

The Trials of the Gas Mask

An Object of Fumbling

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"Gas, GAS, quick boys – an ecstasy of fumbling."
WILFRED OWEN, First World War.

"Owing to a missile attack on Israel, an emergency siren has been sounded. All residents of Israel must immediately put on their gas masks and close themselves off in their sealed room. Once the family has entered the room, a wet cloth must be placed along the bottom of the closed door, and the top part of the door must be sealed off with masking tape. All air conditioners must immediately be turned off. Check that children have their gas masks on correctly, and keep listening to the radio."

ISRAELI RADIO, January/February 1991.

It was during the Gulf War that I discovered the gas mask to be an object. As it became increasingly credible and imminent, the unfathomable menace was crucially rescaled to the toxic potency and dispersal pattern of law-abiding molecules. So it went with the gas mask: the Gulf War transformed it from a vaguely morbid mental image into a facial object of survival. But to be drafted on the nation-wide defensive maelstrom as a life-saving object (and not, as it happened, a life-taking one) the real effectiveness of the gas mask was by no means sufficient – it had also to be effectively realized, and this in turn necessitated that confidence in its claimed capacities had to be gained, and competence in its appropriate performance mastered.

Interfacing Problems

Mere presence

The gas mask is to save lives when there is an alert. When this momentous occasion arises – usually in the dead of night – the sudden wailing of the sirens prompts us to enact *in vivo* the cryptic

instructions broadcast above. Turning to my gas mask, I assemble it out of its cardboard box and duly put it on: firmly holding its inner lower part against my jaw, I bring it up so that its two transparent gaps are level with my eyes. Stretching its binding straps over my head, I finally buckle them tight. Upon this masquerade I am more or less ready to face the worst, feeling pretty miserable too (Figure 1).



Figure 1. Exorcising evil spirits. First World War gas mask, taken from a Belgian manual.

What distresses me is the threat of being gassed, of course, but also the very protection that I wear. Sure enough, I overcame long ago my visceral repulsion to the gas mask's nightmarish evocations, but the "brute" presence of this object on my face still troubles me. For one, I am forced to take off my glasses in order to make room for it, and this not only gives me headaches but also makes me blind as a bat – with my hearing already swamped by

the strident sirens, and my organs of taste and of smell thoroughly obstructed by the mask, I am left virtually senseless during these sensitive moments. Then, I am worried that, however cautiously I inhale, my beard will endanger the airtightness of the mask and let gas seep in. Lastly, and least seriously, I am constantly irritated by strands of my unruly hair being caught in the buckles of the straps and torn away whenever I mask and unmask (Figure 2). Thus, though it was specified to fit a hypothetical mean (of crania), the object finds itself to be both over- and under-determined.

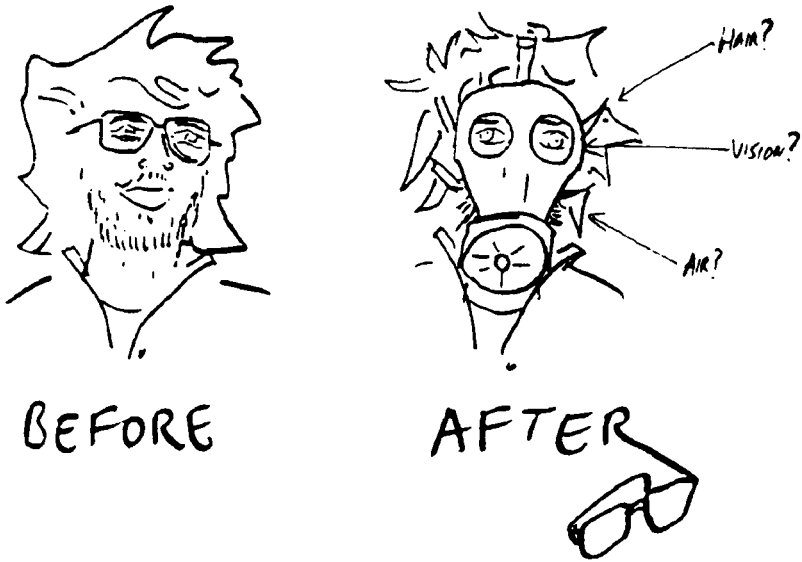


Figure 2. Intense and intensive interfacing.

Matters of principle

The gas mask is to save lives when there is a gas attack. To promote survival in a gas attack, any object-solution has to satisfy two stringent requirements: that of **preventing** contaminated air from reaching me, and *at the same time* that of **providing** me with breathable air. The prevention of harmful breathing is achieved by means of a device that stretches over my respiratory tracts to restrict inhaling and exhaling to dedicated one-way apertures – i.e., a rubber mask. The provision of breathable air, for its part, can be

achieved through two distinct operating principles which it is instructive to compare.

