHER ORDERS OF THE 21ST GERMAN RESERVE DIV.
Concerning the duties of GAS N.C.O'S.

Instructions in the clearing of gas from trenches and dug-outs :-

(a). Trenches. Removal of gas by the use of fans and by waving cloths.

(b). Dug-Outs. Ventilation by means of stoves, open fires, fans, hand-blowers; removal of gas by the use of deodorising cartridges (to be obtained from the Gas N.C.O.). No.1 Cartridge for Chlorine, No II Cartridge for Phosgene. The Cartridges are fired off at 5 minute intervals and suffice for a space of 20 cub.metres content. A dug-out may be entered without the mask one minute after firing No.II Cartridge; a moist cloth will protect against any residual vapour. Removal of gas by deodorising sprayers.

SALVAGE OF GAS-DEFENCE MATERIAL.

Salvage rewards ;	Rubber mask	M.0.20.
	Leather "	" 0.50.
	Mask with box and canvas carrier	" 0.25.

Enemy gas defence apparatus must likewise be salved. In the case of enemy "blinds", known or unknown types of gas hand grenades, T.M.Bombs, gas shell, a reward of 10 - 20 m. is offered

MEMORANDUM SHEET FOR MASK INSPECTION.

1. Is your mask perfect in all its parts ?

2. Is your mask without holes, tears, or faults in the varnish ?

3. Are the head-bands tightly sewn to the tape of the forehead bands ?

4. Does the drum in your mask bear the sign 11-C-11 (it does not matter whether singly or combined with other marks), and the date 1-3-17, or later? 1-3-17

5. Is the drum tightly screwed into the mask.?

6. Have you been through the gas chamber in the last four weeks ?

If you are failing in any one of the above points, do not wait until the next inspection or next gas chamber test, but report it immediately to your superior. Do not let things remain at this stage but, after reporting, or until you have obtained a new mask or a new drum.

Can you put on your mask in 2 seconds? Is your mask correctly packed away ? If not, practice until you can do this.

Only then may you regard yourself as safe from being surprised by gas!

* (In italics).

Note.- Underlined as above in original.

(Sgd) T.H.ADAMS. Capt.
for
Director of Gas Services.

5-6-18.

Gas Officers,
1st,2nd,3rd,4th & 5th Aust. Divisions.

For information.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No. CA 5/66
Date

Captain.
Chemical Adviser,
AUSTRALIAN Corps.

H.Q., AUST. Corps.
8th June, 1918.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

Director of Gas Services. H.H.91/B.
G.H.Q., 2nd. Echelon.

AUSTRALIAN GAS SECTION
C371/1/18
CLASSIFICATION SUB-SECTION

1. The following items of varied information have been obtained by examination of captured territory and prisoners.

2. Chloride of lime. There appears to have been an extensive issue of this to individual men, in small tins for the prevention of blistering when splashed with gas liquid. Of about 500 prisoners about 20 per cent stated they had been issued with it and that it was to rub on the hands when splashed. Only a small proportion arrived with it at the Cage - about a matchboxfull or rather less is the average quantity. Discipline on the subject is not yet good, as while a large number stated they had left it in the trenches, an equal number said they had lost it or thrown it away long ago.

3. Storage of Gas Ammunition. Shell (Yellow, Blue & Green) are stored both upright and lying down. In some cases Yellow Cross has been found stacked on planks over pits, but this procedure is by no means invariably carried out.

4. Double Yellow Cross. At least 50 per cent of the total Yellow Cross found is Double Yellow Cross.

5. Yellow Cross I. Only one sample of this has as yet been found and that was discovered by C.A., IV Corps. The sample is being sent to Central Laboratory.

6. Protection of Yellow Cross from Sunlight. No definite protection of Yellow Cross from Sunlight appears to be arranged for. In many cases, small dumps of Yellow Cross in shell holes have been found covered with sheets of corrugated iron. This, however, will probably increase the heating effect of the sun and is only used for cover from view. Large dumps are frequently covered with camouflage material but the same procedure is also applied in the case of other types of gas shell and H.E.

