

A close-up photograph of a hand holding a small, dark, multi-pronged object, possibly a bullet fragment or a piece of shrapnel. The hand is positioned on the right side of the frame, with the fingers gripping the object. The background is a light, neutral color, and the overall lighting is soft. On the left side of the image, there is a blurred green background with some vertical lines, suggesting a medical or laboratory setting.

Weapons that leave traces, Gaza 2001  
*Shifa Hospital*

In the second week of July 2006 we were reached by a question posed by Doctors from Lebanon and Gaza: “we never saw before wounds and corpses like those that arrive in the ward ...what are these new weapons that cause such wounding and horrible deaths? Help us to find out what to do for the people. What is new in new weapons?”

They were astonished, regardless of their long familiarity with war casualties.

2006  
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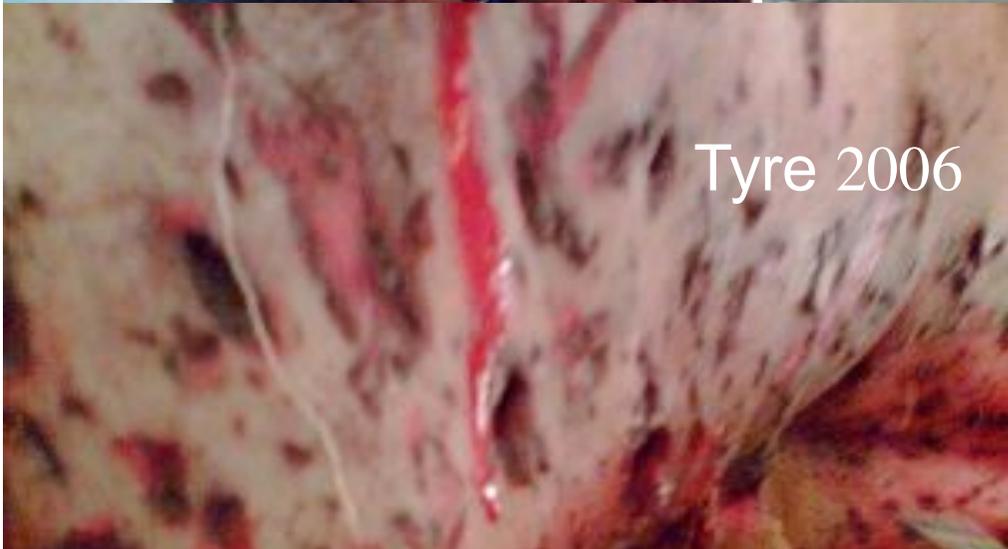


أينما س البورصة



<--Gaza 2006-->

I  
V



Tyre 2006





**New weapons working group is working from the “side of the victims”, or the “other side of the weapons”, not to count casualties but to learn about the causing agents and in order to prevent further deaths and to know how to cure and protect survivors by medical and predictive studies.**

**This implies actions at different levels and at different times and for different length of time and multiple professional actors and methodologies:**

**information collection and information verification, survey, analysis and elaboration of data, sharing of all the tasks with concerned local partners, providing the results to tribunals or for other initiatives**

We had 3 missions in Lebanon, and 5 to Gaza, the first in October 2006 and one is underway while I talk here.

All the information I bring to you, including photographic documentation, is released with the permission to disclose it, and was verified by us

**There are “new weapons” in the field, but also new development and unrestricted use of known weapons.**

## **Weapons utilized in July-August 2006 war**

*Fae (fuel air explosive) or thermobaric- **Saida and Tyre** -Newweapons and Doctor reports*

*DIME- Dens Inert Metal Explosive- **Gaza**-rainews24/Univ. of Ferrara [www.rainews24.it](http://www.rainews24.it), and **Tyre***

*DU- Kobeissi report **Khiam***

*Enriched U- Busby and Williams reports – **Khiam and south Beirut***

*Cluster bombs- **south Lebanon***

## **Weapons also reported on the ground in July-August 2006 war**

White phosphorus –**Beirut** port (Israeli recognized its use in Lebanon) and **Gaza** Doctors reports

Microwaves- BBC on line news, images from **south Lebanon**

Buster bombs GBU28 - **Lebanon** envoy from USA was documented

Vox populi, doctors and USA de-secreted audits and documents have reported the use of some of these weapons in other wars and occupations but the field was always almost inaccessible for independent investigations.

**Why investigation to obtain material evidences could be attempted only now?**

Because it is the first time that the professionals, the associations and the people on the victims side denounced the facts in real time and worked to collect information on the spot and because there has been a partial accessibility to the war theater.

This made possible collaboration we sent protocols for treatment and precaution, asked to preserve materials and proposed surveys to assess the risk they made available for release, with the aim of obtaining justice, their reports.

## **Institutional lack of responses**

Unfortunately from Lebanon we recovered bioptic samples only from 4 out of 8 victims of one bombing. Doctors that had preserved many more samples told us that the Government asked these to have them analyzed by the World health organization. No results or information was ever released afterwards.

We asked and did not have support from Lebanese institutions, and the Ministry of Health refused to see us.

Dr.Cham of Complex du Sud Hospital, Saida had denounced since July the finding of strange features in the victims he was receiving in the Hospital, through communications to the Doctors Order in Lebanon and to the Society of Belgian Surgeons. Dr.Mansour wrote to both the commissioner of the European Union for Foreign Affaires Javier Solana, and the United Nations Secretary general Kofi Anan, obtaining no answer up to March 2007.No answers arrived or investigations were undertook.

The conclusions of the special commission of the Human Rights of the UN set up for the evaluation of the crimes of which Israel was accused in the war to Lebanon and attacks on Gaza in July-August 2006, gave ground for criticism and were unsatisfactory to the victims.