One principle, followed by the *aqualung*, is that of **substitution** – the normal breathing cycle is shunted in favor of an **alternative** source of previously stored air. When I go deep-sea diving, say, I am connected to a large and rather cumbersome contraption that affords me a limited supply of air and therefore of breathing time. Still, I am quite at ease with these limitations: having introduced it myself, I know that the air the aqualung feeds me is of impeccable *quality*, and that it will remain so until its eventual, and predictable, exhaustion. All I have to worry about then is monitoring its decreasing *quantity* – an eminently measurable and representable variable.

The *gas mask* relies on a different principle – that of **interposition**. Here the normal breathing cycle, far from being bypassed, is simply mediated by an **additional** strategic phase – a filter – that renders the ambient air harmless. This operating principle is obviously advantageous, but not in every respect; in resolving the problem of *quantity*, the filter has created a problem of *quality* – or rather of its **perception**. Indeed, that the ambient air be foul or sweet is not an impediment for the gas mask, but then nor is it a **condition** for its operation. Because this intermediation is unconditional, not to say indifferent, I cannot tell with the gas mask on if there is any harmful gas in my sealed room – and whether the mask will ever save me from it.

Gulf designs

We reach thus the question of design. Here, I make use of the thought-provoking concepts and approaches provided by the American psychologist Don Norman in *The Design of Everyday Things* (1988). Norman identified two major “gulfs” that separate the everyday thing and the everyday user; that of execution and that of evaluation. Now as it happens, the principle of interposition is such that its application does not create *any* gulf of **execution** between my physical and my mental aspirations: for the gas mask to work all I have to do is to put it on and breathe – which is certainly what I would have done anyway.

But the very perfection of this solution constitutes its flaw. Breathing is such a natural activity that I find myself at loss to figure out whether it works at all! This discrepancy – between what is

performed by the object and what is perceived of its performance – is the gulf of **evaluation**, and in the case of the gas mask this breach is as wide as that of execution is narrow.

Both the rubber mask and the filter prove difficult to evaluate. To begin with the rubber mask, there are two factors that may keep it from restricting and controlling my intake of air: either the mask itself is faulty (and there, incidentally, its black color does not facilitate the discovery of eventual cracks or tears in the fabric) or it is I who have improperly installed it on my (bearded) face. There is an officially condoned way to find out, but it is crude indeed: with the mask on, I block the inflow aperture with my palm and inhale as vigorously as possible. If by the time I am blue in the face no air has seeped through the thus created vacuum, the rubber mask is supposedly faultless and correctly installed.

A more sophisticated approach is called for when assessing the filter, because beneath its superficial simplicity (and because of it) it harbors difficulties. While relying on the well-known principle of input -> process -> output, this “black box” familiarity is somehow offset by the principle of “indifferent interposition”: provided the output is breathable, there is no way for me to infer the quality of the input. This sheer opacity has occasioned such distress that the Israeli pharmaceutical industry saw fit (and financially rewarding) to launch a dedicated “filter tester” on the market. I approach, with my gas mask on, a small phial – if I feel offended by an acrid smell of bananas, then the filter is O.K.!

“Surely there is an error here. This is not logical at all – this ‘filter tester’ tells you that the filter is not clogged, since it lets the smell of bananas in, but doesn’t *that* tell you that the filter doesn’t work”?!? Well no, it doesn’t. The explanation to this apparent paradox is that there are in fact *two* chemicals in the phial, which together are odorless. When they pass through a working filter, the molecules of one chemical (which resemble those of gas) get trapped and arrested, and only the molecules of the other chemical (which, when alone, smell of bananas) reach my nose. By being odorless at the input end and smelly at the output, this clever concoction gives me an unambiguous correspondence: it is when I positively smell bananas that I can be confident that my filter does filter!

A murderous contradiction

However, since the gas mask does not **feedback**, it may be properly used and still remain useless. And when it is improperly used,

the gas mask can be, even worse, lethal. The requirements of prevention and provision, we already know, are taken care of by a rubber mask and a filter. Well, for the whole gas mask to be a life saving object, it is also vital that these elements be synchronized to work *together as one, and not one against the other!*

Again, it is the filter that can cause such devastating disharmony. Being an input/output device, it has accordingly two opposing apertures. One, on the output end, connects with the rubber mask and allows the inflow of (hopefully) processed air. The other, on the input end, has free access to draw on the ambient air. Now for various reasons these two apertures are originally covered: side A (the filtered output) is closed by a lid which must be unscrewed in order to fit on the rubber mask. Side B (the unfiltered input) is sealed by a plastic plug which should be taken off before use (Figure 3).