7. Time Fuzes for Gas Shell. One sample of time fuzed Blue Cross has been obtained by C.A., IV Corps, and is being sent to Central Laboratory. No other gas shell have been found with time fuze.

8. No samples of the following have been found :-
21 cm. Blue Cross.
Blue Cross T.M.Bombs.
Green Cross 3 (Marked as such).
Double Yellow Cross less calibre than 15 cm.
White Cross.

1ST AUSTRALIAN DIVISIONAL GAS SCHOOL
G.O. 11/50
Date 16.9.18

(Sgd) D.R.EDWARDS KERR.
Major, R.E.,
Chemical Adviser.

H.Q., Third Army.
8th Sept. 1918.

Copies to :-
Gas Officers,
1st, 2nd, 3rd, 4th & 5th Aust. Divs.
Commandant, Corps Gas School.

for information.

C.A., 43/393.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No.
Date.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4TH AUSTRALIAN DIVISIONAL G.S. SECTION
G.O.11/48
15.9.18

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No.
Date.

(Spec.No.)
(C.L.1492)

C.L.3527
3.8.1918

GERMAN DOG RESPIRATOR.

Received from Ig. Ref. Ig 675 of 28.8.18.

A sketch of the respirator is shown over-page.

It is made of the same material as the Horse Respirator, i.e. paper fibre and layers of paper gauze, impregnated with hexamine-potassium carbonate. The neck-portion and ear-pieces are lined with rabbit fur. The goggles are of celluloid with apparently no anti-dimming properties. The mask is fastened round the neck by two straps and buckles. The straps can be threaded through different parts of a tape sewn to the nape of the neck-piece so as to fit dogs of varying sizes. There is a tape and watch-chain fastening for attachment to a dog-chain.

The whole weighs 904 grams.(slightly under 2 lbs).

(Sd) B. Mouat Jones,
Major,
ASSISTANT DIRECTOR.

CENTRAL LABORATORY.
B.E.F.,3 Sept.1918.

D.G.S., G.S., Ig. G.H.Q.

G. S.
G.S.Ia.
C.A's., Armies.
Army Gas Schools.
C.A., Cav. Corps.
Cav. Corps Gas School.
C.A., L. of C. (11)
C.A's., Corps.
Corps Gas Schools.
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C.A., B.E.F., Italy.
Lt.Col Crossley. (3)
Lt.Col.Harrison
C.C.W.D. (6)
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1 for C.A., Salonica.
1 for C.A., Mesopotamia.
2 for Major Auld.
1 for Capt.Dudley.
1 for S.D.4.D.
1 for A.IX.

For information.

J. a. Carpenter
Captain,
Staff Captain,
for D.G.S.

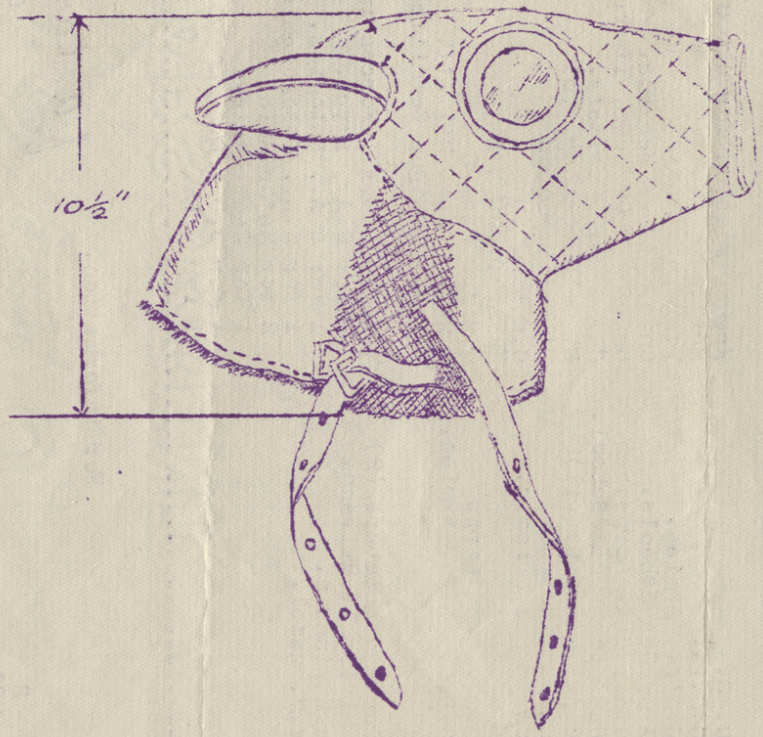
B
278a
9.9.1918.

