Introduction to the Arcón© Method

Canine Catastrophe Rescue consists of using dogs to find people that have been accidentally buried for whatever reason (explosions, earthquakes, structural flaws, hurricanes, tornadoes, avalanches, landslides, etc.).

Arcón is a system to train and intervene in catastrophes with canine rescue teams. It was created by Jaime Parejo after twelve years of study and research. The method was deemed finished in October 1994, and he chose the name Arcón in honour of his pet and pioneering student.

The Arcón Method's proven success in rescue operations has led it to win numerous major official awards both nationally and internationally, such as the First Prize for Research granted by the Spanish Royal Canine Society and the Sasakawa Certificate of Distinction from the United Nations.

The first canine rescue unit that Jaime Parejo officially assembled using this system was for the firefighters of Seville (Spain) back in 1996, where he is currently chief of this unit. Since then, official guides, instructors and rescue dogs have been trained and certified for important firefighting squads and police corps in a number of countries where there is a heightened risk of disasters (Colombia, El Salvador, Ecuador, Chile…).

The Arcón Method is primarily based on a set of seven innovative behavioural techniques which complement each other and have an effective impact on three fundamental, interrelated parameters in search operations: autonomy, motivation and concentration.

The moulding processes (reinforcement of successive approximations to the desired response) that characterise traditional canine search training methods and which are still currently used, are excessively limited to basic or primary learning processes (classical conditioning, operant conditioning, avoidance, extinction, generalisation, discrimination, cognitive perspectives, etc.). However, the same does not hold true with the Arcón Method. After twelve years of persistent, intense and complex endeavours entailing observation, study, measurement and analysis of variables and responses, verification of multiple hypotheses and field experimentation, in short, scientific research, Jaime Parejo, a tireless, rigorous scholar and researcher into animal behaviour and learning, was able to painstakingly develop a series of techniques that are minutely interrelated and ultimately manage to positively optimise the possible levels of autonomy, motivation and concentration of the animals when performing operations involving searches for buried people, either outdoors or in confined spaces with no visibility and a living space reduced to the minimum feasible displacement values.

With the aforementioned enhancement of the levels of motivation, working autonomy, and concentration, fulfilment of the objective set from the start, namely better speed and efficacy when locating buried persons, was repeatedly verified (with a substantial, noticeable operative difference).

This revolutionary, transcendent scientific method has enriched and expended especially the field of animal learning. For several years now, this has also in parallel led to the rescue of buried people in several countries. It has also led the Arcón Method to be chosen and approved by governments as the official training and intervention system, and this method has also been officially adopted by the leading emergency squads and security forces and corps in countries with a high risk of earthquakes.

The Arcón Method is regarded as a major step forward for humanity, and it is currently the sole rescue system with official status, due to its exceptional efficacy in searching for and localising buried people. Following are several examples.

Since 1999, many living people buried in extreme difficult search conditions have been localised by the Canine Rescue Unit of firefighters.

In 2005, the Intervention and Rescue Group of Ecuador's National Police Force demonstrated the unique effectiveness of the system for detecting explosives by winning first prize in the International K-9 Competition in Indiana, United States for Police and Military Corps, after vying for the prize with leading units from the United States, Canada and Latin America.

Since 2006, the number of anti-personnel mines detected by the Mobile Customs Squads of Colombia's National Police Force has increased. The number of endangered animals detected by the Environmental Protection Unit of Ecuador's National Police Force has also risen, thus stanching the illegal trafficking of these animals in the Galapagos National Park. Finally, the Canine Brigade of the Caracas Police Corps has stepped up its detection of narcotics.

The basic instruments used when applying the Arcón techniques include:

• The guide's bodily comportment.
• A methodical process of analysing and observing canine behaviours and work environments.
• Individualised and constant technical dosage of the behavioural resources.
• Painstakingly-designed procedure of interaction amongst all the behavioural techniques.
• …

The animal trained using this method tends to more intensely exploit its physical and psychological resources during the search process in a way that is particularly natural, voluntary and fruitful.

Below is a very basic, schematic assessment of the incidence of the Arcón Method on the three main parameters: autonomy, motivation and concentration.

Autonomy

There is repeated proof that when a dog experiences a higher degree of work autonomy, its degree of concentration on the job increases in a parallel fashion. This system allows this level of autonomy associated with a solid focus on the search behaviour to be optimised.

The animal dissociates from the guide without any harmful interruptions in its line of search, such as sporadic returns to the guide or bodily actions with the goal of catching sight of the guide. We stress the fact that excessive participation by the guide (a very common mistake), either verbal or physical, during the canine work behaviour generates the consequent negative expectation of support in the dog's memory storage, which only becomes more pronounced and meddlesome during the search as time goes by without the animal having managed to perceive the desired scent stimulus of a potential buried person.

There are three main Arcón techniques that taken together largely enable the goals on the expected working autonomy to be achieved:

• Technique to block the yo-yo effect by return control (applied preventatively).

• Gradual autonomy technique by the action of the mannequin effect (applied in the phases of education, training and occasionally in intervention).

• Technique of innocuous re-establishment by sound insertion (applied occasionally in the initial education phase).

Motivation

Applying this system generates in the animal a motivational drive that is especially strong for this type of work, thus fostering the dog's levels of intensity, perseverance and concentration during the search operation, as well as shielding it from possible deviating stimuli.

There are four Arcón techniques aimed at preserving or nurturing this level of specific motivation:

• Calibrated reinforcement technique by triple control (applied in education and training phases).

• Feasible localisation technique by compensation of negative factors (a technique that "helps" to keep the dog motivated in the search by eliminating some items in the field that may adversely affect its search, such as passing animals, food, etc- this technique is applied only in educational phases, and occasionally during training).

• Chained search technique by mimicked dissuasion of the buried person (a technique used to dissuade the dog from stagnating at the first buried person and to encourage it to go and find the next buried person. It is applied in the phases of education, training and during interventions).

• Non-requested support technique by restrained approximation (a technique based on providing moderate support to the dog to help it find the buried person. –the support is only given when not requested and is applied occasionally only during the initial stages of education to keep motivation high).

It is important to bear in mind that in the education or learning phase, the animal's experience of not successfully achieving the goals, that is, of failure, will lower the expectation evoked by the training activity and the respective setting, thus seriously jeopardising the degree of motivation required to face the learning process and for the future performance of the search work.

This negative circumstance can be avoided by applying the aforementioned techniques, while they also contribute to the fact that the mere search and the environment of rubble in themselves generate a powerful reinforcement effect for the animals. The search activity provokes in dogs a positive rise in their excitation level, which is added to the motivation spurred by the incentive.

Concentration

In this case, the animal's degree of voluntary attention in the search will be primarily associated with the two previous parameters (autonomy and motivation), and will not be dependent on a possible application of specific techniques.

The dog trained using this system shows a visible and continuous high degree of concentration in the search, experiencing a solid line of attention.

Concentration could be defined as the organisation of the animal's attention in order to perform a given task. In the case at hand this entails the olfactory process of sniffing with the goal of capturing human scent molecules in the air that allow the animal to head towards the source, namely, the person buried among rubble, earth, snow, clay, etc.

A higher level of concentration will enhance the application of the dog's olfactory reception and elaboration devices, thus limiting its field of awareness and in consequence fostering its ability to capture the scent of persons who may be buried.

The 250 hours in the official basic Arcón courses specialisation are devoted virtually in their entirety to the introductory theoretical-practical transmission of the complex dynamics of application, interaction and performance of the Arcón techniques, in both training and in accident interventions.

Based on the significant technical, operative, professional and scientific value of the Arcón method, below, as supplementary information, is an excerpt from an official technical report written by Patricio Galiano Borja, a prominent international expert and instructor in different canine fields, psychology scholar, lieutenant and head of the Canine Unit in Ecuador's National Police Force's Intervention and Rescue Group.

OPERATIVE TECHNICAL REPORT OFFICIALLY SUBMITTED TO THE COMMAND OF THE INTERVENTION AND RESCUE GROUP (IRG) OF THE NATIONAL POLICE FORCE OF ECUADOR.

DATE: 02 May 2007.
LOCATION: IRG Quarters, Quito.
TIME: 08:30.
MATTER: Evaluation of the application of the Arcón Method in the IRG's Anti-explosive and Rescue Canine Unit.

1) Background

- Official invitation extended by our unit for Jaime Parejo García to teach four official courses of the Arcón Method in our country.

- Request made by the General Commandant of the National Police Force, General Jorge Poveda Zúñiga, addressed to the Ministry of Government and Police in 2004, with the purpose of making the Arcón Method official in our country in order to ensure a common language and maximum efficacy when performing real rescue tasks in the event of a catastrophe.

- Ministerial Agreement whereby in 2004 the Arcón Method became Ecuador's official governmental canine team system to prepare, implement and intervene in the event of a catastrophe.

2) Gathering Knowledge

Our country has received a total of four official international courses in the Arcón Method, in which students were from both Ecuador and abroad, coming from a total of 13 countries in Latin America and Spain, belonging to a variety of different official firefighting, police and army groups.

3) Proof and Verification

- In recent years, through the participation of canine teams from the different countries attending the official courses taught in our country, the efficacy and efficiency of localising buried persons by the animals certified via this method has been amply proven.

- The increase in the dogs' levels of autonomy, motivation and concentration could clearly be seen, not only in rescue operations but also in all the areas in which our institution uses dogs for police work.

- Simulations have been conducted with the assistance of authorities and the public at large in which the "victims" have decided where to be buried, thus demonstrating the transparency of the process of localising possible living victims in the event of a real catastrophe.

4) Application of Arcón Method techniques in other working areas with dogs:

As a practical, scientific method, the results are easy to measure and verify. Our unit has applied the techniques of the Arcón Method in all areas of detection, specifically the detection of explosives, drugs and even the trafficking of shark fin, sea cucumber and wild animals. We are the only country in the world that has dogs trained for these purposes, and the results are outstanding in real operations in which trafficked explosives and endangered animal species have been confiscated in the eastern part of our country and the Galapagos Islands, respectively.