Helped by the blurred confines of the legislation and the uncertain status with respect to legality/illegality of the contested weapons, the **recognition by the IDF of the use of fuel air weapons ONLY as carpet de-miners, of white phosphorus ONLY against/over military installations, of 'intelligent' small bombs/missiles ONLY with the aim to reduce casualties, was taken as good for the records.** Instead, for us it raises the suspicion of a convenient cover up for the documented presence in the battle fields of these illegal weapons and of a way for making acceptable eventual "mistakes or extension in modalities of their usage" that would eventually justify reiteration of their use.

In May 2007, we have **challenged the HR Council** on the conclusions of their special commission on the July war on Lebanon and Palestine and asked to reopen investigations **on the ground of the unequal consideration given by the commission to the reports from Doctors and civil society and UNIFIL with respect to IDF sources and to the lack of fact finding and the poor methodology.**

**We report here evidences of the use of new weapons tested by Israel in the field in Lebanon and Gaza during the July attacks and of already known weapons utilized illegally. Specifically we**

**-illustrate attacks on civilians**

**-document the use of thermobaric weapon on a civil structure and in open air**

**-prove the use of weapons that do not leave traces in the body**

**-show circumstantial evidences of the use of LCD (low collateral damage) weapons**

# I - USE OF THERMOBARIC (FUEL AIR) WEAPON ON CIVIL STRUCTURE AND USE OF WEAPON WITH UNCONTROLLED RANGE OF ACTION

**Saida, July 17, 2006**

*Circumstances:* A van with 12 civilians was entering the Rmayleih bridge, near Saida. In an air strike 12 civilians (3 children and 1 woman) were killed. Eight of the 12 victims were transferred to the Complexe Hospital du Sud.

*"One might think they were burnt, but they are not, only their color is dark, they're inflated, and they have a terrible smell. The hair is not burnt nor the bodies wounded", Dr. Bashir Cham told to the Al Safir journalist H. Salman on July 17.*

*The director of the medical center, Dr. Ali Mansour, said that due to the strong smell of the corpses, he couldn't breathe properly for at least 12 hours after these were handled.*

***Clinical report:*** Common features of all the victim's bodies were lack of main wounds, with the exception of the woman who had a main external lesion in the cranial area possibly resulting from the impact with some hard object or the ground when falling.

All victims had serious internal edema and hemorrhage with loss of blood from all body orifices (here visible from nose, ears, eyes).

All the bodies were covered of dark powder so to look black, but were not burnt.

Clothes and hair were not damaged or burnt.

The bodies had a strong smell

*Rmayleih bridge, near  
Saida, on the 17th of  
July, 2006*



## Rmayleih bridge, July 17



*ref. Files Dr. B.Cham, Surgeon at Complexe Hospital du Sud, Saida*

## Rmayleih bridge, July 17



- Sample 9a and 9b-Histology



Dr. Cham, *Centre hospitalier du Sud, Saida*

Information confirmed by Dr. Bashir Cham the Surgeon and Dr. Ali Mansour director of Emergency that received the corpses at the Complexe Hospital du Sud in November 2006. Dr. Cham also provided the pictures taken by himself of some of the victims.

Bioptic samples were taken from the skin of eight of these corpses. These were obtained on July 17 by Dr. M.Galsenapp and S.Eckart, and preserved in formalin.

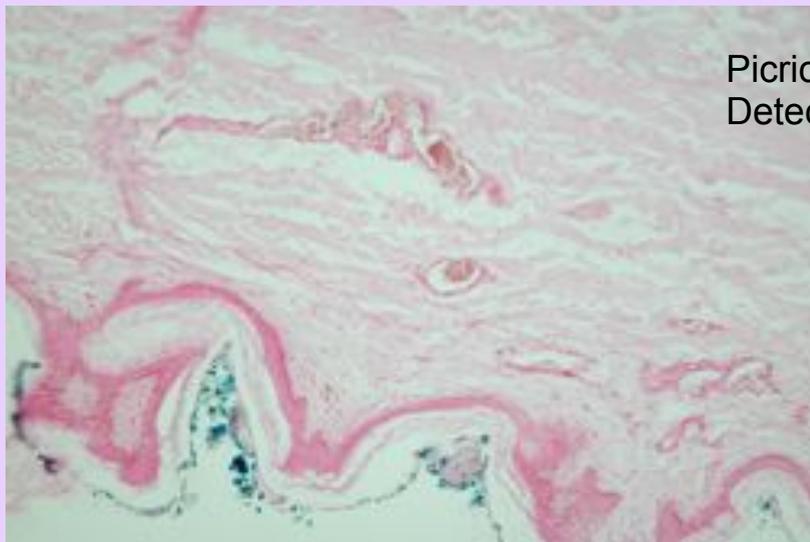
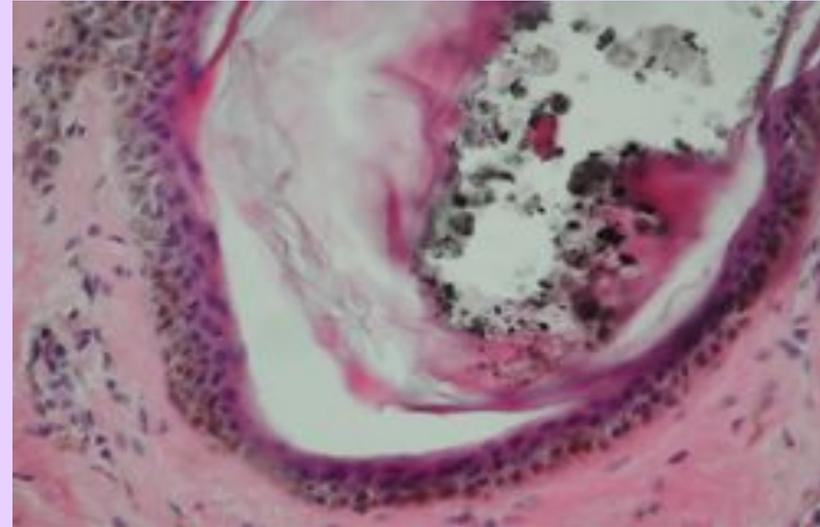
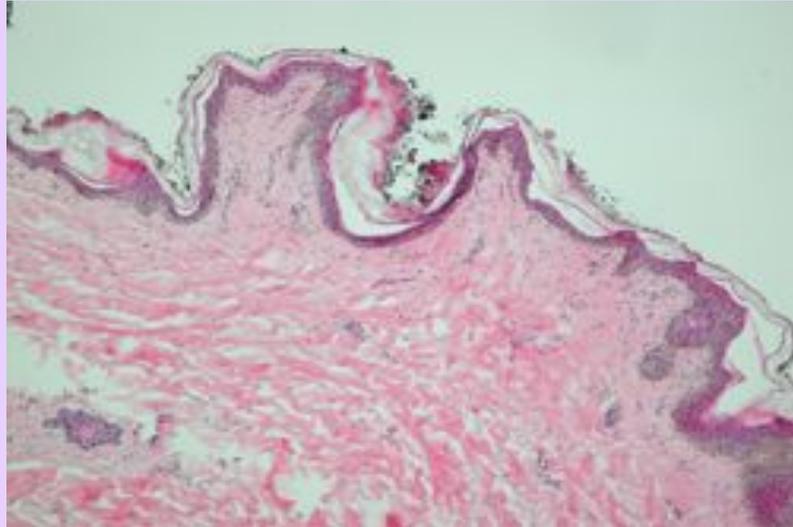
Eigh of them were analyzed for histology in a forensic Laboratory in Germany and four of them also in an University research laboratory in Genoa, Italy.

