BSCE/13 AERODROME WORKING GROUP WP

Use of Chemicals to make the Soil of Airport Surroundings unattractive

(presented by the Vice Chairman of the Aerodrome Working Group)

1. INTRODUCTION

In accordance with the recommendation of the 12th BSCE Meeting in Paris in October 1977 the Vice Chairman asked by letter of January 3, 1978, participants to the Aerodrome Working Group Meeting from 18 countries to give information on the following subject:

Do you use any checmicals to make the soil of the airport surroundings unattractive to birds?

If yes, give any details.

2. Answers have till April 14, 1978 been received from the following countries: Austria, Belgium, Canada, Czechoslovakia, Denmark, the Federal Republic of Germany, France, Hungary, Israel, the Netherlands, Poland, South Africa, Sweden, Switzerland, United Kingdom, and USA
and are as follows:

Austria:

Not on the airport surroundings.

Belgium:

No.

Canada:

The only chemical being used to make airports less attractive to birds is: "Benomyl". This chemical is used to eliminate earth worms in grass areas beside runways. This reduces the food available to birds

Czechoslovakia:

At the airports in Czechoslovakia we do not use any chemicals to make the soil of the airport surroundings unattractive to birds.

Denmark:

Copenhagen Airports Authority has carried out an attempt with the chemical "RETA", which is synergized aluminum ammonium sulphate, and bought at ASSIA Maabarot, Israel, as a bird repellent. The attempt was made in the spring 1977. To most of the birds the effect was very small, but to some of the birds, for example the oyster catcher, there was no effect at all. The chemical was tested in an area where the grass was cut very short. In the observation period there was a normal fall of rain. Probably,the grass grew over the laid out chemical rather quickly and after a short time it was washed out by the rain water. On account of the environment protection new experiment with chemicals are not done or planned, as the authority is afraid of environmental damages with the use of chemicals in nature.

The Federal Republic of Germany:

Use of chemicals is abandoned in the interests of the environment.

France:

A weed-killer (U 46, a mixture of 2.4 DP, MCPP + MCPA) has been used for three years spraying it over the sward of the Orly Airport. These sprayings have made it possible to get rid of the clover which nourished wood pigeons. Seed-grain treated with Chlorophacinone is likewise used at the Lyon-Satolas Airport to kill voles which are attractive to a great number of birds of prey. Finally, experiments are now being made with the bird repellent remedy RETA at the airport of Marseille-Marignane.

Hungary:

No chemicals are used at present.

Israel:

In practice only on a strip adjacent to the runway are chemical means employed for the destruction of weeds. We are now in the process of preparing the expansion of use of these chemicals in wider areas.

The Netherlands:

Chemicals to make the airport surroundings unattactive to birds are not used. So far no chemical method has proved to be successful.

Poland:

No experiences.

South Africa:

At one airport an insecticide was used to kill insects on which the birds feed, but the results were disappointing.

Sweden:

No. We do not use any chemicals to make the soil of the airport surroundings unattractive to birds.

Switzerland:

No use of chemicals until now.

United Kingdom:

Birds are not attracted by soil per se, only by the seed or insect life it supports. Chemical methods to reduce the food supply are used as local needs dictate given identification of local requirement:

a) As a fertilizer to improve growth of "long" grass which deters some bird species. An annual dressing after the first cut of the season has been 25 to 37.5 kg/ha each of P and K, with addition of N where necessary.

b) As selective weedkillers used to reduce number of broad-leaved plants to reduce seed and foliage available for herbivorous birds. These are based on a UK booklet "Approved products for farmers and growers" which is revised annually.

c) As Lumbricide and insecticide applications to control earthworms and insects but in recent years the only use has been of DDT to control tipulids (cranefly larvae, etc.) by BAA at Heathrow over the past 2 years. They use DDT concentration approx. 1.5 litres of 25 % emulsifier to 100-130 litres water. Results have been incouraging in that the relevant bird population has been reduced significantly during the "cranefly" season. Other airports are considering the technique but have been advised

   a) to ensure the insect correctly identified to the bird problem, and
   b) that approval is obtained before use from local agricultural and Water Authorities.

d) To date in UK, chemical methods of repelling birds directly have not been successful. An attempt recently to repel Lap Wings by an application on grass of synergised aluminium ammonia sulphate (RETA, CURB) proved unsuccessful. The results will shortly be published.