5) Conclusions

- One can call a training method scientific when it is not sustained merely on (empirical) experience or field observation, rather in the handling of a process through which its hypotheses may be fully verified, and the application and consequent measurement of the results is possible.

- Based on the work performed with our canine teams, we can certify their efficacy and efficiency in real jobs whose results are known publicly in our country.

- With regard to the complex Arcón Techniques, which are methodically interrelated, some of them affect the level of working autonomy (without any decline in the type of control that may be needed), while others affect the intrinsic and extrinsic motivation when carrying out the search. At the same time, the levels of motivation and working autonomy, which are especially fostered by these techniques, interact in an extremely positive way to increase the level of concentration in the animal, which then exploits its respective olfactory sense receptors exceptionally effectively, yielding a fruitful search operation.

- To conclude this report, I would like to state that in our judgement, the Arcón Method is a technical and scientific system for the training and intervention of canine teams not just in the event of catastrophes but also in all the areas of detection that might arise all over the world, as for all of these areas it is crucial to have the utmost efficacy and efficiency possible. This method is thus an extraordinary tool for improving the levels of autonomy, motivation and concentration which are so indispensable in any type of work with detection dogs.

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THE ARCÓN METHOD
Descriptive synthesis

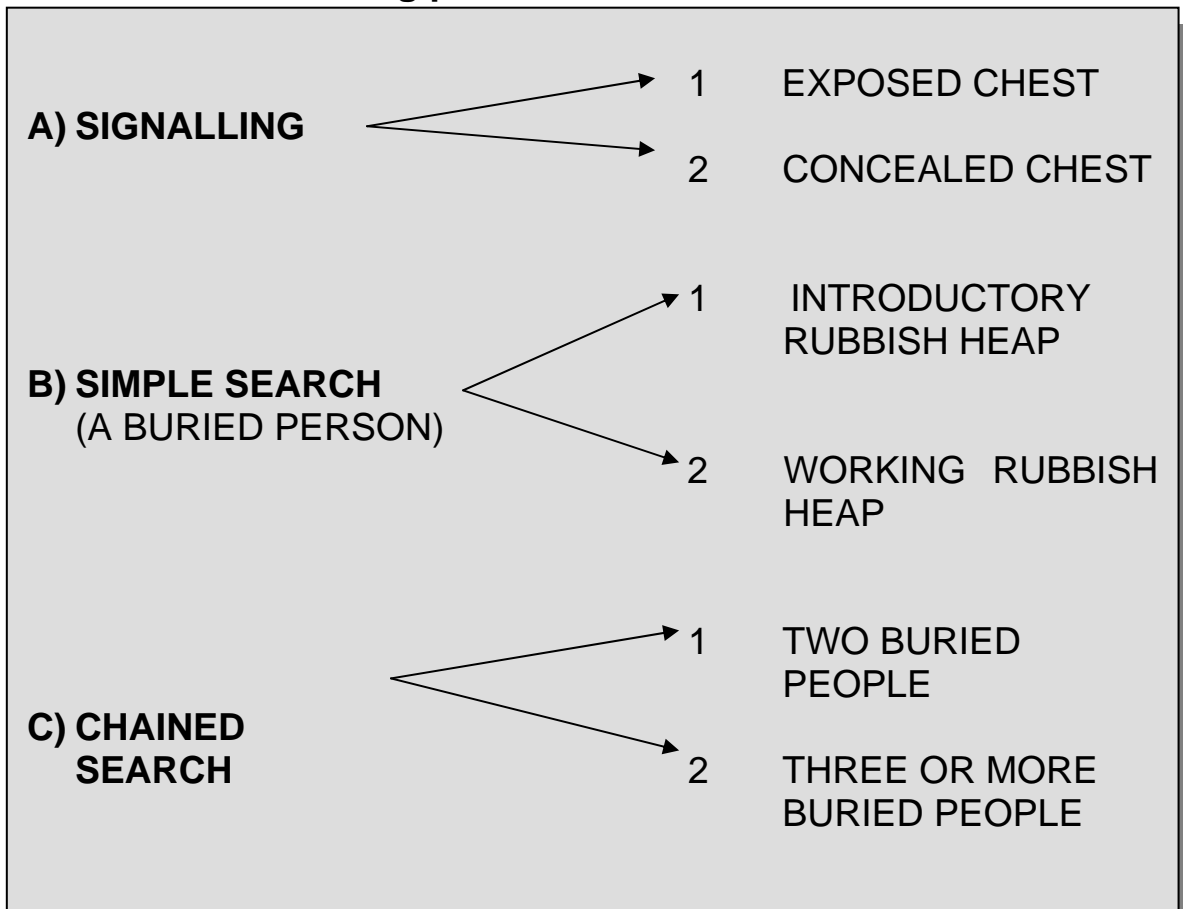**THE ARCÓN METHOD**
Descriptive synthesis

PHASES IN THE TRAINING PROCESS

Author: JAIME PAREJO GARCÍA

Phases in the training process

A) SIGNALLING	1	EXPOSED CHEST
	2	CONCEALED CHEST
B) SIMPLE SEARCH (A BURIED PERSON)	1	INTRODUCTORY RUBBISH HEAP
	2	WORKING RUBBISH HEAP
C) CHAINED SEARCH	1	TWO BURIED PEOPLE
	2	THREE OR MORE BURIED PEOPLE

A)   SIGNALLING (EXPOSED AND CONCEALED CHEST)

– The goal of this phase is to condition the dog to emit a bark towards a non-visible human located underground.

– The dog must have previously become accustomed to share play with unknown people, as well as the act of barking fluently, due to the simple natural impulse generated by the excited desire to share this play with a determined object.

It should be pointed out that conditioning the dog to bark at any visible person to play should be avoided, as the dog might learn to bark to achieve goals in other situations. I also believe that the bark should not be conditioned to a prior order, which would generate in the dog a wrong expectation.

– The dog would have previously been subjected to several days of deprivation of fun activities and exercise. By doing so, we foster the momentum needed to energise the execution of these first few

guidelines while simultaneously increasing the positive effect of reinforcement.

 − The extra (stuntman) must be a person that the dog knows (but not the guide), thus fostering the initial degree of trust and stimulation needed. From the start, the dog dissociates from the guide as a possible primary element-goal.

 − The dog must previously become familiar with the setting where the chest is placed.

 − We should use whatever motivator provides the most incentive for the dog (ball, roller, doll, stick, etc.), clarifying that this should only be used in the initial stage of learning with the purpose of dog associating its simple specific smell as the sole discriminatory stimulus it reacts to by signalling and thus avoid signalling towards the buried person, who will not have this stimulus.

 − We should avoid working under adverse weather conditions (high temperatures, heavy rains, etc.) that could spur negative reactions or distraction in the dog.

 − The observers should place themselves at least 15 metres from the working area and avoid movements, postures or sounds that might distract the animal's behaviour. In this initial phase, the dog will be especially susceptible to any type of distraction, yet it is fundamental for it to perform successfully.

 − For this phase, I feel a special predilection for the use of chests located on paved surfaces (asphalt, concrete, etc.) with no traffic. Obviously, with pavement we substantially minimise the potential presence of interfering olfactory stimulants, which nevertheless would be inherent in what we call the terrain.

 − We should remove any object or material from the surface that hypothetically might erroneously draw the dog's attention (tools, clothing, excrement, etc.).

 − At first a hard wood or plastic lid should be used, as they are more manageable and durable (with a handle in the middle).

 − The dog should first be left in a zone away from the working area for a few minutes so that it may urinate, defecate and relax. This is a general rule in the entire learning phase.

Bare chest: 1st step

 − The guide with the dog on a leash should head towards a place around 20 metres in front of the chest (variable according to the motivational state observed in the animal). During the walk towards the leash release point, is removed the guide must emotionally activate the dog, mentally warming it up

for the job. The guide should not repress any possible valuable impetus shown by the animal by avoiding, for example, the use of extensible leads or pull backwards on the lead.

− The extra will be waiting for the guide halfway between the chest and the release point. S/he should make movements to incite the dog, showing the dog the motivator and making voices that truly stimulate it until achieving a positive effect of attraction on the dog.

− When the extra deems that the dog has been provoked to a sufficient degree of excitability and impetus, s/he will quickly move towards the chest and will get into the chest, in plain view of the dog, repeating the stimulation moves before immersing him/herself fully in the hole and covering him/herself with the lid.

− The instructor should carefully observe the dog's behaviour outside and indicate to the hidden extra (by means of a transceiver) the right time to reinforce the emission of barking (even though the extra might hear the dog barking, s/he cannot know whether the barking is addressed improperly to the guide or another element, and thus whether or not s/he should stop the signalling based on the possible state of inhibition or another aspect in the dog. Thus, technical guidance from the outside is necessary).

− The extra should not verbally praise the dog precisely when s/he is indicated as this might dovetail with a silent pause. This praise should, to the extent possible, be simultaneous with the next bark issued in order to thus foster the required time contiguousness that allows for proper association and conditioning.

  Immediately afterwards the lid is removed and the extra immediately praises the dog by petting it and encouraging it to draw closer in order to thus heighten its level of confidence in this strange new situation. Now is when the guide may approach the dog to praise it and pet it as well.

− The extra may come out of the chest in order to share the euphoria and play with the dog alongside the guide.

− The extra should always begin the verbal reinforcement from inside the hideout, rectifying as much as possible the delay that there might be between the signalling bark of the dog and the opening of the chest.

− The reason why the guide does not verbally reinforce nor draw close to the dog until the extra has done so is for the dog to clearly identify the extra(s) as the "goal-element", and thus dissociate the guide with this role and with that of "possible means for getting reinforcement". This is the main reason why the Arcón method does not include the possibility of the guide taking on the role of extra, even though this is quite a widespread practice in the initial phase.