You can see now the potential pitfall. One cover (side A) **must** be taken off, while the other (side B) only **should!** And if the user omits to remove this little plug, these assembled principles find themselves at loggerheads: the rubber mask prevents all air inflow except that coming from the filter, but the filter, being plugged,

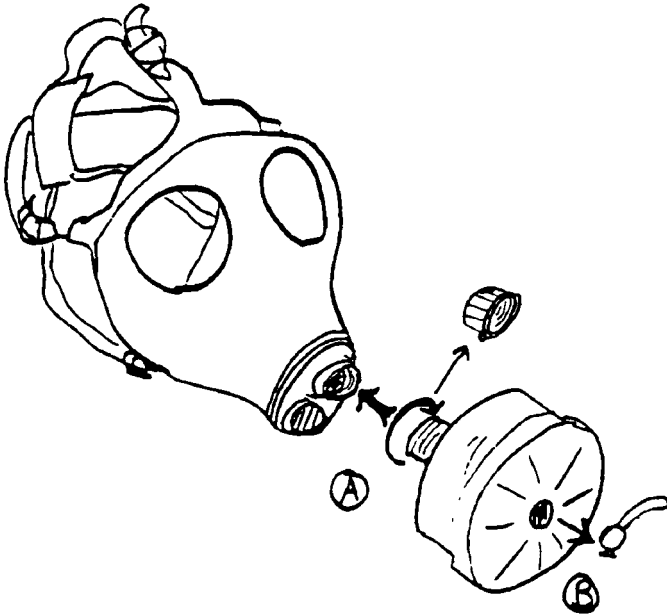


Figure 3. Assembling the filter to the gas mask.

cannot provide any air at all for the increasingly hysterical user to breathe!

Thus, by its mere inopportune presence, an unassuming plastic plug managed to transform a life saving object into a life-taking one (and that without gas ever being around!). A few children and elderly users then simply and stupidly choked to death.

Demasking Trials

The pandora plug

We have not exhausted all the difficulties incurred, but we have nonetheless accumulated enough to capitalize towards an understanding of the object as a whole – when it poses problems, and when it does not. In that respect, the tragedy of the plug is an excellent starting point: on the one hand, it can be unanimously agreed that there is a problem there, and that whatever went wrong must urgently be identified and if possible rectified. On the other hand, what is a seemingly straightforward accident (the plug, after all, was simply not removed) proves to have many successive and complementary and corollary causes to it, and their unravelling will give us a more comprehensive perspective on the whole affair.

Quite naturally, the first to be accused are the unfortunate users who through their inaction have caused their own deaths. Furthermore, their non-removal of the critical plug is “illegal,” and known to be so. A sticker urging “remove the plug before use!” is stuck on the filter, an official leaflet with detailed instructions is joined with the gas mask upon its distribution, and all the tabloids have published detachable illustrated versions of their own. Better still, a thorough video demonstration (subtitled in a babel of languages, including sign language) is broadcast at the right time on television; i.e., whenever there is an alert. Thus, overruling any possible claims for ignorance, the victims are found guilty of disobedience in their (mis)use of the gas mask.

But in fact, the users’ failure to comply with instructions only partly accounts for their own deaths. Far from confirming their guilt, this swamping profusion of rehashed directives (at times inconsistent and incomprehensible) points us to another direction: it indicates that (using Don Norman’s terms) the relation between “information in the head” – the user – and “information in the

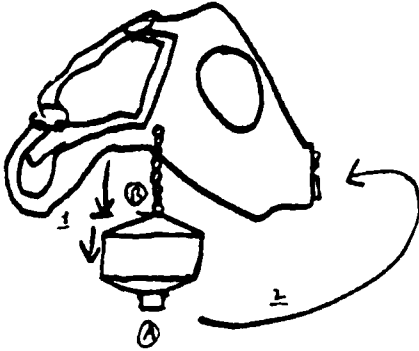
world" – the object – is heavily unbalanced to the detriment of the former. In this light, the simple task of removing the plug should have never been left to the user's discretion, obedience, or memory – it is the object that should have been given that responsibility!

Beyond design

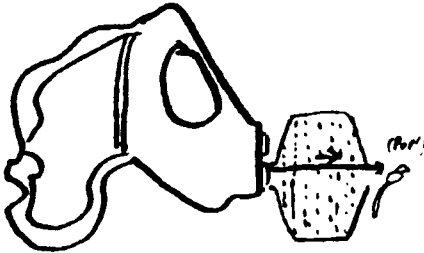
Thus, without totally exonerating the victims of the gas mask, we discover another guilty party: its anonymous designers. First, the designers failed to act on the assumption that normally competent users will be easily distracted out of their wits by the very abnormal circumstances under which the gas mask is to be used. Next they cannot claim ignorance in this respect, for already in the inaugural days of chemical warfare witnessed by Wilfred Owen (and certainly in the Second World War), many unnecessary deaths could be attributed to that damned little plug. Lastly, and worst of all, the problem they have failed to counteract with an adequate solution is in fact of their own making.

Such a solution is by no means impossible. They could have followed Don Norman's suggestions and incorporated in the gas mask its own **operating cues** – which would enable to distinguish between proper and improper usage, and its **forcing functions** – which would physically prohibit misuse, and its **interlocks** – which would compel critical operations to take place in a planned and immutable sequence! What could be more foolproof than to construct the filter such that, for example, its side A (output) lid can be unscrewed, and fitted to the mask, only *once and after* the side B plug has been first removed!? (Figure 4).