Two samples were analyzed for metal content by SEM in an University Laboratory in Ferrara, Italy. As control the skin of two healthy Italian patients was analyzed. Respectively 43 scansions and 26 scansions were taken.

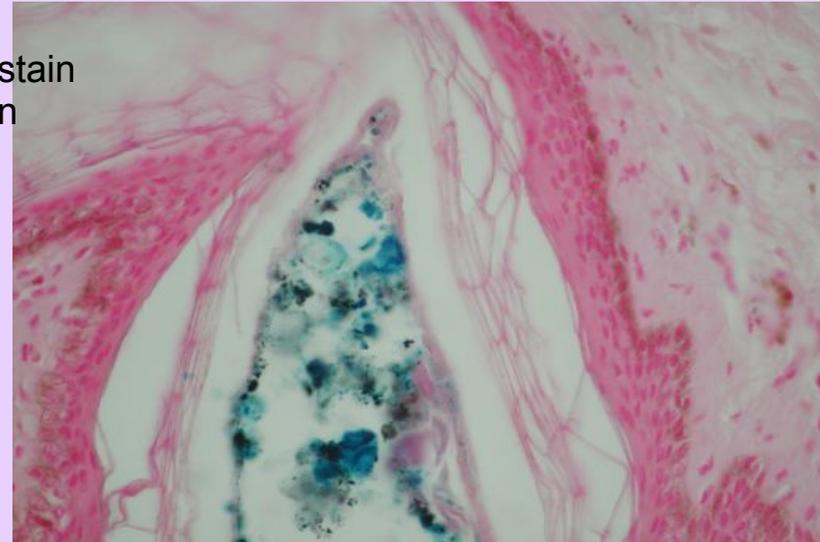
**TOP Sample 16a-EE, left 10x, right 20x**

**BOTTOM Sample 14a, Picric acid stain, left 10x, right 40x**

**Samples stained at the Forensic institute of Frankfurt from Dr.Bratke**



Picric acid stain  
Detects Iron



Univ. Prof. Dr. med. Hansjürgen Bratzke

Direktor des Instituts für Forensische Medizin  
im Klinikum der Johann Wolfgang Goethe-Universität  
Frankfurt am Main

Rechtsmedizin Frankfurt – Kennedyallee 104 – 60596 Frankfurt

Südwestrundfunk SWR  
Herrn Thomas Reutter  
FS-Inland  
Am Fort Gonsenheim 139

55122 Mainz

60596 Frankfurt am Main  
Kennedyallee 104  
Telefon: 6301 - 7562  
Telefax: 6301 - 83461  
bratzke@em.uni-frankfurt.de  
Steuer-Nr.: 01280762928  
Akkreditiert nach ISO 17025  
  
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Für Rückfragen / Ladungen

Instituts-Nr.: 424-5707-2006

Für Überweisungen

Rechnung-Nr.: U61368

As the cause of death, poisoning by smoke inhalation or anorexia as a result of fire in a more or less sealed room may be considered. The blackish deposits on the skin do not suffice to explain the death.

## Expert Opinion

During the macroscopic and microscopic examination of the skin specimens, that according to the labels on the handed over containers came from a total of eight corpses, in all cases soot-like deposits could be detected on the skin. These were mixed with birefringent crystalline particles, whereby the soot-like particles demonstrated a positive iron staining.

Otherwise there were **no traces of thermal impacts**, and the overall picture of the skin yielded a **normal, anatomically correct picture in all layers**.

According to reports on injuries following **incendiary** (phosphorus) bombs, the notion that the death occurs as a result of direct contact with white (yellow) phosphorus without occurrence of extensive burns to the skin can be **ruled out**.

An impact of **known toxins** on the skin **can also be ruled out** because specific changes would be expected that were not detected.

The impact of **microwaves** would have also led to heating up the tissue with the corresponding changes, which also were **not present**.