  Thus we solidly manage to avoid the risk that in the accident the dog improperly leaves the localisation point and returns to the guide occasionally. Additionally, we preserve the dog's invaluable potential for autonomy in the search process.

− The dog learns to bark at the person hidden under the surface thanks to its basic mechanism of associative learning.

Exposed chest: 2nd step

The release point is kept, but in this case the dog can make out the chest covered by a lid without the prior presence of the extra.

Concealed chest: 1st step

− The lid is partially covered with rubble. The instructor should control more or less covering when carrying out this next exercise based on the possible degree of inhibition observed in the dog before including the new concealed element, until reaching the point in which the dog signals confidently and fluently towards a lid that is totally covered in rubble.

− When the figure and guide reinforce the dog, they should bear in mind that it is crucial to convey to it the necessary degree of emotion, imbuing their movements, voice intonations and petting with the required excitement that will manage to intensely stimulate the dog.

Concealed chest: 2nd step

− The signalling phase will end when the dog satisfactorily performs this exercise with another chest that is totally concealed and in a different location. Thus we should check whether the element "rubble" has acquired enough strength as a predictive stimulus for the dog.

− The rubble used with the second chest should be different from that used with the first one, although obviously they will share similar basic features that will enable the dog to generalise.

− One key factor to bear in mind when preparing these exercises is to always predict that the extra must be able to remove the lid covered with rubble without help. Thus, the weight and position of the elements lying on top of it must be controlled and the necessary trials at opening the chest should be held before the exercise.

− With the actions with the "concealed chest", all the extras must wear the appropriate protective helmet and any other safety gear required.

− The extra should partially move the lid to give immediate reinforcement.

⊙ During the signalling phase, the following techniques should be applied whenever necessary:

– Gradual autonomy technique by the mannequin effect

– Technique of innocuous re-establishment by sound insertion

– Feasible localisation technique by compensation negative factors

B) SIMPLE SEARCH (one buried person) (INTRODUCTORY RUBBLE HEAP AND RUBBLE HEAP TRAINING SITE)

Introductory rubble heap

– An introductory heap of rubble is that which does not exceed an approximate surface area of 50m^2 and has a moderate height.

– The "emotional activation" factor must be applied in all the search exercises, as prior stimulus is key during the walk (several metres) before releasing the dog.

– The distance from the release point to the rubble heap should not be more than 25 m.

– For the first cover of the hideout, a fragment of board or something similar should be used, and rubble should be placed over it until achieving a totally hermetic closure that prevents the dog from catching any glimpse of the extra (stuntman) or from reaching him/her. In the burials, you should also try to avoid any possible distinctive features that might foster in the dog any type of visual discrimination in the future work areas and their consequent harmful association. When the extra removes the closure it might be very harmful for the dog to get any sort of negative impact from any element in the rubble and thus generate the consequent negative conditioning in the animal. This circumstance must be prevented and controlled by means of prior rehearsals, as mentioned above.

– The dogs should be in inside their corresponding transport cages, in the "waiting area", without any possibility of seeing the working area.

– The extras (stuntmen) are still people who are familiar to the dog during the "introductory rubble heap" phase and the first search in the "rubble heap training site" phase in order to continue thereafter with extras who are total strangers.

– The dog should not be allowed to become familiar with the training site in order to foster the ability to adapt to new environments.

– The dog should feel attracted at first by the simple sight of the rubble heap, which after the "concealed chest" phase should have become a powerful predictive stimulus.

- Occasionally it can be seen that when certain dogs perceive the source of the human scent of the buried person they urinate or even defecate after the unavoidable relaxation of the sphincters prompted by the consequent emotional reaction.

- In some dogs there is an impairment of their barking ability which they cannot properly control and that harmfully hinders the fluency of the barking signal.

- The sense of frustration or anxiety during the search may at times be expressed with repeated chewing of blades of grass or other items.

Rubble heap training site

- The dog that manages to properly localise and signal the stuntman buried in the "introductory rubble heap" will then go on to work in larger areas, called rubble heap training sites.

- We should gradually push the dog to search further, beginning with a moderate distance from the release point to the buried person.

- Should the motivator be an object whose scent might be detrimental to the dog's search ability, it should be replaced by a simple stick or another innocuous item (with no scent), while striving not to diminish the intensity of the reinforcement. We thus avoid the future risk of possible avoidance actions when signalling buried persons.

- "The source of human scent coming out of the rubble" now becomes a powerful predictive stimulus for the dog.

- Just like other species, dogs have the capacity to respond in the same way to different stimuli that bear certain similarities. For this reason, it is feasible for them to generalise when faced with any rubble heap or different human scents.

- In the "rubble heap training site", the distance from the release point to the location of the buried person should gradually be increased, as it is the dog's own motivational state that will drive it to carry out the olfactory search for human scent molecules that will guide it towards the source emerging from the rubble, emanating from the buried extra.

- The instructor should determine:

  - Possible suitability of the rubble area

  - Location of the hideout

  - Position of each dog's release point

- The dog should get used to searching for buried people by sniffing. To achieve this, we should gradually try to reduce the possibility of it using existing traces on the terrain to head towards the target, and these traces should not be associated with key localisation signals. Sniffing is the only reliable procedure for searching for buried people after a cave-in.

- The people moving around the rubble area during the set-up when digging out the hiding place and hiding the extra should adhere to a pre-set route for entering and leaving this area. The release point should always be on the opposite side of this route.

- Another resource regarded as valid is to riddle the terrain with multiple traces in a premeditated fashion.

- Likewise, I discovered that certain dogs even used the traces left by the dog that went before them as a resource to guide themselves to the buried person. This circumstance can easily be solved by a methodical control of the dog's turns at searching.

- Upon noticing that certain dogs presented symptoms of stress (lack of vigour, inability to concentrate, increase in salivation, etc.) in their a search behaviour without any apparent cause, I managed to detect that the origin lay in the previous capture of pheromones by the male that had been excreted by some female in heat in another place and time (aerially, in the urine, etc.).

- This state can last up to several weeks, during which the dog should be withdrawn from any activity that requires psychological effort.

- The hideout should not be used more than once by the same dog, nor should the rubble heap once the feasible burials have been done.

- Under no circumstances should the dog ever be upbraided in the rubble area, thus avoiding – among other consequences – the possibility that this area becomes a conditioning inhibiting stimulus for the dog, which might even slightly diminish its possible state of motivation or concentration.

- I should point out that even though I am in favour of the dog's learning by certain direction orders (a relatively simple operation), I am steadfastly opposed to using these orders during everyday training, as it could harm the dog's initiative and autonomy to a greater or lesser degree, as it might harmfully identify the guide as a possible guiding resource during search operations and certain situations, thus visibly harming its required level of concentration.

◉ The following techniques are applicable in this "simple search" phase:

- Gradual autonomy by the mannequin effect

- Innocuous re-establishment by sound insertion

- Feasible localisation by compensation of negative factors

- Support without request by restricted approximation

C) CHAINED SEARCH (two or more buried persons)

– We should begin the "chained search" learning process with only two buried extras.

– The respective hideouts should be located in the "rubble heap training site" separated by an average distance of 50 metres.

– Once one of the two extras has been signalled by the dog, the "chained search technique by mimicked dissuasion of the buried person" should be applied, so that as soon as the extra who has been localised and signalled secondly is the one who reinforces the dog as described in the "simple search". After reinforcing the dog and then withdrawing, the guide puts on the leash and takes the dog up to a middle point towards the second buried person, and releases the dog once again. In this way, we strive to ensure the dog's success in the second localisation and the consequent inclusion of this new work scheme in its memory and behavioural repertoire.

– The instructor should watch carefully in order to use the transceiver to warn the extra who should reinforce, as it will be impossible to fully predict which buried person the dog will capture and signal first.

– When it has been confirmed that the dog properly performs the "chained search" behaviour with two buried people, a third hideout and extra should be added, keeping the average distance of 50 metres from the other two.

– We should continue applying the same basic mechanism, "mimicked dissuasion" with the first two extras signalled and the reinforcement (especially pronounced) in the case of the third and last extra signalled. Following this pattern, several different search operations with variable numbers of buried persons (one, five, six, etc.) should be performed. The extra who gives the reinforcement should also vary, but always bearing in mind that the chained search comes to an end for each dog with the appearance of the main reinforcement (from the guide and extra).

– The dog gradually includes this new scheme of chained searches into its behavioural repertoire, developing the new expectation of the possible continuity of the search after a variable number of signalling acts, with the main reinforcement appearing in an unpredictable fashion. This type of circumstance actually becomes an added stimulus for the dog.

– The dog should gradually come to be released from the signal point itself.

– Before each search instruction, the dog will always be placed on the leash with the purpose of its gradually becoming used to restarting the search without ever having to await the guide's order.

◉ The following techniques will be applied in this chained search phase:

- Gradual autonomy technique by the mannequin effect

- Feasible localisation technique by compensation negative factors

- Calibrated reinforcement technique by triple control

- Chained search technique by mimicked dissuasion of the buried person

When the "chained search" behaviour is deemed to be consolidated in the dog, we should gradually subject it to different types of discriminatory trainings (olfactory, visual, etc.) and have it carry out searches with the presence of adverse factors (confinement, noise, etc.). A moderate process of individualised intensification should always be applied.