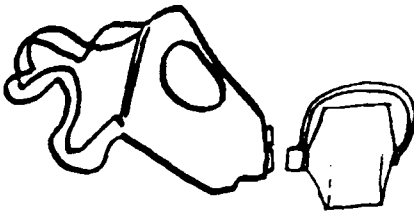
But the failure of the designers is not exclusive. To start with, it is not always profitable to condemn the experts for their alleged misdeeds, because we run the risk of perpetuating two concomitant fallacies: that *only* the designers are implicated when there is a problem, and that the designers are implicated *only* when there is a problem (and the rest of the time they are irrelevant). To proceed on such premises would result in our losing touch with the object of contention: with the experts on the defensive, the whole issue would be immediately taken to their own home grounds and there abstracted with esoteric notions and universal laws and then transferred to experimental gas chambers behind whose glass partition the tribunal would be invited to admire how well the gas mask really fares. It can be expected upon this artificial *in vitro* demon-



SOLUTION I. The filter is attached by its plug end to the mask. To fit the filter (side A), it *must* be unplugged first!



SOLUTION II. While screwing the filter on (side A), a metal rod is pushed back to forcibly remove the plug!



SOLUTION III. A strong and durable connection between lid (side A) and plug (side B) compels the removal of both!

Figure 4. Three possible interlocks to compel the removal of the murderous plug.

stration that nothing wrong would be found with them in the first place!

This unwelcome deflection apart, the act of prosecution has itself pointed out that the plug problem is well-known and yet remains uncorrected, and that it was created while solving others. Damning

as it may seem, this evidence can actually be upturned in favor of the designers – it suggests that there may well be some requirements (long lasting and compelling enough) that make the plug's existence **essential** and at the same time the problems that it might cause **invisible**.

On purpose

To find out what these requirements might possibly be, we need to identify the purpose of the plug. Notice that, surprisingly perhaps, this is the first time that the question really arises. When the designers put it on, what was at stake was the competence of the designers, not that of the plug. Now, however, now that the plug and the specifications that allegedly underlie it are appealed to, the seemingly naive question "why the plug?" becomes extremely relevant – to excuse the designers, and to reveal a new culprit to be tried.

Let us agree at the onset that our inquiries about the plug's purpose will be directed toward the gas mask itself, and not its designers. A well meaning designer might answer along these lines: "Repeated laboratory experiments have conclusively shown that the active components of the filter could, under certain conditions and in the long run, have their efficacy impaired by contact with dust particles and other elements in the atmosphere. To avoid this, it is imperative that the filter's apertures be sealed by a plug or a lid when not in use." This statement may be correct, but it does not constitute the answer we seek: it reduces the purpose of the plug to the sealing of apertures, and it leads us to assume that the plug exists solely as a specific solution directly connected to the obvious goal of the gas mask – which is far from being the case. In effect, it is difficult to substantiate these reasonable assumptions when we consult the object itself. To the best of my understanding, there is nothing in the plug's existence that helps the gas mask achieve its primordial functions; conversely, there is nothing in the various difficulties associated with the prevention and provision of air that require a plug!

We must then face the implications: the gas mask as an object is *neither* exclusively dedicated to its noble objective, *nor* is it exempt from the promotion of others! Now given the vital interests it is meant to secure under such dramatic and constraining conditions, the *corruptible* nature of the gas mask appears scandalous indeed. We have seen all along that several solutions of principle were

available to most problems, and furthermore that their application or implementation takes in practice many different forms, so that the gas mask I talk about here – the one I used in Israel during the Gulf War – is and can be only one of many possible others. This leads to the following propositions. First, that *such as it is* the object incorporates elements, aspects or manners of being which – judged by the criteria of its ostensible *raison d'être* – seem *superfluous*. Next, that these elements (etc.) are open to some variation and *choice*. And lastly, that when these superfluous elements are judged, they may well prove to be *advantageous*.

So between the idea of the gas mask and the object itself, there lies of necessity a margin, potentially accessible to be “interested” – and it is by consulting the gas mask and its related paraphernalia that we stand a better chance of apprehending it. Upon this scrutiny a suspicion about the plug can be confirmed: the problem it covers is not singular or specific, but rather general and symptomatic. To understand “why the plug?” we need to go on asking: why does the filter come with its apertures closed in the first place? Why are its sides marked with various dates and numbers? Why is it set in its own plastic envelope, just like the rubber mask, the Atropine syringe (against nerve gas), the purification powder (against mustard gas), and the batch of five gauze pads (to brush the powder off the skin) that come with it? And finally, why are all these items kept and eventually distributed as a kit in a sturdy cardboard box, and why is this box sealed with a sticker that vividly commands “DO NOT OPEN”?

From Machiavellian conspiracy . . .

My answer to this (tendentious) series of questions/observations is the following: being *such as it is*, the whole “kit” of the gas mask and each of its “items” can be better stored and preserved from damage and decrepitude, and their individual shelf-life maintained beneath various covers and plugs and monitored through transparent plastic sheaths and imprinted batch numbers – so that if any of them expires or is found defective, it (and it alone) can be replaced at minimal financial, material or logistical cost.