*Università di Genova*  
*Laboratorio di Genetica*  
*Prof. Paola Manduca*

Samples 9a, 9b, 14 and 16 were analyzed by HE staining.

Skin morphology was well preserved and nuclei were preserved in all cell layers of skin and subcutaneous derma.

Over the skin of all of the samples analyzed particles of dark color were detected.

Only one of the specimens (9a) presented a localized edema under the derma, compatible with an event unrelated to the cause of death.

The cause of death *do not include thermal events*, either from high temperature or chemical incendiary substances.

The findings are *compatible with death by anoxia, pressure shock, ingestion of chemicals through the respiratory organs.*

The surface powder is of color different from the usual cement debris that could derive from the bridge collapse.

**Rmayleih bridge, near Saida, on the 17th of July, 2006**  
*Summary of data from Prof. C. Vaccaro, University of Ferrara*

**Results:** P, Fe, and Mg were found **in the skin** of the victims while these were below detection in the skin obtained from 2 normal control samples. Analysis of the dark refractive material layered **over the skin** of one victim contained prevalently C and O, and lesser amounts of Fe, and Ca.

*Two specimens of the skin from the victims were analyzed for the presence of metals and metal particles within the tissue. 156 semiquantitative spot analysis were done determining the major chemical elements elements as % of weight . Normal skin samples (60 analysis) was used for control.*

*Methods: Slices of 5 to 7 microns were utilized from the paraffin embedded samples, for analysis by SEM.*

**Rmayleih bridge, near Saida, on the 17th of July, 2006**

As our German colleagues we cannot not exclude that an intoxicating agent might have concurred to cause death and internal bleeding.

The fuel contained in these bombs serves the purpose to diffuses the metal loaded in the casing and can be an hydrocarbon, which in burning deposits **C** on the skin.

*Some fuels known to be used in FAE, such as ethylene oxide and propylene oxide, are highly toxic. A device using such fuels is very dangerous even if the fuel fails to ignite; the device then becomes essentially a chemical weapon. (1,2)*

FAE bombs belong to the family of BLU bombs, that can be commanded by a GBU-serie laser guidance device and delivered by F15 air carriers.

(1) Wikipedia

(2) Chemical weapons convention, Signed in 1993 and entered into force on April 29, 1997. <http://www.opcw.org>

## **Fae (fuel air explosive) or thermobaric weapons**

These are weapons based on the generation of a lethal pressure wave and heat.

*“The destruction, death, and injury are caused by the blast wave.*

*Those near the ignition point are obliterated. Those at the fringe are likely to suffer many internal, and thus invisible injuries, including burst eardrums and crushed inner ear organs, severe concussions, ruptured lungs and internal organs, and possibly blindness. The destruction, death, and injury are caused by the blast wave.*

*Reactive-surround warheads are thin-walled containers filled with combustible aluminum and nitrocellulose. Slurry-explosive warheads are a mixture of a high explosive or other explosive solid mixed with a combustible liquid”*

*“Common feature of thermobaric weapons is that the fire in the blast can be sustained by loading the bomb with **metal particles**. Common fuel additives: Boron, Aluminum, Silicium, Titanium, **Magnesium**, Zirconium, **Carbon**, or **Hydrocarbons**”.*

### **Fonts**

[http://www.hrw.org/press/2000/02/chech0215b.htm#N\\_3](http://www.hrw.org/press/2000/02/chech0215b.htm#N_3)

U.S. Central Intelligence Agency study report

## Conclusions

*The composition of the powder covering the bodies of the victims is compatible with the use of hydrocarbon fuel and those in the skin with Fe, and Mg in the loading of the bomb.*

*Based on the agreement of clinical, analytical and circumstantial evidences and of the known characteristic of this bombs the agent for the killing on Rmeileh bridge was a Fae (fuel air explosive) also called thermobaric or vacuum bomb*

**We do not know the origin of the P, also found in the skin of the victims and not in the normal skin.**

**We have no elements to say if the bomb had an heavy metal penetrator head or not, jet this is relevant for the possible future effect on health of the population in the area.**

*The case of Saida is not the only one with victims with similar features, as this man in Tyre, July 15*



*Dr. Faraj reports that 5 dead people from one same attack were brought in the Hiram Hospital in Tyre, in July. They all had no wounds, their skin was covered by black powder. Internal pulmonary edema was common to all and clinically and ecografically diagnosed by him.*

## **II - TARGETING CIVIL HOUSING, TARGETING CIVILIANS AND USE OF WEAPONS THAT DO NOT LEAVE TRACES.**

### **5 cases of survivors from Hiram Hospital, Tyre**

The following are cases of survivors from Hiram Hospital wounded with weapons that leave no traces in the body, illegal according to the protocol I from the Geneva convention.

Medical reports and photos are from Dr. Ibrahim Faraj, surgeon, with his permission. Dr Faraj was directly interviewed by Marcello Sordo in September and by myself in November, 2006 and march 2007. We have a film record of the first interview.



**Dr. Ibrahim Faraj, *Tyre Hiram hospital***



## ***Tyre Hiram hospital survivors 1 and 2***

***Circumstances*** they were in an house with 40 people-the house was destroyed  
***Clinical report. Mostafa M.- 6 ys-*** arrived with hemorrhagic shock- showed the an entry hole of less than 1 cm in the abdomen, without an exit - an explorative laparotomy revealed a lesion in the liver but no splinters, fragments or X rays detectable object was found.

*report and photos from Dr. Ibrahim Faraj, surgeon*

## *Tyre Hiram hospital survivor n.2*



### **Hussein M. -9 y-**

*Clinical report.* He arrived in comatose state and respiratory shock, with 2°-3° degree burns over more than 45% of the body and a serious open wound plus burn on the side of the abdomen, which required flapping. The exploratory laparotomy showed a lesion in the liver but no splinters, fragments were not detected in the body at the time of first inspection, nor by X rays analysis done days later.