USA:

Chemicals are not, to our knowledge, used on airport soils to make the airport unattractive to birds. Chemicals such as Avitrol have been used on garbage dumps and sanitary landfills for this purpose with mixed results.

3. Three courses of action should be considered by the Aerodrome Working Group.

a) Due to the differences in the local conditions at each airport in each country, no recommendation should be made, and the problem be left in abeyance after the above material has been made available to the competent authorities.

b) A recommendation from the meeting should be worked out.

c) Based on the discussion on the Working Paper the Chairman should be asked to draft a recommendation to be presented at the next meeting of the Working Group for approval.

BSCE/13 AERODROME WORKING GROUP WP

Bird Dispersal Devices

(presented by the Vice Chairman of the Aerodrome Working Group)

1. INTRODUCTION

In accordance with the recommendation of the 12th BSCE Meeting in Paris in October 1977 the Vice Chairman asked by letter of January 3, 1978, participants to the Aerodrome Working Group Meeting from 18 countries to give information on the following subject:

If you use or have used bird dispersal device, it being visual scaring, bird corpses, bird models, acoustical scaring, it being ultrasonic sounds, non-natural sounds, natural sounds, and synthetic sounds, and/or combined visual and acoustical scaring; it being pyrotechnics, birds of pray, remote-controlled model aircraft, you are requested to provide details both on devices being successful, and devices judged to be unsuccessful.

2. Answers have till April 14, 1978 been received from the following countries: Austria, Belgium, Canada, Czechoslovakia, Denmark, the Federal Republic of Germany, France, Hungary, Israel, the Netherlands, Poland, South Africa, Sweden, Switzerland, United Kingdom, and USA
and are as follows:

Austria:

Successful bird dispersal devices are:

Vehicle patrols and fire fighting cars fitted with loudspeakers and sirens;

shell crackers; gun-shooting hunters; crow corpses.
Unsuccessful has been: tracer ammunition when scattering crows.

Belgium:

Civil airports: Shell crackers are successfully used. Also live ammunition is sometimes used.
Military airports: Shell crackers, dummies, eagle test gas and carbid cannons.
These methods seem to be successful when shifting from one method to another.

Canada:

Many devices and techniques have been used to disperse birds at airports in Canada. Methods which are successful,if used properly, are shell crackers, flashing lights. taped bird distress cries, leaving dead birds near runways, stringing wires across open bodies of water, falconry, live shotgun fire, and flares. The use of remote-controlled model aircraft was found to be ineffective.
The above methods of bird dispersal are used at various airports in Canada, but are first assessed on a cost/benefit basis. If the amount of bird scaring required is to be reduced, it is necessary to modify the airport so as to make it less attractive to birds than the surrounding area.

Czechoslovakia:

On test base there are stable bio-acoustical scaring apparatus that reproduce sounds of birds being in danger; they reproduce sounds of those species that mainly occur in the airport area. Such a device has been installed at the airport Prague-Ruzyne. In the meantime we cannot state any unambiguous conclusions about the efficiency of that device.

Denmark:

Copenhagen Airports Authority has a means to scare the birds away by putting their distress calls in the air by a tape recorder mounted on a vehicle. In this way it was found that seagulls might be scared away, whereas starlings and lap wings not so easily will fly away. The effect of transmitting of distress calls will be improved, when pyrotechnics or live ammunition are fired at the same operation. Further, it is of essential importance that the distress calls are transmitted without technical noise from the recorder. That means that the equipment must be of high technical quality.

At military airports the bird patrols use combined visual and acoustical scaring. At provincial civil airports only visual scaring is used.