I think that we have identified now those requirements that made the plug’s existence essential and the problems that it might cause invisible. The superfluous/advantageous margin inevitably allowed by the gas mask (because it is an object) has been deliber-

ately filled with the *extraneous* considerations of **conservation** and of **control**. If so, some of the blame is to be shifted away from those who designed the gas mask toward those military administrations and national security policy-making bodies who commissioned it in the first place!

This formidable candidate culprit – henceforth “the establishment” – is the one that will occupy us from now on. To discover where the real guilt of the establishment lies in this affair, we must first find out what is it innocent of. So, as convincing and convicting as the evidence may appear, we cannot accuse the establishment of having commissioned the gas mask merely to inscribe therein its own *Weltanschauung* and propagate its private interests. It is true that having the gas mask such as it is fills the establishment’s routine existence with a flurry of rewarding activities. Recall that it takes laboratories, functionaries, accountants and ministerial subcommittees to conceive of gas masks, and then production plants, assembly workers, transport facilities and storage bases to have them. And once there, it takes another cohort of guardians and testers, and clerks, forms, document shredders, filing cabinets and mainframe computers in order to keep them. And to prompt *these* into action it takes politicians to set policies, generals to generate orders, non-commissioned officers to bark them, and masses of conscripts to execute them. (And to have those . . .).

But while the procession of those who thus prosper and profit can go on *ad infinitum*, we cannot conclude that *from their very conception* gas masks exist only to serve as “masking-artifacts” to legitimize and perpetuate the establishment’s insidious powers. To do so would be to confuse what are admittedly beneficial “side effects” with original motives, which I believe to be on the whole rather commendable – in fact, too much so.

. . . to consensual closure

Indeed, it is evident that in normal times *all* the parties concerned do have their best interests served by the gas mask being such as it is. For one, gas masks can be used as a political resource, on both domestic and international fronts: they can lay publicized or disavowed, placating or menacing, distributed or withheld at the will of their democratically elected manipulators. Also the electors – the tax-paying general public – stand to gain. The gas masks do not create any unnecessary economic burden for them to bear, while at

the same time their dependable presence effectively exorcises possible war phobias. And the gas masks too are delighted with this state of affair. Tightly plugged and smugly sealed in their cardboard boxes, neatly stacked in their galvanized storage sheds, they are thus best protected against the ravages of decomposition, be they induced by Nature or (more likely) by humans.

So, upon that evidence, everybody appears to be genuinely content with the gas mask being such as it is – except, of course, those who died of it (and us, who seem to stall in our attempt to find out why). To recapitulate the various arguments presented so far, let me call upon Aristotle's well-known discussion of causality. The plug, implicated for its presence, is undeniably the *material cause* of the victims' suffocation – but being merely a piece of plastic there is nothing to say either for or against it. The users, implicated for their disobedience, are the *efficient cause* of their own deaths – but for not removing the plug they pleaded "temporary insanity." The designers, implicated for their incompetence, are the *formal cause* of the plug – but for having put it on they pleaded "force majeure." And now, our attempts to implicate the establishment seem to flounder on the unassailable plea of "vox populi"! Indeed, having set the *final cause* of the gas mask, the establishment threatens to leave us with only fate and philosophical resignation to account for the tragedy. Was it not Aristotle himself (e.g., *Physics*, II, iii) who specified of the final cause that it is "the good par excellence and the goal of other beings; little matters if it is said of it that it is the Good itself, or the apparent good"?

Objective Verdict

More evidence to consider

But we still have some evidence left to consider. This evidence will not, of course, challenge Aristotle's maxim *per se* – it will only show how regrettable it is that the establishment chose to "objectify" it on the gas mask. Consider first the sticker fixed to the cardboard box of the gas mask "kit" (Figure 5). To understand why it so conspicuously ordains "DO NOT OPEN (until told to do so by the competent authorities . . . etc.*)" we need to go back to the last weeks of 1990, when the unanimous decision to "go on the defensive" forcibly "outed" the gas masks from their secluded nirvana. What was there then to keep the "general public" from defacing



Figure 5. Nature Morte – The items of the gas mask, their containing cardboard box, and the sticker that seals it.

the gas masks and subjecting them to the host of secondary usages we know them capable of? Hence the sticker; whatever success it had did not come solely from its vivid red on white coloring and less still from its verbal message, given that the enunciated threats of judiciary actions against “he (or she) who opens this package” are as pathetic as they are unenforceable. No, it is the *texture* of the sticker, as much as its *textuality*, that ensures “good conduct”: strategically stuck to the seam of the box with high quality glue, impossible to peel off and unobtrusively replace, the sticker acts as a **moral seal**. Intact, it visibly vouches for its unviolated contents. Torn, it is a glaring stigma of irresponsible infraction.

Consider, however, the costs incurred by this labelled “moral restraint”: deprived of previews, checks or simulations, gas mask owners suddenly became the frantic first-time users of a still alien and baffling object on the (18th January) night of the *vernissage*.