### ***Tyre Hiram hospital survivor n.3***

**Nabil S. 9y, male**

*Circumstances. His young brother, the mother, the grandmother and himself are US citizens. They had left Bent Jbeiland and were walking the 11km of in open road towards the embarcadero of Tyre to be evacuated, when he was hit.*

*Clinical report. Maxillo-facial wound without snarpels by TAC and by visual inspection*

*Tyre Hiram hospital survivor n.4*

**Rida M. -65 y, male diabetic**

**Circumstances-**wounded while rescuing the body of his killed sister from under the debris of their bombed house.

**Clinical report.** Reported multiple serious burns along the the whole of the posterior side of the body, from neck to feet. Skin and derma at the touch melted in a black mud which continuously essudated a black liquid of rotten smell (up to more than 2 liters a day). He also had a liver lesion without any fragment or bullet in it. The patient was then transferred to an other hospital after few days and has eventually recovered.



*Tyre Hiram hospital* patient *n.5*

Z.S 77y, female.

diabetic and cardiopathic with serious osteoporosis. Was seriously wounded in the gluteus and the pelvis, bleeding and with serious lesions to the uterus, intestine and bladder. The wounds had burnt margins. Died for cardio respiratory block after 4 days from recovery

*Tyre Hiram hospital patient n.5*

Z.S 77y, female.

**Clinical report.** Z.S was diabetic and cardiopathic with serious osteoporosis. She was seriously wounded in the gluteus and the pelvis, was bleeding and with serious lesions to the uterus, intestine and bladder. The wounds had burnt margins. She died for cardio respiratory block 4 days after recovery.



**In summary: these victims of Hiram Hospital in Tyre were all civilians, attacked when alone or in group of few, in an open space, in a rescue activity or inside a civilian house.**

**All their wounds were due to weapons that do not leave detectable traces inside the body, but cause internal wounds. The exterior rim of the wound was often burned.**

The above reports from Tyre have great similitude with what has been seen in Gaza (where children were 32.5%, of the victims according to hospital sources)



**Gaza**



**Tyre**

Similar type of wounds as in Lebanon were reported from Dr.Saqqa at Shifa Hospital, Gaza in Saed, 9y and Kaled, adolescent

Saed

*Circumstances: In early July, Saed was playing ball with other children in Malazi camp, Gaza when a missile arrived from a drone. Two people were killed immediately and two others died shortly after admission because their injuries were so severe.*

*Visited by Dr.D.Halpin, Trauma and orthopaedic surgeon, UK.*

*Photoby Dr.D.Halpin*



*Saed*



*Clinical report: by  
Dr.Halpin-  
Saed has lost the use of the  
left leg, which was partially  
reconstructed, has a  
colonstomy, a pleural fistula  
and a tracheotomy and  
multiple severe scars all  
over the body and limbs.*



*Photos from: Giuditta Brattini and Elham Abu Hassan,  
Collaborators of Palestinian Medical Relief Society*

Kaled was hit in the legs and lower trunk, here a year later



**Wounds of this kind can be due to chemical or metal particles loaded weapons, both of which are illegal according to the **Protocol Additional to the Geneva Conventions of 12 August 1949**, and to the **Protection of Victims of International Armed Conflicts (Protocol I)**, 8 June 1977, which says that:**

*Indiscriminate attacks are prohibited. Indiscriminate attacks are:*

*(a) those which are not directed at a specific military objective;*

*(b) those which employ a method or means of combat which cannot be directed at a specific military objective; or*

*(c) those which employ a method or means of combat the effects of which cannot be limited as required by this Protocol;*

or according to the the Protocol Additional to the Geneva Conventions, **Protocol on Non-Detectable Fragments** "*It is prohibited to use any weapon the primary effect of which is to injure by fragments which in the human body escape detection by X-rays.*"

### **III - LCD (Low collateral damage) and DIME**

**LCD were developed for targeting the victim, their efficacy is limited in space. DIME is a variation of the “small laser guided bomb” with a filling of micro/nano particles of heavy meta, air delivered also by drones, which acts as a molecular cutter, with the potential to slice and burn through bone.**

**In Lebanon the Doctors saw patients with wounds derived from the use of DIME.**

**Similarly victims of DIME were reported in Gaza. A sample from the bomb casting was analyzed in the laboratory in Ferrara, which finds that its composition is compatible with the casing of this weapon.**

*The effects of long term “assumption” of heavy metals trough the tissues are cytotoxicity and possibly genotoxicity, and further research and follow up of the victims is required.*

*Nobody, to my knowledge, has yet demonstrated the presence of tungsten in the tissues of survivors or in anatomical pieces among the many victims of this kind of weapon, in Gaza or in Lebanon.*

DIME can cause severe casualties, as seen in Tyre, reported by Dr.I.Faraj



***Tyre Hiram hospital survivor n.6, Rabii Al K. 28 y, 28/07/06***

***Circumstances:*** He was wounded while he was driving a car, accompanied by a friend. They had gone to fetch gas for the community and were on their return trip, the car loaded with gasoline tanks. The gasoline in the engine and in that in the full tanks set in the back of the car was not set on fire.