Once the initial training process has been completed, the dog will show an especially solid and effective level of autonomy, motivation and concentration in the searches. From here on out, the following techniques should be applied constantly:

- Gradual autonomy technique by the mannequin effect

- Calibrated reinforcement technique by triple control

- Chained search technique by mimicked dissuasion of the buried person

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THE ARCÓN TECHNIQUES

Author: JAIME PAREJO GARCÍA

THE ARCÓN TECHNIQUE

TECHNIQUE TO BLOCK THE "YO-YO EFFECT" BY RETURN CONTROL

GRADUAL AUTONOMY TECHNIQUE BY THE "MANNEQUIN EFFECT"

TECHNIQUE OF INNOCUOUS RE-ESTABLISHMENT BY SOUND INSERTION

FEASIBLE LOCALISATION TECHNIQUE BY COMPENSATION OF NEGATIVE FACTORS

NON-REQUESTED SUPPORT TECHNIQUE BY RESTRICTED APPROXIMATION

CALIBRATED REINFORCEMENT TECHNIQUE BY TRIPLE CONTROL

CHAINED SEARCH TECHNIQUE BY MIMICKED DISSUASION OF THE BURIED PERSON

The Arcón Techniques are strictly faithful to the rational demands of the conventional scientific technique and have been repeatedly subject to the corresponding process of experimentation and verification.

TECHNIQUE TO BLOCK THE "YO-YO EFFECT" BY RETURN CONTROL

OBJECTIVE

To avoid possibly generating the "yo-yo effect" in the dog by applying a series of specific preventative guidelines.

The "yo-yo effect" is a behavioural phenomenon that I discovered in certain dogs, who systematically returned to their guide after going a certain distance, thus obeying a type of entrenched mental inertia.

This is a habit that is especially detrimental in canine rescue work, which impairs the dog's autonomy and initiative in search operations.

CIRCUMSTANCES WHEN APPLIED

Fundamentally when the dog makes some type of return to the guide, or stays away waiting to be called.

BASIC GUIDELINES

− Keep the use of call orders to a minimum. I have noticed that excessive use of call orders was the main cause leading dogs to acquire this habit.

− When the dog returns, avoid any type action that implies a certain reinforcement effect (saying affectionate words, petting, play-type behaviour, etc.).

GRADUAL AUTONOMY TECHNIQUE BY THE "MANNEQUIN EFFECT"

OBJECTIVE

By managing to get the dog to dissociate the guide as a possible support element, we will gradually enhance:

− The level of autonomy and concentration in the search.

− The scope of the reinforcement due to the important effect of the contrast produced from the guide's unchanging mannequin attitude to the subsequent active, euphoric reinforcement.

− The dog duly remaining at the localisation point while signalling.

CIRCUMSTANCES WHEN APPLIED

When in the working session the dog returns to the guide or without distancing itself from the guide tries to draw his/her attention in any way (barking, standing on hind legs, etc.) the guide should assume the mannequin pose, giving reinforcement in a rational and balanced way in working sessions or real interventions.

BASIC GUIDELINES

The guide should always keep a firm, inert and unchanging stance before the dog, omitting any type of physical (even facial) or verbal reactions, as if s/he were a mere mannequin.

TECHNIQUE OF INNOCUOUS RE-ESTABLISHMENT BY SOUND INSERTION

OBJECTIVE

To innocuously re-establish the dog's working behaviour in view of possible deviating distractions.

Generally speaking, as repeating the search order is regarded as harmful due to its negative incidence in the dog's line of initiative, I chose to select this peculiar procedure, which is highly effective

CIRCUMSTANCES WHEN APPLIED

This resource can be applied under the relative silence that tends to characterise the initial stages of learning, although obviously it would not be feasible in a search operation with adverse auditory factors. However, it should be borne in mind that a dog in that phase no longer suffers from the same fragile susceptibility as at the start, since their own ability to re-establish their behaviour has also been substantially developed.

BASIC GUIDELINES

- The dog's perception of a brief interfering noise provoked occasionally (something dragging on the ground, the blow of an object, etc.) causes a type of instantaneous rupture in their deviated and incipient line of attention, acting as a sort of fleeting pause after which the desirable base conduct is once again re-established.

- We should try to ensure that the dog does not perceive the source of the sound made.

- The sound issued should be inserted as simultaneously as possible with the dog's manifest distraction and intensely enough without being excessive to achieve the OBJECTIVE in each instance.

FEASIBLE LOCALISATION TECHNIQUE BY COMPENSATION OF NEGATIVE FACTORS

OBJECTIVE

- To ensure that the dog is successful in the search work without undermining the target learning progress of the exercise.

- To preserve and foster the dog's motivational state, which is key for the proper evolution of the learning process.

- To avoid detrimental situations of failure and frustration in the initial training stage, thus fostering an increase in the positive stimulus that the rubble environment should provoke in the dog.

CIRCUMSTANCES WHEN APPLIED

During the learning phase and occasionally during training.

BASIC GUIDELINES

- An analysis and differentiation should be carried out on those factors or elements that might hypothetically affect the dog's search either positively or negatively (level of motivation, presence of major stimuli, weather conditions, etc.).

- We should then define the basic lines of the exercise to be performed, obeying a supposed state of balance or prior compensation that makes it possible for the dog to achieve success with the corresponding progress and without support from the guide.

We shall primarily intervene on basic factors that can be manipulated, such as the position of the release point or the location of the hideouts.

NON-REQUESTED SUPPORT WITHOUT REQUEST TECHNIQUE BY RESTRICTED APPROXIMATION

OBJECTIVE

- To carry out a successful search.

- To increase the level of security when signalling the buried person.

CIRCUMSTANCES WHEN APPLIED

- This technique is exclusively applied in those occasional cases when providing controlled support is considered less counterproductive than the dog's imminent failure, although repeated use of this technique could jeopardise the dog's potential autonomy.

- When a certain dose of insecurity negatively affects the signalling guidelines.

- This is mainly used during the initial learning phase.

BASIC GUIDELINES

- The guide approaches the dog by walking soberly towards the localisation point (where the dog tends to be) without any type of extraneous movement or verbal utterance. The guide should stop when s/he estimates that s/he has conveyed to the dog the minimum support needed.

- This technique should not be applied should there exist a prior request for support or a return by the dog to the guide, with the goal of avoiding possible negative conditioning.

CALIBRATED REINFORCEMENT TECHNIQUE BY TRIPLE CONTROL

OBJECTIVE

- To enhance the positive effect of reinforcement

- To foster the signalling pattern when needed

- To control the positive achievement of success by the dog in the search task, thus preserving and fostering its motivational level towards the activity.

CIRCUMSTANCES WHEN APPLIED

During the initial learning and training phase, especially when carrying out chained searches.

BASIC GUIDELINES

The instructor places him/herself at a strategic point that allows him/her to observe with minimal interruptions the behaviour of the dog carrying out the search and act in consequence.

S/he will control three fundamental variables via the transceiver:

- The specific stunt person who effects the reinforcement.

- The best time to start the reinforcement.

- The type of reinforcement (intensity, duration, etc.).

The instructor must previously evaluate an entire set of essential factors:

- Learning goals of the exercise.

- Signalling by dog (fluency, perseverance, target, etc.).

- Energy or motivational state observed in the dog.

- Possible states of confusion or inhibition in the dog.

In fact, during the exercise the instructor should capture and analyse any meaningful nuances reflected by the dog during the search or signalling action in order to thus truly effectively control the three aforementioned variables.

CHAINED SEARCH TECHNIQUE BY MIMICKED DISSUASION OF THE BURIED PERSON

OBJECTIVE

- To keep up the dog's required levels of autonomy, motivation and concentration during possible consecutive searches and their respective signalling.

CIRCUMSTANCES WHEN APPLIED

- In search operations during learning, training or intervention.

BASIC GUIDELINES

When the guide notices that the dog is signalling one of the hidden extras, s/he shall approach the dog at a run to reward it with a discreet pet and a brief verbal congratulation (in a real intervention, mark the rubble with spray paint should the victim not be accessible), attach the leash quickly to the dog and in plain view make a energetic, determined bodily turn away from the signalled point, which should remain then at the guide's back. Then s/he should turn towards the new area to be searched, and a new search begins.

I have seen that this bodily avoidance action by the guide at the signal point tends to provoke in the dog a special dissuasive effect, usefully freeing it from the attraction exerted by the extra and thus fostering its predisposition to try to localise another buried person, especially driven by the expectation of the chained search already created, in which the reinforcement comes unpredictably.

The guide should try to ensure that this back-turning is seen by the dog, and should always keep the point signalled by the dog at his or her back.

Likewise, the possible sense of frustration that could be sparked by the total lack of reinforcement is positively attenuated by the discreet reinforcing actions of the guide, thus avoiding the emergence of a possible inhibiting effect. We should take advantage of this incipient sense of frustration, a certain impulsive drive, which will serve to energise and motivate the next search behaviour.

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Curriculum vitae of Jaime Parejo, author of the Arcón Method

Introduction

The author of the Arcón rescue method, Jaime Parejo García, was born in Seville, Spain in 1961. From the time he was an adolescent, driven by a powerful, innate motivation, he devoted himself to studying, observing and analysing animal behaviour in their natural habitats. Thus, at the tender age of 14, he travelled (usually hitchhiking due to a lack of money) to many different natural areas within Andalusia with his parents' authorisation, which was required to travel like that at such a young age. He drafted his first research study, which he then handed in to a secondary school professor at the school where he was studying, José María Pérez Orozco, another tireless Andalusian naturalist, who recognised the exceptional qualities of the study despite its clearly amateur nature.

Jaime Parejo devoted himself to researching animal behaviour in virtually all the free time he was left after fulfilling his school obligations. Despite the fact that he earned excellent grades in both primary and secondary school, for several reasons he chose not to pursue university education and instead continued focusing on his

clearly self-taught yet rigorous, demanding, painstaking, creative and open-minded pathway.

Driven by his strong humanitarian mission and also harnessing his special drive and innate ability to observe, analyse, and generate productive hypotheses, he faced twelve years of intense, arduous research and scientific writing focused on canine behaviour in general and aimed at fostering to the extent possible the performance in mankind's specific use of dogs' olfactory perception in multiple situations. All of this ultimately culminated in October 1994 with the creation of the Arcón Method. This came after having had to solve with special determination, disheartened at times, the frequent, arduous difficulties inherent in this type of research and innovation, in which there were numerous, complex variables that both voluntarily and involuntarily affected both the observational and the experimental research on the dogs in multiple working conditions, all aimed at rescuing people buried by any element or situation.