The damning directive

This was also the moment when we noticed (through those stamped batch numbers and dates so useful to promote conserva-

tion and control) that our filters were actually made in 1976, the Atropine injections concocted in 1978, and the whole kits assembled in 1981! Demoralized, we suddenly realized that our gas masks have a past (of which we wanted to know nothing) and we wondered with impotent consternation: “has the gas mask been around **too long** (to save our lives)”? Turning to the politico-military establishment for appeasement and advice, we quickly found out that its fears were complementary to ours, but also diametrically opposite. It was not the dire present, but rather the still darker future that may lay ahead that made them wonder “will the gas mask be around **long enough** (to save our lives)”? Whereas we cast doubt on the extent to which the life-saving value of the gas mask can be maintained durable over *time*, the establishment was concerned that its life-saving value will be transient with its *usage*!

Consider that when we were finally released from this traumatic interface by the all-clear sirens and the mellifluous voice of the I.D.F. spokesman, we were required (at least initially) to re-decompose the gas mask to its constituent parts, reseal each of them in their respective envelopes, and replace them all in the cardboard box “for further use.” And worst of all, consider in this light the directive given in paragraph 4, page 2, of the gas mask manual provided by the manufacturer (Anonymous, 1980): “Keep the lid and the plug **for re-use after an attack**” (emphasis added)! Beside being preposterous (picture yourself surviving a gas attack with nothing better to do than screwing back lids and plugs!) this demand is also – we know at our costs – downright murderous.

Double fault

So, all things considered, I think we know now what it is that the victims of the plug fell to: they died because *the survival of the object was promoted at the expense of their own*. This lethal emphasis is a deplorable consequence, and definitely not an instance of willful maliciousness or contemptuous disregard for human life. The opposite is the case. What the establishment can and should be blamed for in this lamentable affair is (a) of having grossly miscalculated with its own good intentions, and (b) of having grown overconfident with the artifacts of its own creation.

The first error is the establishment’s eagerness to be so accommodating. It is not the fact that gas masks were commissioned to have their superfluous/advantageous margin filled with the con-

siderations of conservation and of control that is, as such, indicting. And still less reproachable is the fact that these extraneous attributes do serve the best interests of the establishment, the elected representatives, the general public, and the gas mask themselves for (nearly) all the time and all the circumstances. No. What *is* damning is that the establishment took too much account of the universal desire for peace, and gave too much credit to the possibility that there may be after all a negative correlation between the expectancy of war and the likelihood that it will occur. Accordingly, the enduring presence of gas masks has been favored over their improbable (and unwanted) performance, and this in turn led to their crucial if tacit redefinition: from being originally *preventive* – to save our lives from chemical attacks – the gas masks were inadvertently downgraded into being almost *palliative* – to be there, just in case.

This error was further aggravated by the second fault of the establishment; that of complacency. Lured into confidence by the fact that gas masks (because they are objects) can be had (almost) *any way it wants them*, the establishment failed to comprehend that gas masks (again, because they are objects) can be had *only one way at a time*. Having the gas masks is one thing. Requiring of them to recover *du jour au lendemain* their ostensible *raison d'être* is a different story altogether.

Upon this, I believe we can reach a just verdict. Acting in good faith for the general good, the establishment blinded itself to the critical difference that distinguishes (in deeds if not in words) “the apparent good” and “the Good itself.” It **designated** the gas mask for war but nonetheless **designed** it for peace – a time when the plug’s existence is essential to promote everybody’s best interests, and when all are oblivious to the problems it might cause. Those unfortunate users/victims who failed to remove the plug died of its inopportune presence, of course, and of their own disobedience in not taking it off, and of the designers’ incompetence when putting it on. But, above all, they fell victim to the *contradiction* that emerged between the object’s continuous potential **readiness to be used**, and its punctual and actual **usability**.

Objective verdict

Now that the Pandora box has been, as it were, unplugged, it still remains to reach a verdict that will be **objective** as well as just. To do so, I propose in these concluding pages to call upon the philoso-

pher Gilbert Simondon and the sociologist Jean Baudrillard to consider the gas mask in terms of its *modes of existence*. Aiming to counterbalance the xenophobia displayed by “a facile humanism” toward techniques (seen as alien, alienating, and opposed to culture) Simondon urged in *Du Mode d’Existence des Objets Techniques* (1958) for a *prise de conscience* of the *sens* of technical objects, which are in reality constructive mediators between humanity and nature and therefore part and parcel of “human reality.” Simondon proposed in this vein that technical objects are best defined and comprehended through their genesis, which he conceived as an internal and incremental process towards further coherence and self-adaptation. To grasp this process, Simondon established a seminal distinction between two possible states or modes of existence of the technical object – abstract and concrete.