***Doctor report:*** Rabii's leg was cut in two pieces through the knee. He also reported burns, up to his face. His friend suffered serious burns, but only on the side of his body near to Rabi



*Tyre Hiram hospital survivor n.7 young woman, Dr.I.Faraj*



Comparison of  
DIME victims in

**<----TYRE**



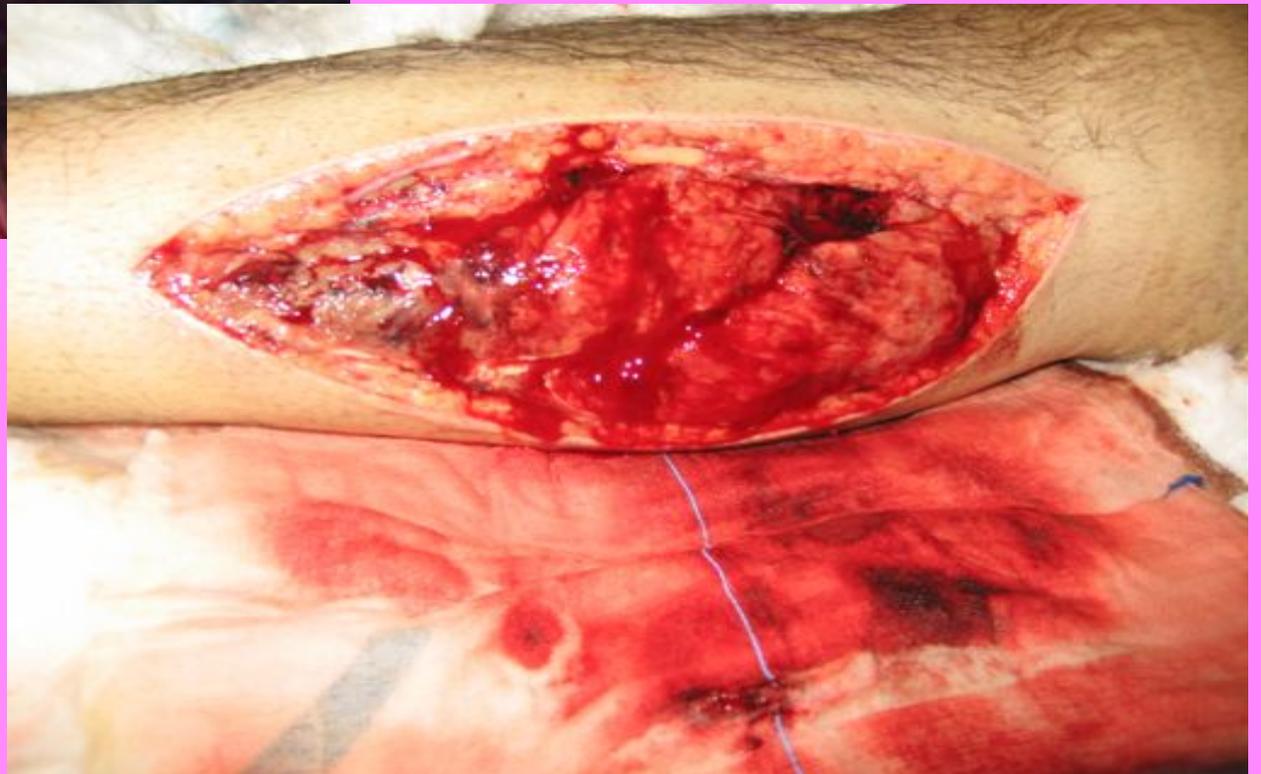
**<----GAZA**

Comparison of DIME  
victims in

←---TYRE



GAZA----->



## **Conclusion**

**Bombs of the DIME type, as judged from their clinical effects on people, have been used by IDF in Lebanon and Gaza.**

**The LCD small bombs and DIME escape any description in international agreements and are “outside” any legislation of restraint. They are actually promoted by USA and Israeli as humanitarian weapons.**

DIME are known to have been developed in the USA and produced there, although Israel might have acquired the technology.

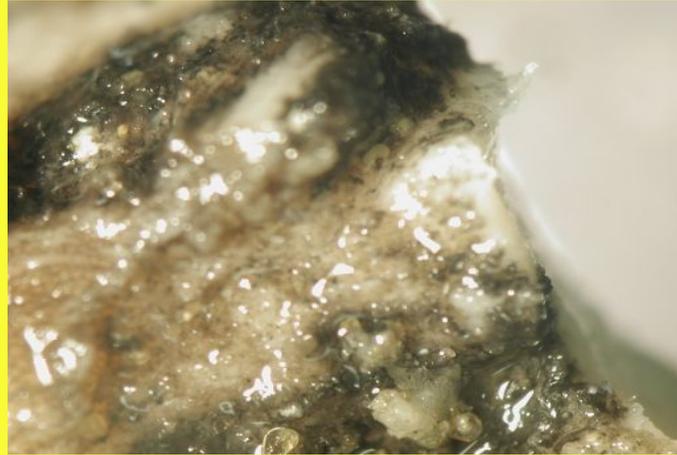
*Additional studies were done on victims with very severe tissue destruction and burns: here the biopsies from two cases analyzed.*

### ***Case 1-Gaza***

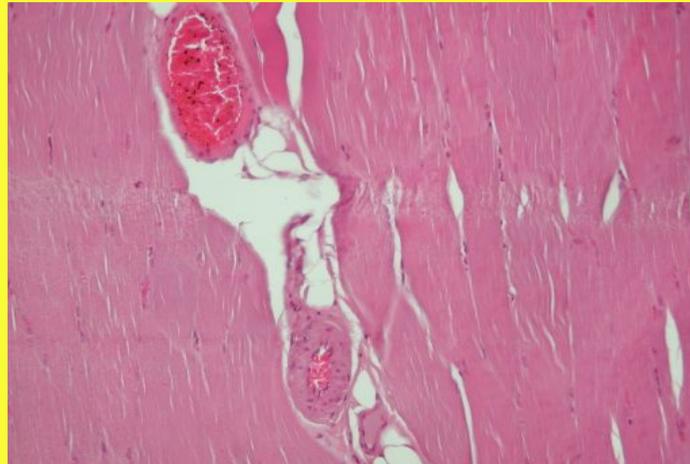
Cranial bone fragment is burnt both on the inside (visible) and the outside.