The following equipment is in use:

a) Bio-acoustic bird scaring equipment:

Philips N 2605 Cassette Player
Power requirements 12 V DC
Philips WT 037211 amplifier
Philips L.B.C., 3360/00 loudspeaker

We are using natural sounds (distress calls) from the following species: Herring Gull, Black-headed Gull, Common Gull, Lap Wing, Starling, Rook, and Jackdaw. Original recordings were supplied by Mr. T. Brough, U.K. We have now used bio-acoustic bird scaring equipment at two military airports since 1st July, 1977. The effect is good for all species, except Starling and Lap Wings. The acoustical scaring is used in combination with visual scaring with shotguns and pyrotechniques.

b) Pyrotechnique scaring equipment is used at all military and provincial civil airports. The following equipment is used:

Pistols:

1. Weinberg pistol 6 mm F.B. Record (one shot)
2. Röhm RG 76 6 mm (six shots)

Ammunition:

Blank cartridges 6 mm
Moog-Vogelschreck, cal. 15 mm

Röhm RG 76 is the most efficient and can be recommended.
Pyrotechnique scaring equipment is mainly used (and most effective) in combination with acoustical scaring and visual scaring with shotguns.

c) Visual scaring (presence of bird-car) with shotguns is used at all military and provincial civil airports.

Shotguns:

Browning cal. 12 (Air Force)
AYA Shooting Star
Other models

Ammunition:

Shot-cartridges, pellet size 5 and 7 (Danish numbers)

Birds are regularly killed to avoid habituation to other bird dispersal devices and it has proved to stimulate the effect (Protected birds are not killed). Habituation to visual scaring with shotguns is much less than to other bird dispersal devices.

The Federal Republic of Germany:

The application of ad hoc methods for the prevention of collisions between birds and aircraft in the Federal Republic of Germany is regulated according to the recommendations of the biotop expertise following the guidelines of the Ministry. In the Federal Republic of Germany the following ad hoc actions are primarily taken to scare away birds at civil airports.

Pyrotechnics
Scaring away with shotgun
Acethylen gas cannons
Electro acoustical devices (mounted on vehicles)

Disposal of bird models has so far proved to be of little use. The same experience goes for the use of ultrasonic sounds (however, still with no conclusion of the experiments).
Falconry seems impracticable to us at civil airports.

France:

The following remedies used in France to frighten away birds, are at present considered the most efficient:

- acoustical scaring away through distress call devices mounted on vehicles (mobile installation)
- pyrotechnics: cartridges with double detonation, pistols, and shotguns.

Other techniques with which experiments have been carried out in France, such as visual aids, falcons alive or as dummies, and audio-visual alarm systems, have sometimes proved to be efficient, but too expensive, and very difficult to use (far too sophisticated equipment and equipment which requires full-time employed personnel).

The following details are an extract from a paper presented at BSCE/12 by J.L. Briot:

EQUIPMENT AND METHODS FOR DISPERSING BIRDS USED ON FRENCH AIRFIELDS

Among the various methods planned for dispersing birds on airfields, only few systems are really efficient and can effectively be used on an operational basis. The objective of this paper is to accurately describe the scaring equipment presently used on French airfields, and to explain two methods of bird removal giving full satisfaction.

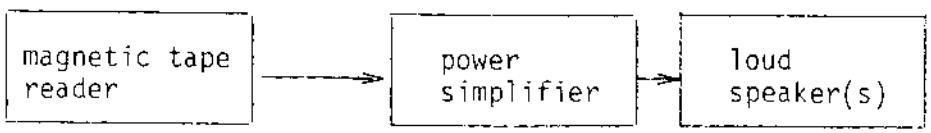
I. SCARING BIRD EQUIPMENT

Two types of equipment, well-known for a long time and having given proof of efficiency, have been developed in France, i.e.:

- acoustical bird scaring equipment
- pyrotechnic devices

I.1 ACOUSTICAL BIRD SCARING SYSTEMS

Based on the principles of broadcasting distress calls already recorded in a laboratory, all those devices are designed in accordance with the following diagram:



Three versions meeting various needs have been realised in France: they are the mobile version, the semifixed and the fixed ones:

I.1.1 MOBILE ACOUSTICAL SCARING SYSTEM

This system includes

- 1 reader amplifier (type EGA 2 - Schlumberger) this device was designed to allow the running of two magnetic tapes in looped circuit, at a constant speed, with a maximum fidelity in the high frequency reproduction. The all transistor power amplifier has a 40 watt R.M.S. output at an extremely low distortion ratio.
- 1 or 2 compression drivers loudspeakers.