The **abstract** car engine (to resort to his preferred example of a technical object) is a logical assemblage of isolated and self-sustained elements, each exclusively oriented toward the sole achievement of its defining functions. Being *analytic*, this type of technical object seeks a precarious compromise of compatibility between its preset principles/elements: for an abstract internal combustion engine to achieve thermal stability (for example), cooling fins are simply added on to the preexisting cylindrical shape of the motor block. The **concrete** car engine, on the other hand, has its various principles/elements so planned and placed as to take on interdependent and reciprocal functions. Being *synthetic*, it faces the challenge of securing the convergence and integration of its components: while achieving thermal stability, the cooling fins of the concrete engine are integrated into the motor block in such a way as to take, from the onset, a structural and mechanical role as well.

Some of Simondon’s ideas were readily co-opted by Baudrillard for his own ends in *Le Système des Objets* (1968). Drawing upon semiotics, psychoanalytic theory and fashion magazines, Baudrillard argued that objects embody “*modes of consumption*” that impregnate *modernité* into the fabric of daily life. The “functionality” of objects is therefore not resumed to their adaptedness to a goal as much as to their capacity to integrate themselves into a coherent *système de signes*. To promote these ideas, Baudrillard used Simondon as a benchmark from which to establish a fundamental separation between technological and psycho-sociological “realities.” Concentrating on the latter aspects, he neutralized the technological reality of the object by portraying it firstly as rigor-

ous, rational and coherent, then as open to perturbations and modifications by the irrationality of needs, and lastly as unable to account for the *systeme quotidien* in which the object takes part.

Somatic and strategic

Whereas the gas mask may not be a typical technical object, and less still a usual item of bourgeois *convoitise*, these ideas and notions seem to me extremely pertinent and applicable to the gas mask in their *descriptive* capacities. At the same time, this very adequacy goes a long way to undermine, rather than confirm, their original *explanatory* purposes.

To start with, I argue – and this really should not come as a surprise – that the gas mask is and has always been conceived to be *abstract* in its mode of existence (compare fig. 1 with fig. 2, 3 etc.). Being such as it is, the gas mask is comprised of physically separate and preset principles/elements – viz., rubber mask and filter – each oriented toward the fulfillment of its own function. It is because of this analytical independence that the improbable and unanticipated assembly of those components can pose severe problems of compatibility, and eventually lead to lethal contradictions. Conversely, it is precisely because of the segregated and compartmentalized state in which these principles/elements are normally held that the potential hazards their assembly might cause remain imperceptible.

But for the same reasons that we can endorse Simondon's characterization of the object, we cannot accept his interpretation. Gas masks are such as they are (i.e., abstract) (also) because it has been beneficial to fill their superfluous/advantageous margin with the extraneous and interested attributes of conservation and control. If we decline to explain away the resemblance between this and wars-distant models as an aberrant case of technological stagnation (or a precocious case of technological perfection), we must accept that the given mode of existence of the gas mask is not (only) a **somatic mark** of its internal development – as Simondon would have it – but (also) a **strategic means** with which to incorporate into the object the interests it is designed to serve.

With this reinterpretation, we are also in a better position to account for the "synchronic instability" of the gas mask. Granted that its mode of existence has been enlisted and maintained to promote long-lasting and compelling interests, we can reasonably

assume that changes in these interests (as much as Simondon's inexorable process of concretization) could lead the object to subsequent modes of its existence. Thus – now more than ever – it becomes crucial to recognize and evaluate the various interests conveyed by the object. If it is felt by those concerned that there is nothing particularly immediate or urgent about the new interests that it is now wanted to serve, then the mode of existence of the object can remain *immutable* through its earthly existence, pending its timely demise and replacement on a *generational* basis (as Simondon envisioned). If, on the other hand, these new and sudden interests are seen by all concerned as being absolutely vital to secure, now, then every possible effort will be made to overcome those aspects that turn out to be obsolete and obstructive by superimposing on the object a mode of existence which will be *transmutable* on a *situational* basis.

To conclude – back to the box

This is exactly what happened with our gas masks. In previous times, the gas masks were conserved and controlled in the establishment's powerful hands to promote the "common good," and analytically maintained to perpetuate their potential readiness to be used, just in case, by being *abstract*. But when after August 1990 the menace of gas became too credible to be ignored any longer, there occurred of necessity a crucial change of perspective. To recover their ostensible *raison d'être* and to provide cover for the apprehensive facial expression which "all residents of Israel" now displayed, the gas masks were then forcibly willed to be the "Good itself," and synthetically assembled to actually and punctually save lives, now, by being *concrete*.

That the mode of existence of the gas mask does indeed **reflect** and **affect** the situations in which it is put and the interests it is meant to serve receives ample confirmation. To illustrate this point, and thereby to draw together the strands of all we have investigated and discussed in the trials of the gas mask, let me recall a self-effacing and prosaic object to which we can now give the full credit it deserves: the cardboard box!

When peace reigned, the cardboard box served the gas mask as its hopefully permanent storing sanctuary. When the *drôle de guerre* started in August 1990, the box (and the sticker) served the gas mask as a vehicle to contain its integrity in the privacy of our

homesteads. Then, when came the 18th of January 1991, the cardboard box served the gas mask as a crust out of which to mutate onto our near-hysterical faces.