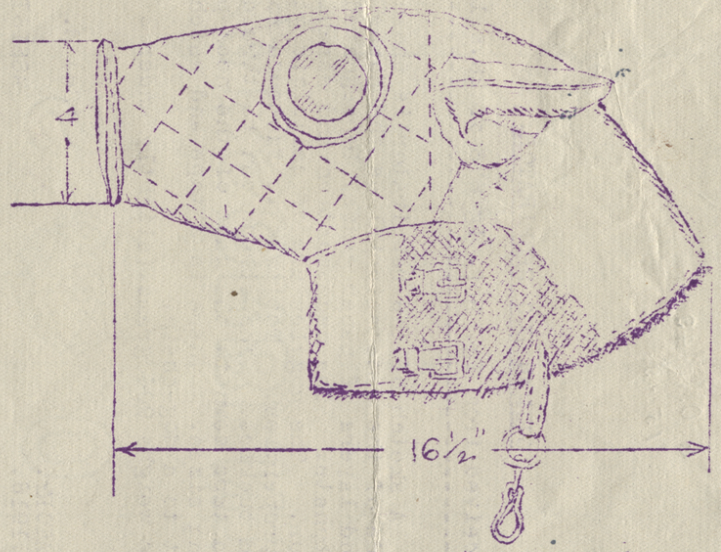
AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

GERMAN GAS HELMET FOR DOGS

Scale 1/4

C.L. Specimen No 1492





AUSTRALIAN WAR MEMORIAL
AWM2022.1547.5664

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
G.O. 11/462
11.9.18.

CHEMICAL ADVISER AUSTRALIAN CORPS.
CA 7/50
8/9/18

AUSTRALIAN WAR RECORDS SECTION
C311 | 1 | 18
CLASSIFICATION

(Spec.No.)
(C.L.1393)

C.L.3449.
3.9.1918.

GERMAN GAS HELMET for CASES of HEAD WOUNDS.

Reference C.L.Report 3449 of 15.8.18.
The material of the helmet described as rubber fabric has been further examined by Lieut.F.D.WHITE. In place of rubber a rubber-substitute consisting essentially of nitrated cellulose and castor oil is used to make the fabric impermeable. There are two thicknesses of this treated fabric.

(Sd) B. Mouat Jones,
Major
ASSISTANT DIRECTOR.

CENTRAL LABORATORY.
B.E.F.,3 Sept.1918.

G.S.
G.S. Ia.
M.G. R.A.
D.G.M.S.
C.A's., Armies.
Army Gas Schools.
C.A.Cav.Corp & School.
C.A., L. of C. (11)
C.A's., Corps & Schools.
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French Mission for G.Q.G.
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1 for C.A., Mesopotamia.
2 for Major Auld.
1 for Capt. Dudley.
1 for A.IX. 1 for S.D.4.D.

For information, in continuation of DGS/B/275a dated 18.8.1918.

J. A. Carpenter
Captain,
Staff Captain,
for D.G.S.

DGS.B/275a.

5.9.1918.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

4TH AUSTRALIAN DIVISIONAL GAS SCHOOL.
No G.O. 11/51
Date 22.9.18

CHEMICAL ADVISER, AUSTRALIAN CORPS.
No. CA40/25
Date.....

GERMAN GAS WARNING

The following printed notice has been found recently in a captured German dugout:-

---

(TRANSLATION)

MAKE ABSOLUTELY CERTAIN.

(1). Is your mask as it should be in all its parts.?

(2). Can you find a hole, tear or leak in it.?

(3). Is the elastic connection between the head and forehead tapes securely sown.?

(4). On the drum of your mask, is there the mark 11-C-11.? (it makes no difference whether it is alone or with other marks.) Is the date of manufacture shown as either 1.6.18 or later.?