The moulding processes (reinforcement of successive approximations to the desired instrumental response) that characterise each of the traditional canine detection training systems in general which still currently exist were excessively limited to basic or primary learning processes (classical conditioning, operant conditioning, avoidance, extinction, generalisation, discrimination, cognitive perspectives, etc.). However, the same does not hold true

with the Arcón Method. Extensive, persistent, intense and complex endeavours entailing observation, study, measurement and analysis of variables and responses, verification of multiple hypotheses and field experimentation, in short, scientific research, all enabled Jaime Parejo to painstakingly develop a series of techniques that are minutely interrelated and ultimately manage to positively optimise the possible levels of autonomy, motivation and concentration of the animals when performing operations involving searches for buried people, either outdoors or in confined spaces with no visibility and a living space reduced to the minimum feasible displacement values.

With the aforementioned enhancement of the levels of motivation, working autonomy, and the parallel line of concentration, fulfilment of the objective set from the start, namely better speed and efficacy when locating buried persons, was repeatedly verified (with a substantial, visible operative difference).

It was precisely in the Andalusian city of Seville where Jaime Parejo deemed his system complete, thus ushering in the birth of the system in October 1994, when he solidly demonstrated and verified the high level of effectiveness of the Arcón Method (easily exceeding the most cutting-edge technological methods, such as geophonic detectors), even in especially disadvantageous conditions in confined spaces, with his dog Arcón, in an official course on disaster rescue techniques held by the Public Safety School of Andalusia. In this course, the dog, before the eyes of

numerous firefighters from Granada, Almería and Seville, carried out different search operations under pressure from a variety of extremely intense adverse factors (olfactory, spatial, visual, auditory, etc.), yet it managed to maintain the optimal levels of autonomy, motivation and concentration associated with excellent values in localising and signalling patterns.

This revolutionary, transcendent scientific innovation has enriched and expanded especially the field of animal learning. For several years now, this has also in parallel led to the rescue of buried people in several countries. For example, since 1999, the canine units of firefighters in Spain, El Salvador and other countries have detected living people buried under conditions that were extremely difficult to perceive, thus proving the higher efficacy of the Arcón Method compared to other systems using either living beings or electronic means. This has led the Arcón Method to be chosen and approved by governments as the official training and intervention system, and this method has also been officially adopted by the leading emergency squads and security forces and corps in countries with a high risk of earthquakes.

It should be pointed out that this system is difficult and complex to apply, as it requires a lengthy, intense period of theoretical-practical specialisation to become minimally familiar with it and to use it properly.

The method was called Arcón in honour of his pet and pioneering student. It has repeatedly been recognised internationally as a major step forward in the field of rescue operations.

Thus was born Arcón, as a new and exceptionally effective method of training and intervening in catastrophes with canine rescue teams, mainly aimed at detecting and saving buried survivors in cave-ins triggered by any cause (earthquakes, explosions, landslides, hurricanes, avalanches, etc.). The method manages to be extremely effective in both outdoor adverse search operations and in confined spaces (with no visibility and minimum room for displacements). Ten years later, it has also been adapted by many different police corps (Ecuador, Colombia, Caracas, etc.) to detect explosives, narcotics and trafficking endangered animal species, as its greater effectiveness compared to all the traditional systems has been demonstrated.

Currently, Jaime Parejo is Canine Rescue Expert and Head of the Canine Rescue Unit of the Firefighters of Seville. He is regarded as an internationally renowned expert in the speciality of canine catastrophe rescues.

To date, he has been given numerous official awards, distinctions and congratulations both nationally and internationally from different

governments and institutions (the Spanish Committee of the Mankind Programme and UNESCO's Biosphere, the UNESCO Centre in Melilla, the governments of Spain, Colombia, China, etc.). Specific examples include the First Prize for Research granted by the Spanish Royal Canine Society in 1998, and the Sasakawa Certificate of Distinction from the United Nations in 2005, both entailing worldwide recognition of his transcendent international research and teaching efforts as well as the scientific advances of the Arcón Method in reducing the number of disaster victims.

In both case, he was the first Spaniard to earn such prominent distinctions.

He is a member of both the Spanish Ethology Society and the Animal Behaviour Society.

He has written technical and scientific articles that have been chosen and published by important journals and organisations such as Desastres.org, REDVET (official scientific and technical publication of the Veterinary Organisation, whose articles are included in the Documentation and Scientific Information Centre of the Higher Council of Scientific Research, part of Spain's Ministry of Education and Science) and CRID, the regional information centre on disasters in Latin American and the Caribbean, an important platform for inter-sectorial coordination and collaboration for the

region on information on disasters, which includes OPS/OMS, EIRD/ISDR, CNE, IFRC, CEPREDENAC and MSF.

In 1998 he published a book entitled *The Book on Rescue Dogs: Arcón Method Training* (*El Nuevo Libro del Perro de Salvamento, Formación Método Arcón*), published by Susaeta Ediciones.

He has also delivered lectures in multiple countries and institutions, such as at the 2nd Congress of Medical Departments, Firefighters of Chile in Santiago (Chile) 2001; the School of Psychology at the Universidad del Mar in Iquique (Chile), 2003; the 1st International Congress on Search and Rescue in Mérida (Venezuela), 2004; the 2nd International Seminar on Search Dogs in Bogotá (Colombia), 2004; and the Faculty of Veterinary medicine in Cáceres at the Universidad de Extremadura (Spain), 2005.

In his capacity as Technical Director and General Instructor, since 1996 he has taught a total of 23 specialisation courses in canine catastrophe rescue, the Arcón Method (one month, 250 teaching hours), always officially certified or offered by governments. In these courses, he has trained, evaluated and operatively certified guides, instructors and rescue dogs of numerous firefighter squads, police corps and armies, which were officially chosen under operative criteria from a total of 17 countries with a high risk of earthquakes.

As Technical Director, he has also technically drafted a number of official projects, rules, regulations and programmes in canine

catastrophe rescue (Arcón Method) both nationally and internationally, such as the official training programme manual of the course on canine catastrophe rescue, Arcón Method (levels 1 and 2) in 1996; the UCRA (abbreviation for the Canine Rescue Unit of Andalusia) Project in 1997; and the PEAL (abbreviation for the Arcón Strategic Plan for Latin America) in 2001.

Chronological data

Chronological data.

1961 - The author of the Arcón rescue method, Jaime Parejo García, was born in Seville, Spain in 1961. From the time he was an adolescent, fueled by a powerful, innate motivation, he devoted himself to studying, observing and analysing animal behaviour in their natural habitats. Thus, at the tender age of 14, he travelled (usually hitchhiking due to a lack of money) to many different natural areas within Andalusia with his parents' authorisation, which was required to travel like that at such a young age. He drafted his first research study, which he then handed in to a secondary school professor at the school where he was studying, José María Pérez Orozco, another tireless Andalusian naturalist, who recognised the exceptional qualities of the study despite its clearly amateur nature.

Jaime Parejo devoted himself to researching animal behaviour in virtually all the free time he was left after fulfilling his school obligations. Despite the fact that he earned excellent grades in both primary and secondary school, for several reasons he chose not to pursue university education and instead continued focusing on his clearly self-taught yet rigorous, demanding, painstaking, creative and open-minded pathway.

1990 - He was hired as a firefighter in the Fire Extinguishing and Rescue Service sof the Seville Town Hall after passing the respective tests, driving as well by his orientation towards rescue. He is currently Canine Rescue Expert Head of the Canine Rescue Unit of the Seville Town Hall, and member of the Spanish Ethology Society and the Animal Behavior Society.

1994 - Driven by his strong humanitarian mission and also harnessing his special drive and innate ability to observe, analyse, and generate productive hypotheses on animal behaviour, he faced twelve years of intense, arduous research and scientific writing focused on canine behaviour in general and aimed at fostering to the extent possible the performance in mankind's specific use of dogs' olfactory perception in multiple situations.

In October 1994, all of this work by Jaime Parejo finally culminated in the creation of the Arcón Method. This came after having had to solve with special determination, disheartened at times, the frequent, arduous difficulties inherent in this type of research and innovation, in which there were numerous, complex variables that both voluntarily and involuntarily affected both the observational and the experimental research on the dogs in multiple working conditions, all aimed at rescuing people buried by any element or situation.

Thus was born Arcón, as a new and exceptionally effective method of training and intervening in catastrophes with canine rescue teams, mainly aimed at detecting and saving buried survivors in cave-ins triggered by any cause (earthquakes, explosions, landslides, hurricanes, avalanches, etc.). The method manages to be extremely effective in both outdoor adverse search operations and in confined spaces (with no visibility and minimum room for displacements). Ten years later, it has also been adapted by many different police corps to detect explosives, narcotics and trafficking endangered animal

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This revolutionary, transcendent scientific innovation has enriched and expanded especially the field of animal learning. For several years now, this has also in parallel led to the rescue of buried people in several countries. The Arcón Method has also been chosen and approved by governments as the official training and intervention system, and it has also been officially adopted by the leading emergency squads and security forces and corps in countries with a high risk of earthquakes.

However, it should be pointed out that this system is difficult and complex to apply, as it requires a lengthy, intense period of theoretical-practical specialisation to become minimally familiar with it and to use it properly. The method was called Arcón in honour of his pet and pioneering student. It has repeatedly been recognised internationally as a major step forward in the field of rescue operations.