It was when the all-clear finally sounded to relieve us from this traumatic interface that the cardboard box saw its hours of glory (Figure 6). When, abiding by the official instructions, we dismantled the gas mask back into the box, we promoted its potential existence by having it as it was *designed* to be – conservable, controllable, and abstract. When, called by the newly sounding alert sirens, we assembled the gas mask out of its box, we promoted *our* actual existence by having it as it was *designated* to be: usable, efficient, and concrete. What the humble cardboard box did, in other words, was to serve as a **transformer** to different modes of existence, and at the same time as a **translator** to different interests. Between being a restoring sanatorium backward to “abstraction,” and a springboard forward to “concretization,” between being durable and transient, the cardboard box maintained the object in a fleeting state of under-determination, a crucial temporal and material instant during which we were able to transform our aspirations (be they about the object, or our lives) into deeds: with the gas mask thus suspended by the cardboard box in a sort of technical *Degré Zero*, these will be actions *toward* it (in or out of the box) and not *in function* of it, that will determine its fate, and ours too!

Following this trajectory of transmutation permits us also to rescue techniques from the unenviable quandary in which they have been imputed by Jean (“*La Guerre du Golfe n’a pas eu lieu*”) Baudrillard. Far from being literally meaningless – because technical – the trials that we and the gas masks had to endure do show that in the supposedly constraining realm of life-saving techniques as in most other “*il n’y a pas de geste pur*” (*dixit* M. Mauss), and that rigor and rationality remain relative to the scales and the interests in which they are situated. Concomitantly, far from constituting a preliminary, bracketable and perturbable “datum,” it is the very technicity of the gas mask that promotes its functional integration into the coherent defensive *système*. Furthermore, this technicity is necessarily present and implicated and perpetually impinging on the ongoing *quotidienneté* of the object – so much so that several unfortunate users died as a consequence!

Following this trajectory of transmutation, we can also understand how is it that the vast majority of the targeted population did manage to “go on the defensive” and survive the process. This is

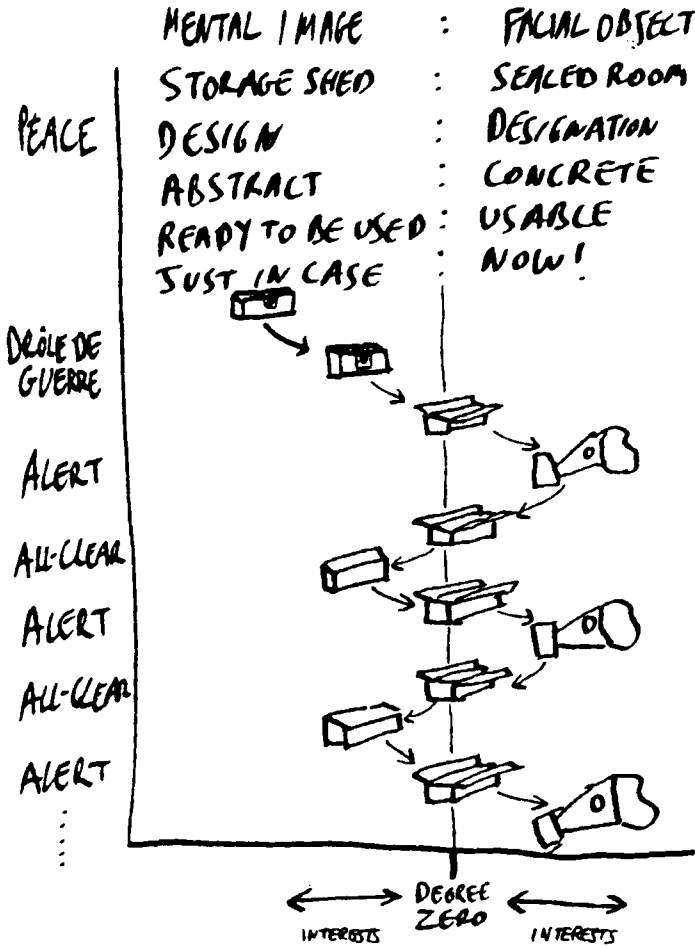


Figure 6. Trajectories of transmutations – the cardboard box as transformer of modes of existence and translator of interests.

also how the gas mask itself underwent a salutary transformation; from macabre mental image to an object, abstract, concrete, and good to live and to think with (now that peace reigns again).

ADDENDUM: This account was not meant to be exhaustive or comprehensive, and I have therefore not undertaken any comparative assessments of various gas masks available on the (surplus)

market. The latest gas mask issued by NATO to its 3 million soldiers is a model of the kind, however, and deserves special mention: its filter does *not* have a plug at all, and (while being replaceable) it is permanently attached to the rubber mask, an attachment which is allowed by the special design of the pouch in which the gas mask is to be stored. If we add the fact that the kit comes with a "detection paper" which changes color in the presence of various gases, we clearly face here an object which is from the outset "concrete." I leave you to draw the implications.

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