*Victim biopsy and photos are from Dr.Saqqa, Shifa Hospital, Gaza, July 2006*

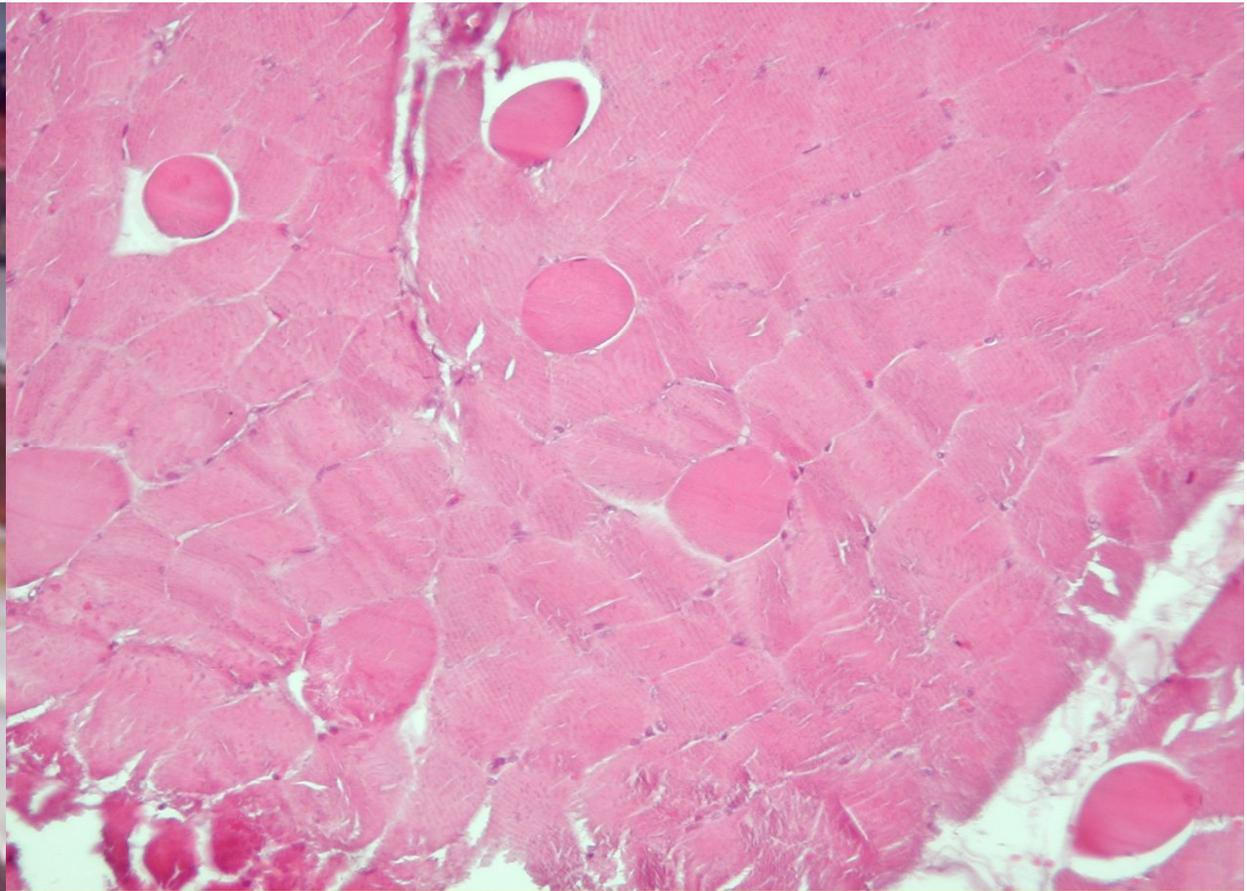


Adipose tissue contains particles of back colour, embedded in the tissue and



Muscle section with faded nuclear edges

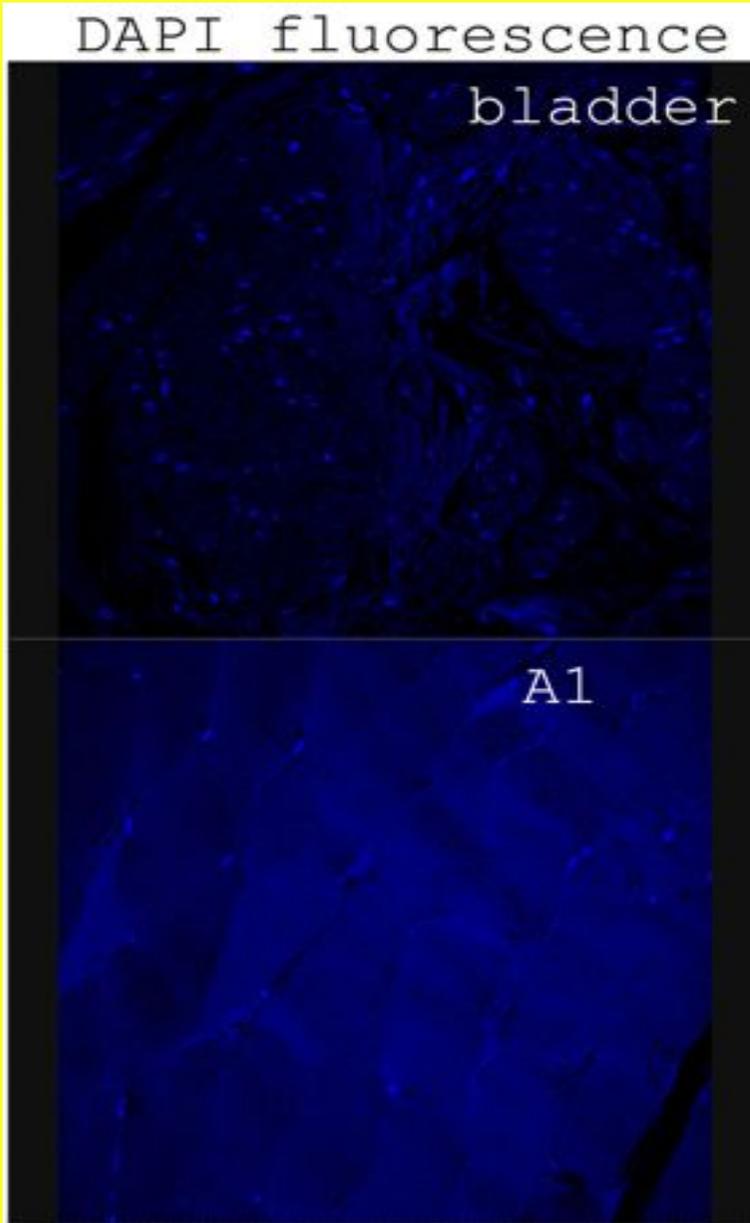
*Victim biopsy and photos are from Dr.Saqqa, Shifa Hospital, Gaza, July 2006  
Histology , Lab,Genetics, University of Genoa*