It was precisely in the Andalusian city of Seville where Jaime Parejo deemed his system complete, thus ushering in the birth of the system in October 1994, when he solidly demonstrated and verified the high level of effectiveness of the Arcón Method (easily exceeding the most cutting-edge technological methods, such as geophonic detectors), even in especially disadvantageous conditions in confined spaces, with his dog Arcón, in an official course on disaster rescue techniques held by the Public Safety School of Andalusia. In this course, the dog, before the eyes of numerous firefighters from Granada, Almería and Seville, carried out different search operations under pressure from a variety of extremely intense adverse factors (olfactory, spatial, visual, auditory, etc.), yet it managed to maintain the optimal levels of autonomy, motivation and concentration associated with excellent values in localising and signalling patterns.

1995 - He official drafted the pioneering UCRE (Canine Rescue Unit in Rubble) project of the SEIS Seville Town Hall.

1996 - In his capacity as Technical Director and Instructor, ha has taught the 1st Arcón Method Training Course on Canine Catastrophe Rescue, in which he trains, evaluates and officially certifies guides through the Seville Town Hall, as well as operative canine rescue teams, a total of eight guides (firefighters) and eight rescue dogs, which make up the first Canine Rescue Unit in a firefighter square in Spain and a pioneer in the Arcón Method.

1997 - He drafts the UCRA project (Canine Rescue Unit of Andalusia) for the REGIONAL GOVERNMENT OF ANDALUSIA, assembling the first canine rescue units in the autonomous community of Andalusia (the region with the highest risk of earthquakes in Spain), for the firefighter squads in the cities of Seville, Huelva, Málaga, Cádiz, Córdoba and Granada.

1998 - He is awarded First Prize for Research granted by the Spanish Royal Canine Society by a unanimous decision of the jury due to the novel nature and scientific value of the Arcón Method. He publishes a book internationally with a summary of the Arcón method.

1999 - In 1998 and 1999 he acts as Chief Firefighter in the Sierra de Huelva and head of the Canine Rescue Unit of the Provincial Fire and Rescue Consortium of the provincial council of Huelva.

He is the head of this canine unit (pioneering in Spain, which intervenes in catastrophes abroad as well) in a variety of countries affected by earthquakes, such as Colombia, Turkey and Taiwan, leading numerous search operations both outdoors and in confined spaces. All of these operations make the effectiveness of the Arcón Method perfectly clear, as living people buried in extremely difficult-to-reach places are localised. He as granted the Service Medal of Merit by the Provincial Council of Huelva.

2000 - He returns to the firefighters squad of the Seville Town Hall. Via official agreement of the Board of Directors of the Royal Canine Society of Spain (RSCE), Jaime Parejo is appointed national delegate for canine catastrophe rescue based on his outstanding international career as an expert in this field.

He develops the ARCÓN RSCE project, and for two years works in the RSCE as technical director and instructor, training and certifying rescue dogs, experts and standardising judges of canine catastrophe rescue. He is officially accredited by the RSCE as expert and standardising judge in this speciality. He earns official recognition by the president of the government of Spain in Moncloa Palace in Madrid.

2001 - At the Seville Town Hall he officially starts as canine rescue expert (a newly-created government position) and head of the canine rescue unit of its firefighters squad. He is awarded SISAC First Prize by the by the Environmental Council of the Community of Madrid and the SISAC International Salon.

He drafts the Arcón Strategic Plan for Latin America (PEAL) and begins to voluntarily and altruistically convey and spread the Arcón Methodology to firefighter squads, police corps and armies in Latin America. Many governments official ask the Seville Town Hall for international technical cooperation at the hands of the founder of the Arcón Method, so that he can provide technical direction of the specialisation courses, perfection conferences, lectures and specific projection, primarily based on the frequent incidence of natural disasters (earthquakes, landslides, hurricanes, etc.) that effect many nations, and because of the proven efficacy of the Arcón rescue method. He begins by teaching an international course in the Arcón Method in Chile in 2001, followed by Ecuador, El Salvador, Mexico and Colombia, all official by the respective governments, mainly targeted at members of the firefighters squads, police corps and armies of countries with special risk of earthquakes, always as an official representative of the Town Hall of Seville, Spain.

2002 - By decree issued by the mayor of Seville, Alfredo Sánchez Monteseirín, the canine rescue unit of the firefighters square of the Seville Town Hall officially joins the SEIS, thus becoming the first official canine rescue unit in a firefighters squad in Spain. The Arcón Method and its author are officially recognised by the scientific committee and international community of the Veterinary Organisation.

2003 - The Arcón Method, its respective official course and the outstanding efforts of Jaime Parejo are recognised by the Spanish Committee of UNESCO's Mankind and Biosphere Programme and its president and member of the Higher Council of Scientific Research, Dr. Javier Castroviejo Bolívar, are officially certified on 10th September 2003.

2004 - He is named Honorary Canine Instructor in the Technical Investigation Corps of the Public Prosecutor's Office of Colombia. The Arcón Method, due to its proven level of efficacy, is chosen and approved as the official training and intervention system for canine catastrophe rescue teams by the governments of a series of countries affected by a special risk of disasters, including Ecuador, El Salvador, Honduras and Paraguay. At the request of these governments, in Quito (Ecuador) the government delegate of the Seville Town Hall signs a historic, unprecedented cooperation agreement for the specialised training and intervention of teams using the Arcón Method, aimed at fostering an effective response in catastrophic situations. This agreement was signed by the Seville Town Hall, with approval of the governing board of the city of Seville, capital of Andalusia, and representatives of the aforementioned governments: the Minister of Government of Ecuador, the General Commandant of the Firefighting Squad of the Central American isthmus, the General Director of the National Firefighting Squad of El Salvador, Major Abner Hurtado, and the President of the National Firefighting Squad Board of Paraguay.

2005 - The Arcón Method is recognised on 23rd September 2005 by the United Nations Secretariat of International Strategy for Disaster Reduction, with the certificate of distinction of the Sasakawa Prize for mitigation in disasters. This is the first time that such a world-renowned prize has been awarded to a Spaniard, Jaime Parejo. The decision adopted by the international jury, made up of experts from five continents, was made based on his outstanding professional career helping victims after catastrophes, and most importantly to his founding of the Arcón Method, a recognised and major scientific-technical step forward in fostering rescue operations after disasters. His multiple congratulations from many different countries including one from the government of Spain itself.

The president of the Republic of Paraguay, Nicanor Duarte, decreed that the PEAL (Strategic Arcón Plan for Latin America) would be declared of National Interest. This plan was drafted by Jaime Parejo in 2001, and he was awarded the medal of merit by the 16th Firefighting Company of Santiago de Chile.

He was named Professional of the Year by the staff of the prestigious Incident Commander Magazine Desastres.org.

The UAD (Disaster Support Unit), part of the Directorate General of Emergencies and Civilian Protection of the Madrid Town Hall, officially chooses the Arcón Method for its canine rescue department.
The Arcón Method and its respective official course are recognised as being of Public Humanitarian Utility by the UNESCO centre in the autonomous city of Melilla, as officially certified by the president and deputy vice president of the European Federation of UNESCO Centres, Dr Juan Antonio Vera Casares on 17th January 2005.

2006 - The Arcón Method is chosen and approved as the official training and intervention system for canine catastrophe rescue teams by the governments of Huamantla (Mexico) and Seville (Spain).

The Parliament of Andalusia decides to support the UCRA (Canine Rescue Unit of Andalusia) and PEAL (Strategic Arcón Plan for Latin America) projects, drafted by Jaime Parejo in 1997 and 20001, respectively, with the vastly important goal of fostering the level of citizen security as effectively as possible, whenever necessary, by stopping the occurrence of future cave-ins. Thus, in 2002, article 27, section j of the Law on Emergency Management of Andalusia, approved the creation of the Canine Rescue Unit of Andalusia (UCRA), associated with the competent council, for intervening in catastrophes in both Andalusia and anywhere else it might be required. Four years later, in 2006, the draft non-law on official recognition and standardisation of the Arcón Method for training canine rescue units was officially and unanimously approved in the Parliament of Andalusia by all the parliamentary groups, official gazette no. 378 dated 15th February 2006 (7- 05/PNLC - 000294).

2007 - The exceptional levels of autonomy, motivation and concentration that the Arcón Method confers on canine searches make it possible, with their consequent high degree of olfactory performance, to localise living people who are buried (or other elements, such as narcotics, explosives, endangered species, etc.) even in places that are extremely difficult to perceive because of how deep or hermetic the burial is, in cases in which other types of canine teams or geophone detectors used to intervene, there was zero detection and thus the possibility of survivors was erroneously discarded) has managed to enable canine rescue units from many different firefighter squads (consortium of Huelva, Huelva Town Hall, El Salvador, Chile, etc.) to quickly and precisely localise people who are totally buried under several metres of earth, rubbish or rubble in both outdoor and indoor search operations in confined adverse spaces.

Additionally, the Arcón Method has significantly enhanced the level of efficacy in the detection of:

Explosives and Narcotics: The Intervention and Rescue Group (IRG) of the National Police Force of Ecuador has stepped up its detection of explosives and narcotics.
In 2005, the captain of the IRG, Patricio Galiano, showed the unique level of efficacy of this system for detecting explosives by winning first prize in the K-9 International Professional Competition in Indiana, USA, for Police and Military Corps, after vying for the prize with leading canine units from the United States (CIA, Pentagon, Department of Defence, etc.), Canada and Latin America.
Reporting: Captin Patricio Galiano, General Coordinator of the canine units of the Intervention and Rescue Group of the National Police Force of Ecuador.

The Canine Brigade of the Caracas Police Corps has stepped up its detection of narcotics.
Reporting: Inspector Adolfo Rojas Montesinos, Head of the Canine Brigade of the Caracas Police Corps

Anti-personnel mines: The EMCARs (Mobile Customs Squads of Colombia's National Police Force) has increased its detection of explosives, especially anti-personnel mines.

Reporting: Sergeant Juan Carlos Sierra of the National Police Directorate, National Coordinator of Canine Guides of Colombia's National Police Force.