(5). Is the drum tightly screwed into the mask.?

(6). Have you been through the gas chamber during the last 4 weeks.?

If any of the above things are not in order, do not wait until the next inspection or the next gas chamber test. Report at once to your superior officer. Do not under any circumstances leave it at that. See to it that the fault is put right or that you get a fresh mask or a fresh drum, as the case may be.

Can you adjust your mask inside 2 seconds.?
If not, practise until you can.

ONLY THEN WILL YOU BE SAFE FROM SURPRISE BY GAS.

Copies to:-

G.S. Ia.
D.G.M.S.
C.A's., Armies.
Army Gas Schools.
C.A., Cav. Corps.
Cav. Corps, Gas School.
C.A., L. of C. (2)
C.A's., Corps.
Corps Gas Schools.
D.G.O's.
G.O., Tank Corps.
No. 1 R.T.C. (A.G.I).
No. 2 R.T.C. (A.G.I).

B
505
17.9.18.

f.a. Carpenter
Captain,
Staff Captain,
for D. G. S.

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

D.A.D.O.
2nd Aust Divn:
for information
and retention.
W.H. Barclay Capt
C.A. Aust Corps

27/9/18.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No. S.101
Date.

4th AUSTRALIAN DIVISIONAL GAS SCHOOL
G.O. 11/53
29.9.18

Gas Officer
12th A.I. Bde

For your information & return, please.

A.L. Rotherham CAPT.
DIVISIONAL GAS OFFICER
4TH AUSTRALIAN DIVISION

29/9/18

4th Div Gas Officer

Noted

Victor Paterson Lt
Gas Officer
12th A.I. Bde

29/9/18

Dimming material, forwarded by Gas officer 4th Aust. Division, for transmission to Central Laboratory for examination.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No. S/101
Date. 23/9/18

W.H. Barclay Capt
C.A.
Aust Corps

Sodium Silicate.
a saponifiable fat (probably Tallow).
a mineral oil. (very small quantity).
It was found that the Dann value as the British S.B.K. anti dimming Composition

Lt. Gen. Thomas Williams
Inspr.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No. S.101
Date. 27/9/18
26.9.18.

CHEMICAL ADVISER
No. 2417
26 SEP 1918
FOURTH ARMY

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

D.A.D.O.
2nd Aust Divn:
Examination

S/101

CHEMICAL ADVISER
No. 24/7
25 SEP 1918
FOURTH ARMY

C.A.
4th Army

Enclosed is sample of German Anti-Dimming material, forwarded by Gas officer 4th Aust. Division, for transmission to Central Laboratory for examination.

CHEMICAL ADVISER,
AUSTRALIAN CORPS.
No. S/101
Date 23/9/18

W.H. Buckley Capt
CA
Aust Corps

C.A. Australian Corps.

This sample appears to be identical with a previous one examined by Central Laboratory on Aug 16th 1918, and consisting of:-

Sodium Soap (probably from Tallow).

Sodium Silicate.

a Saponifiable fat (probably Tallow).

a mineral oil. (very small quantity).

It was found to have the same value as the British S.D.K. Anti Dimming Composition

CHEMICAL ADVISER
AUSTRALIAN CORPS.
No. S/101
Date 27/9/18

Lieut. Thomas Williams
Major.

26.9.18.

CHEMICAL ADVISER
No. 24/7
26 SEP 1918
FOURTH ARMY

AUSTRALIAN WAR MEMORIAL AWM2022.1547.5664

COPY. S.B./I.O./125.

TRANSLATION OF A GERMAN DOCUMENT. 24/1/18

Gas Officer, In The Field.

Long Range Group. 6/8/18.

1. In accordance with 225th. Inf.Div.G.O. No. 1240, all old rubber breathing tubes with fixed mouth-piece, which will not screw into the mask, are to be exchanged at the Anti-Gas Depot at FRAMERVILLE, N. of ROSIERES. Batteries will report by the 13.8.18. that all Selbstretter (Mine Rescue Sets) are fitted with new tubes, which render possible the combination of the Selbstretter and Gas-mask.