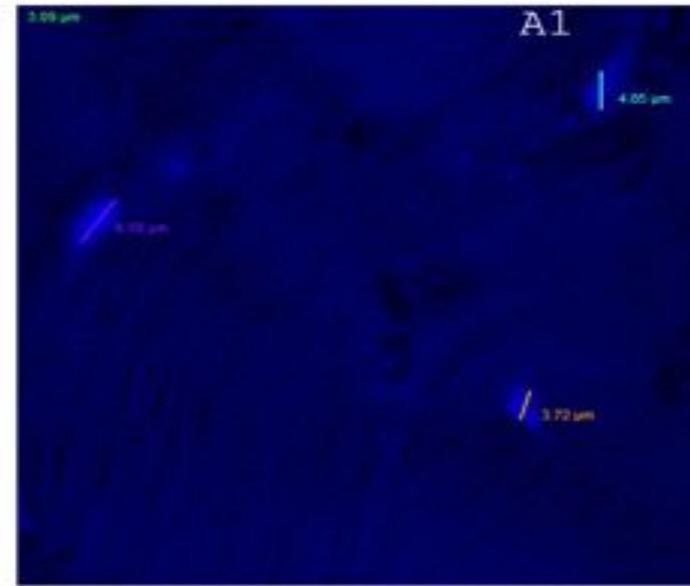
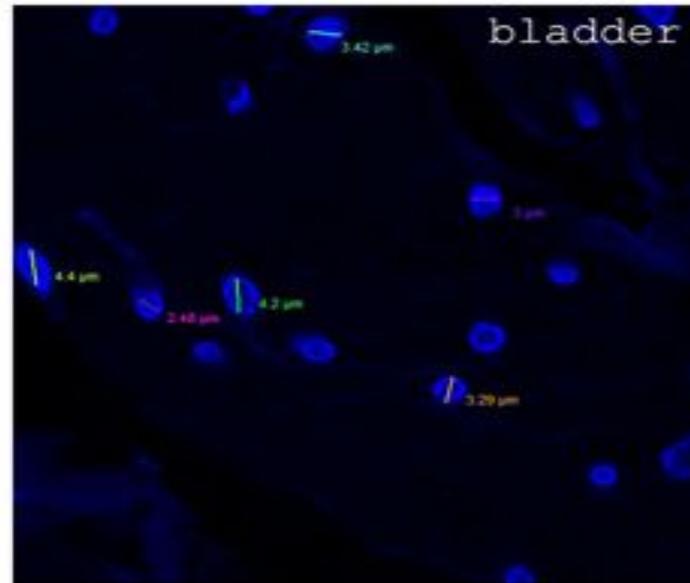
***Case 2*** - Gaza, an other severely burned victim.

The nuclei in the muscle have lost definition,  
HE stain

*Victim biopsy and photos are from Dr.Saqqa, Shifa Hospital, Gaza, July 2006  
Histology , Lab,Genetics, University of Genoa*



DAPI fluorescence



**Case 2 -**

Fluorescent nuclear staining shows control bladder (top) and muscle (A1) from the victim (bottom).

The muscle has lost nuclear definition

*Victim biopsy and photos are from Dr.Saqqa, Shifa Hospital, Gaza, July 2006  
Histology by Dr. S. Bruno, DIMI, University of Genoa*

## **Future commitments**

The present international juridical frame which stigmatizes the crimes of war, which after WWII are wars on the population as whole.

Nonetheless they take little account of the fact that, **long after their immediate effects, wars affect people through subtle and devastating effects on their health and reproduction.**

As scientists and doctors we propose to all and work to

**a) develop rapidly the knowledge to counteract the long term effects of these wars on an individual survivors of attacks and a population basis and of finding support for defining the risks of the after-war on people's health and reproduction. The requests for the needed further investigations received no answer from competent institutions and we have not yet been able to start a proposed initial survey for genotoxic risk in the field.**

**b) continue to investigate the nature of the weapons utilized, in order to cure people**

**c) find political tools to ban inhuman weapons.**

**NEWWEAPONS WORKING GROUP** is based on a consulting network of Doctors and Health Associations from Lebanon and Palestine who have produced the information and released it.

Biologists of the University of Genoa, Dibio and Dimes

Biologist of the University of Rome, Dept Biology

Chemists of the University of Ferrara, Dept Chemistry

Physicists of the Institute of Nuclear Physics and of the University of Turin

Medical Doctors in Genoa and Rome

Journalists and Free Lance Information

NGOs

With help from Epidemiologist, Anatomic pathologist.