Endangered animal species: The UPMA (Environmental Protection Unit) of Ecuador's National Police Force has stepped up its detection of endangered animals being illegally trafficked in the Galapagos National Park
Reporting: Captain Edgar Maroto, Environmental Protection Unit of Ecuador's National Police Force.

Motivation

What drives Jaime Parejo's efforts

Two fundamental factors have motivated Jaime Parejo's efforts from the start in his arduous task of expanding and gaining official international consolidation for the Arcón Method after having created it:

a) The crucial need for every country, region or city to have in situ at least one canine rescue unit that has been proven effective, considering that buried survivors die gradually for a variety of clinical reasons if they are not localised and rescued in time after being buried. There is constantly new proof that canine rescue units for international support in the event of disasters do not arrive on time, even in cases with extremely quick activations and departures. Indeed, after just a few hours have elapsed, the number of buried survivors drops sharply with just a few exceptions (such as people that have been rescued alive after several days of being buried) or, as happens in the majority of international aid interventions, no buried people are found alive.

b) A second preventative measure, which is also pending urgent resolution, is the necessary official government control and approval to guarantee a high enough level of effectiveness in this type of intervention by giving official status to a training and intervention method for canine catastrophe rescue teams - a method whose level of efficacy has been rigorously proven by true canine specialists from the leading official corps intervening in accidents, firefighters and police squads.

With regard to the speciality of canine catastrophe rescue (rubble) the Arcón Method (rules on training, evaluation, official certification of human/canine operativeness, lines of intervention, etc.) has been approved by the government as the official method to be followed by official corps intervening in emergencies (firefighters, police squads) in the different regions and countries affected by high risk of earthquakes, landslides and other potential causes of cave-ins. It is the only system of training/intervention for canine catastrophe rescue that has been chosen by many different governments based on its proven degree of efficacy (in simulations or real interventions) and with recognised scientific value for localising and saving buried survivors in cave-ins triggered by any cause (explosions, earthquakes, hurricanes, landslides, structural flaws, etc.) and in any situation (both outdoors and in confined spaces).

The Arcón Method is legally registered and protected in the General Register of Intellectual Property in Spain with number 23,474.

Official Recognition

Recognition of the Arcón Method and its creator by organisations, institutions and governments

To date Jaime Parejo García has been awarded numerous prestigious official recognitions, congratulations, prizes, distinctions and awards internationally based on three main circumstances, outlined below, which are currently considered the most acclaimed and productive canine rescue technique in the world:

- For the creation of the Arcón Method, a complex rescue system that is the outcome of twelve years of intense personal research, which today is regarded as an advance and scientific innovation for humanity in a variety of fields, such as canine detection of living people who are buried, narcotics, explosives and endangered animal species, which have been shown to be significantly enhanced internationally.

- For the special results of the intervention operations of canine rescue units trained by him or in certain cases who acted under his technical-operative supervision.

- For the transcendent, constant and arduous teaching efforts for the Arcón Method that he created, officially training guides, instructors and rescue dogs in numerous institutions (fire-fighters, police, armies, etc.) from a variety of countries affected by particular risks of earthquakes.

SPAIN

- Officially awarded the First National Research Prize by the Royal Canine Society of Spain (official institute in Spain on dog matters), member of the Federation Cynologique Internationale. It recognised the Arcón Method and its scientific-technical author, Jaime Parejo, with the First Prize for Research, the highest award in Spain on the subject of canine research, after the select team of prestigious doctors in the qualifying jury unanimously endorsed the high quality and scientific advancement as well as the high level of innovation of the Arcón method in the field of Animal Learning and Behaviour Psychology (1998).

- The Provincial Council of Huelva officially awards Jaime Parejo the Service Medal (1999).

- Jaime Parejo publicly recognised and rendered homage in the Senderos de Gloria Programme of Canal Sur Television (1999).

- Jaime Parejo is officially appointed National Canine Catastrophe Rescue Delegate by the Royal Canine Society of Spain (2000).

- Jaime Parejo is officially recognised by the Spanish ambassador in Colombia, Yago Pico de Coaña (2000).

- Jaime Parejo and his canine rescue unit under the mandate of the Firefighters of the Provincial Council of Huelva are officially recognised by the government of Spain, President of the government José María Aznar, at Moncloa Palace (2000).

- Congratulations from the government of Spain, by the International and Defence Department director, Ramón Gil-Casares (2000).

- Official recognition from the General Consul of Spain in Turkey, José María Castroviejo y Bolívar (2000).

- Jaime Parejo is officially granted First Prize at the International sisac Salon, delivered by the Council of the Environment of the Autonomous Community of Madrid, Spain (2001).

- Jaime Parejo and the Arcón Method are officially and publicly recognised by the Scientific Committee and members of the International Community Veterinary Organisation (2002).

- Jaime Parejo and his Arcón Method are officially recognised by the Spanish Committee of UNESCO's Man and the Biosphere programme, by the president of the MAB committee, Javier Castroviejo (2003).

- Jaime Parejo is officially recognised by the Ambassador of Spain in Tanzania, José María Castroviejo (2005).

- Jaime Parejo is officially recognised by the UNESCO Centre in the autonomous city of Melilla, and the Arcón Method is declared of Public Humanitarian Utility by the president of the UNESCO Centre, Juan Antonio Vera (2005).

- Jaime Parejo is congratulated by the government of Spain (for being granted the United Nations' Sasakawa Certificate of Distinction) by the director of the Cabinet of the President of the government, José Enrique Serrano (2005).

- Jaime Parejo is recognised by the Canine Rescue Unit of the Firefighters' Squad of the Huelva Town Hall for the creation of the Arcón Method. The recognition is delivered by Carmen Sacristán, safety delegate of the town hall of Huelva, Spain.

CHILE

- Jaime Parejo is officially recognised by the Police Force of Chile (2001).

- Jaime Parejo is officially recognised by the Directorate General of Civilian Aeronautics of Chile ((2003).

- Jaime Parejo is officially recognised by the Firefighting Squad of Iquique for his extraordinary efforts on behalf of humanity, delivered by superintendent David Briones (2003).

- Jaime Parejo is awarded the medal of merit by the 16th Firefighting Company of Santiago de Chile for his extraordinary efforts on behalf of humanity, delivered by

General Commandant of the Santiago Firefighting Squad, Marshall Argandoña Galetti, Chile (2005).

- Official recognition by the Army of chile, General of the Brigade, Commandant in Chief, 3rd Division of the Army, Ricardo Toro Tassara (2006).

VENEZUELA

- Jaime Parejo is officially recognised by the Canine Group of the Central Bank of Venezuela (2004).

- Jaime Parejo is officially recognised by the General Command of the Armed Police Force of the state of Falcón, delivered by General Commandant Oswaldo Rodríguez (2004).

COLOMBIA

- Jaime Parejo is officially recognised by the Ambasador of Colombia in Spain, Carlos Ardila for the intervention canine rescue unit under his command of the Firefighters of the Provincial Council of Huelva in Armenia after the earthquake there (1999).

- Official recognition of the Consul of Colombia in Spain, Victoria Eugenia Garrido (2000).

- Official Recognition from the Red Cross of Colombia and the Secretary of the Government of the Mayor's Office of Bogotá, Colombia (2004).

- Jaime Parejo is named Honorary Canine Instructor in the Technical Investigation Corps of the Public Prosecutor's Office of Colombia (2004).

- Jaime Parejo is officially recognised by the Colombian Civilian Defence (2004).

- Jaime Parejo is officially recognised by the Directorate of Emergency Prevention and Attention, Secretariat of the Government, in Bogotá (2004).

- Jaime Parejo is officially recognised by the Directorate of Protection and Special Services of the National Police of Colombia (2005).

- Jaime Parejo is officially recognised by the Training School of Guides and Dog Training of the National Police of Colombia (2007).

PERU

- Jaime Parejo is named Professional of the Year by the staff of the prestigious Incident Commander Magazine Desastres.org (2005).

BRAZIL

- Jaime Parejo is officially recognised by the Military Firefighting Squad of Minas Gerais (2005).

GUATEMALA

- Jaime Parejo is officially recognised by the Disaster Commission of the Universidad de San Carlos in Guatemala, delivered by coordinator Omar Flores (2005).

- Official recognition from the Centre of Disaster Studies in Guatemala, delivered by Eduardo Joachín (2005).

NICARAGUA

- Jaime Parejo is officially recognised by the National System for the Prevention, Mitigation and Attention to Disasters of Nicaragua, delivered by the Executive Secretary, Gerónimo Giusto-Robelo (2006).

MEXICO

- Jaime Parejo is officially recognised by the Directorate General of the Red Cross of Mexico, by General Director José A. Fernández (2005).

- Jaime Parejo is officially recognised by the State Institute of Civilian Protection of the state of Tlaxcala by General Director Roberto Núñez (2005).

- Jaime Parejo is officially recognised by the Huamantla Town Hall by city president Eduardo Bretón (2006).

- Jaime Parejo is officially recognised by the Directorate General of Public Safety of Huamantla by General Director Octavio López (2006).

- Jaime Parejo is officially recognised by the State Emergencies Centre of the state of Campeche, by General Director Jorge Alberto Ancona (2006).

ECUADOR

- Jaime Parejo is officially recognised by the Intervention and Rescue Group of the National Police of Ecuador, by commandant of the IRG Juan Ruales (2004).

- Jaime Parejo is officially recognised by the Ministry of Government of the Republic of Ecuador, by the Minister of Government, Raúl Baca (2004).

PARAGUAY

- Jaime Parejo is officially recognised by the National Board of Firefighting Squads of Paraguay (2004).

DOMINICAN REPUBLIC

- Jaime Parejo is officially recognised by the Dominican Association of Disaster Mitigation, by Director Bernardo Rodríguez (2005).

EL SALVADOR

- Jaime Parejo is officially recognised by the Ambassador of El Salvador in Spain, Miguel Ángel Salaverría (2001).