(Gas Officer to report at once).

2. In the case of men with shallow breathing, "Flange Mouth pieces" are provided at the Divisional Anti-Gas Depot. Indent to Gas Officer Batteries and Amm.columns will report to the officer by the 13.8.18., concerning the trial use of these mouth-pieces.

(Sgd) WISSMANN.

Lt. of Res. & Gas Officer.

(Sgd) T.H.ADAMS. Capt.
for D. C. S.

Gas Officers,
1st. Aust. Division.
2nd. " "
3rd. " "
4th. " "
5th. " "
Commandant, Corps Gas School.

For your information.

H.Q., Aust. Corps.
4th October.1918.

W.B.Barclay Captain.
Chemical Adviser,
AUSTRALIAN Corps.

AUSTRALIAN DIVISIONAL GAS SCHOOL. No. G.O 11/52 Date 7.10.18

CHEMICAL ADVISER, AUSTRALIAN CORPS. C.A., 5/95. No. Date

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CHEMICAL ADVISER'S SCHOOL
CA 11/54
1-12-18

CA 7/1/1/18
TECHNICAL SECTION
CLASSIFICATION SUB-SECTION

CA/6

DRUMS OF GERMAN RESPIRATORS.

-o-o-o-o-o-o-o-o-o-o-o-o-o-o-

Dec. 1915. Contents of drum - Potassium Carbonate on broken pumice.
Feb. 1916. Drums were examined which contained Hexamine, Charcoal and Potassium Carbonate arranged in three layers as follows:-

(a) Top layer Hexamine on Pumice.
(b) Middle layer Charcoal.
(c) Bottom " Pot. Carbonate on pumice.

The layers were seperated by iron wire gauze and also fabric gauzes.
June 10th 1916. "Leichtatmer" drums were introduced.
Sept./16. The next alteration noticed was the omission of the fabric separators.
Dec./16. Construction of drums was the same with the exception of the granules of K_2CO_3 in the bottom layer. These were now made larger.
Mar./17. Towards the middle of March was noticed an increase in the amount of Charcoal, i.e. an increase of middle layer, and corresponding decrease of K_2CO_3 in bottom layer, so that layers (b) and (c) were now about equal while a layer was about half of each of these. No further development noticed during 1917.
Jan/18. Specially prepared gauzes of string used in place of the iron wire gauze formerly used.
April 14/18. A great change at this period took place, a second layer of charcoal taking the place of the K_2CO_3 layer, so that, there were two layers of charcoal, occupying approximately two thirds of the volume available. The K_2CO_3 was introduced into the top layer (a), which consisted of Hexamine and K_2CO_3 on pumice. The increased efficiency of the new filling is probably intirely due to the increase in the amount of charcoal; at the same time it was noticed from the examination of certain drums that a small percentage of ZnO had been introduced along with the charcoal. This would effect an increase of protection against phosgene also.

About the same period the use of the "Schnapdeckel" or filter extension was first noticed in use with enemy drums. This extension is fitted on to the base of the drum, by means of three spring clips on the inner surface of the rim of the perforated cap. The essential feature of the extension is the disc of the filter paper in contact with, on its upper surface a smaller disc of fine iron wire or paper gauze, apparently to serve as extra protection against K.J. which cannot penetrate the filter if in low concentration.

The latest type of drum has only two layers, i.e. the string gauze between the two layers of Charcoal is omitted, and at the same time it has often been noticed that the entension was not used. So that the contents of drum now are:-

(a) Top layer - Hexamine and K_2CO_3 1/3
(b) lower " Charcoal - 2/3

The Resistance to breathing of the German drum is very low averaging perhaps from 8" to 9" of water. With extension filter the resistance is in the region of 1.5", which of course is low in comparison with our N.C. container, but of course that is a vital necessity owing to the drawback of lack of mouthpiece and valves in the German S.B.R.

All German drums of new type appear to be marked 11-c-11 which probably means that the drum is only one of the "easy breathing" type - or "leichtatmer."

CHEMICAL ADVISER, AUSTRALIAN CORPS.
CA 7/54
30/4/18

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WAR OF 1914-18
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