- Jaime Parejo is officially recognised by the Ministry of Foreign Relations of El Salvador, Minister of Foreign Relations María Eugenia Brizuela (2001).

- Jaime Parejo is officially recognised by the Ministry of Governance of the Republic of El Salvador, by the Minister of Governance, René Mario Figueroa (2004).

- Jaime Parejo is officially recognised by the National Firefighters' Squad of El Salvador (2006).

HONDURAS

- Jaime Parejo is officially recognised by the Secretary of State of Governance and Justice of the Republic of Honduras, General Secretary of State José Noe Cortés (2004).

- Jaime Parejo is officially recognised by the Firefighters' Squad of Tegucigalpa, by the head of firefighters, Luis Alberto Sevilla (2006).

ARGENTINA

- Jaime Parejo is officially recognised by the Ministry of Governance, Justice and Education of San Salvador de Jujuy, Argentina (2005).

- Jaime Parejo is officially recognised by the Presidency of the Firefighters of Ushuaia, northern zone, for his selfless efforts, solidarity and mission to serve humanity, delivered by president Oscar Zampella (2007).

CHINA

- Jaime Parejo is officially recognised by the representative of the Republic of China in Spain, by Director Bruce Lin (2000).

- Congratulations from the Republic of China by the President of the Republic of China, Lee Teng-hui (1999).

UNITED NATIONS

On 12th October 2005, the Inter-Agency Secretariat of the United Nations ISDR-UN (International Strategy for Disaster Reduction), officially recognises a Spaniard for the first time with the Sasakawa Certificate of Distinction (official international recognition granted to the most important advances in the world in disaster victim mitigation) to the scientific-technical author of the Arcón Method, Jaime Parejo, for his proven operative advance internationally which involves the detection of buried survivors, for the creation of this effective canine disaster rescue system (2005).

Lectures

A partial list of the lectures delivered by the author of the Arcón Method:

- 9th Municipal Conference on Catastrophes, SAMUR, Madrid, Spain (2000)

- 1st National Symposium on Catastrophe Rescue Dogs, RSCE, Madrid, Spain (2001)

- 3rd Conference on Canine Units as Police Service, Canary Safety Academy (government of the Canary Islands), Gáldar, Las Palmas de Gran Canaria, Spain (2001)

- 18th National Firefighters Conference, ASELF (Spanish Association of Fire Fighters), Madrid, Spain (2001)

- 2nd National Gathering of Medical Departments, JNCB (National Board of Firefighter Squads of Chile), Santiago, Chile (2001)

- 2nd International Veterinary Congress (Veterinaria.org)(2003)

- 6th Congress on Emergency Services, APTB (Professional Association of Firefighting Technicians), Málaga, Spain (2003)

- Universidad del Mar, Psychology, Iquique, Chile(2003)

- 1st Conference on Canine Catastrophe Rescue (addressed to state firefighters and safety corps), Firefighter Squad of the Town Hall of Zaragoza, Spain (2004)

- 1st International Search and Rescue Congress, Firefighter Squad of Mérida, Governance, Venezuela (2004)

- 2nd International Seminar on Search Dogs (Red Cross of Colombia), National Disaster and Emergency Attention System, La Salle University, Bogotá, Colombia (2004

- 1st International Congress on Evolution in Natural Disasters and Terrorism in the World, World Firefighters Conference, Dominican Republic (2005).

- Disaster Commission of the Universidad de San Carlos, Guatemala (2005)

- Faculty of Veterinary Medicine of Cáceres, Spain (2005)

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Courses

Courses taught by Jaime Parejo

As Technical Director and Instructor from 1996 until now, Jaime Parejo has taught 23 official specialisation courses in canine catastrophe rescue, the Arcón Method (one month, 250 teaching hours) for governments, training evaluating and officially certifying guides, instructors or rescue dogs of numerous firefighting squads, police forces and armies, officially chosen under operative criteria from a total of 17 countries:

- **Andorra**

Canine Rescue Unit of the Firefighting Squad of the Principality of Andorra.

- **Argentina**

Police of Buenos Aires.

Police of Córdoba.

Police of Tierra del Fuego.

Penitentiary Service of San Salvador de Jujuy-Jujuy.

Firefighting Squad of Ushuaia.

Firefighting Squad of Ushuaia, northern zone.

Police-Firefighting Squad of Santa Cruz province.

- **Brazil**

Military Firefighting Squad of Minas Gerais.

Military Firefighting Squad of Pernambuco.

- **Bolivia**

Search and Rescue Group SAR-ILLIMANI of the Bolivian Air Force.

Search and Rescue Group SAR-SANTA CRUZ of the Bolivian Air Force.

- **Colombia**

Risaralda Regional Emergency and Disaster Committee.

Firefighting Squad of Pereira.

Red Cross of Colombia.

Canine Section of the National Police of Colombia.

- **Costa Rica**

Firefighting Squad of Costa Rica.

- **Chile**

Firefighting Squad of Antofagasta.

Firefighting Squad of Arica.

Firefighting Squad of Calama.

Firefighting Squad of Iquique.

Firefighting Squad of Algarrobo.

Firefighting Squad of Conchalì.

Canine Section of the Police Force of Chile (Santiago).

Canine Section of the Gendarmes of Chile (Santiago, Arica and Iquique).

Fire Extinguishing and Rescue Service of the Directorate General of Civilian Aeronautics of Chile (Iquique).

Canine Rescue Unit of the 16th Firefighting Squad of Santiago.

Canine Rescue Unit of the 2nd Firefighting Squad of Santiago.

Canine Rescue Unit of the 1st Firefighting Squad of Maipú.

Firefighting Squad of Talagante.

- **Ecuador**

Canine Training Centre of the National Police of Ecuador.

Red Cross of Ecuador.

Firefighting Squad of Cuenca.

Firefighting Squad of Quito.

Firefighting Squad of Rumiñahui canton.

Air Force of Ecuador.

Special Forces of the Army of Ecuador.

Intervention and Rescue Group of the National Police of Ecuador.

Special Operations Group of the National Police of Ecuador.

Canine Anti-Narcotics Unit of the National Police of Ecuador.

Environmental Protection Unit of the National Police of Ecuador.

Anti-kidnapping and Extortion Unit of the National Police of Ecuador.

- **El Salvador**

Canine Rescue Unit of the Firefighting Squad of El Salvador.

- **Spain**

Canine Rescue Unit of the Firefighting Squad of the Seville Town Hall.

Canine Rescue Unit of the Provincial Firefighting and Rescue Consortium of Cádiz.

Canine Rescue Unit of the Provincial Firefighting and Rescue Consortium of Córdoba.

Canine Rescue Unit of the Firefighting Squad of the Córdoba Town Hall.

Canine Rescue Unit of the Provincial Firefighting and Rescue Consortium of Huelva.

Canine Rescue Unit of the Firefighting Squad of the Huelva Town Hall.

Canine Rescue Unit of the Firefighting Squad of the Málaga Town Hall.

Canine Rescue Unit of the Firefighting Squad of the Granada Town Hall.

Canine Rescue Unit of the Provincial Firefighting and Rescue Consortium of Guadalajara.

Canine Rescue Unit of the Disaster Unit of the Firefighting Squad of the Madrid Town Hall.

Firefighting Squad of the Town Hall of the autonomous city of Ceuta.

Firefighting Squad of the Almería Town Hall.

Firefighting Squad of the Valladolid Town Hall.

Firefighting Squad of the Zamora Town Hall.

Firefighting Squad of the Valladolid Provincial Council.

Firefighting Squad of the Palencia Town Hall.

Firefighting Squad of the Alicante Town Hall.

Firefighting Squad of the Béjar, Salamanca, Town Hall.

Fire Prevention, Extinguishing and Rescue Service of the Alcalá de Guadaíra, Seville, Town Hall.

- **Guatemala**

Canine Rescue Unit of the Firefighting Squad of Guatemala.

- **Honduras**

Firefighting Squad of Honduras.

Canine Squad of the Public Ministry of Honduras.

- **Mexico**

Red Cross of Mexico.

Firefighting Squad of Guadalajara.

Canine Section of the Police of Huamantla.

Civilian Protection of the state of Campeche.

Civilian Protection of the state of Tlaxcala.

Brigada de Topos of Tlaltelolco, Cancún delegation.

Heroic Firefighting Squad of Mexico City.

Canine Section of the Police of Sub-Secretariat of Public Safety of the state of Tlaxcala.

State Civilian Protection System of Puebla.

- **Nicaragua**

Firefighting Squad of Managua.

- **Paraguay**

Firefighting Squad of Paraguay.

Army of Paraguay.

Air Force of Paraguay.

- **Peru**

Canine Section of the National Police of Peru (Lima).

- **Venezuela**

Firefighting Squad of Mérida.

Canine Brigade of the Police of Caracas.

Projects and Regulations

Drafting of projects and regulations

As Technical Director, Jaime Parejo has drafted a number of projections, rules, regulations and official programmes on canine catastrophe rescue (Arcón method) both nationally and internationally:

1995 –UCRE project (Canine Rubble Rescue Unit) for the SEIS, Firefighting and Rescue Service of the town hall of Seville, Spain.

1996 – Official regulations of the Arcón Training and Intervention Methodology (both national and international).

–Official manual of the Arcón Method canine catastrophe rescue course (levels 1 and 2).

1997 – UCRA project (Canine Rescue Unit of Andalusia) for the Ministry of Government of the Regional Government of Andalusia, Spain.

2000 - Arcón/RSCE project (National Training and Standardisation Programme, Canine Catastrophe Rescue) for the Royal Canine Society of Spain.

2001 – PEAL project (Strategic Arcón Plan for Latin America), an international cooperation project for the governments of several Latin American countries at a high risk of disaster.

2007 - ARCÓN-UCRA programme for the Ministry of Governance of the Regional Government of Andalusia, Spain and the Andalusian Fire Council.

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