. either of the lansing JBL type or Altee; those HiFi loudspeakers in high frequencies, are characterized by drivers providing a very high acoustical efficiency and exponential or multicell horns.

. or of the University sound type, CLH or geloso model; these loudspeakers have more standard horns.

- 1 ATEI 24/220 volts converter supplied with 2 100 AH FULMEN Batteries.

The whole equipment is located in a light vehicle Renault 4L light van type The equipment is manually driven by an operator on request of the tower controller.

ADVANTAGES: Thanks to the equipment compactness, low space required, thus, easy installation on any kind of vehicle.

- low cost (20,000 F about)
- high efficiency because the operator can come very close to birds and back up the efficiency by firing a shell cracker.
- 2 prerecorded distress calls.

DRAWBACKS:
- low acoustical output, low range
- full time personnel required
- fairly long intervention

Those mobile scaring units are now in operation on the aerodromes of Ajaccio, Beauvais, Bordeaux, Brest, Lyon-Satolas, Marseille, Orly, Roissy, Salon de Provence, St. Nazaire, St. Denis Gillot, St. Yan,and Toulouse.

I.1.2 SEMI-FIXED ACOUSTICAL SCARING SYSTEM

In fact it is the same unit than the one described above, but the actuation is made remotely from the control tower. The operation principle consists in keeping the vehicle in a "stand by" position in a selected location (2 week duration about) and starting the equipment when necessary.

This vehicle includes:

- 1 mini-cassette reader, auto-reverse type likely to indefinitely read 1 distress call.
  (UHER stereo CR 210 model)
- 1 100 watts R.M.S. power amplifier (Altec 1594 B model)
- 1 loudspeaker with 4 compression drivers (University Sound 4A4L model)
- 2 12 volts 100 AH batteries; 1 battery charging set and one 220/24 v stabilized power supply.
- 1 Telecar TS receiver (Telefunken) and one decoding device for double tone LF signal.

- 1 photoelectric cell allowing automatic interruption of the receiver stand oy position to limit electric consumption.

The whole equipment operates at the 24 volts low voltage and its input current is very low, the operational duration of this system is of 2 weeks at the rate of 5 minutes a day of full power operation.

The Telecar TS transmitter and the decoding unit are located in the control tower, as well as a variable time delay device (0 to 5 minutes) allowing automatical stop of the transmission of distress calls in case of controller's omission

ADVANTAGES
- various ways of utilization: mobile or fixed station, on mains or battery
- avoids full time personnel utilization
- high acoustical power, long range
- low consumption: large operational duration
- very light volume and weight of equipment
- low cost (60,000 F about) every part being available on the market.
- very easy maintenance.

DRAWBACKS. none! (the use of one single cassette reader is preferable in order to avoid confusion between bird species by the tower controller)

The new model of acoustical scaring vehicle, installed at Nice and recently at Marseille seems full of promise because it holds advantages of mobile and fixed equipment

I.1.3 FIXED ACOUSTICAL SCARING SYSTEM

The Nice Côte d'Azur airport where bird hazards were important, was the only one to be equipped in 1975.

The installation includes 2 separate scaring stations, one located at the Glide level, protects aircraft during landings, the other located at the middle of the runway, protects aircraft during take-off.

Each station includes:

- 1 metallic cabinet with thermostat including:
  - 1 type EGA 2 amplifier-reader (cf. Section I.1.1)
  - 1 80 watt R.M.S. additional power amplifier (type TAM 657 Schlumberger)
  - 1 cabinet including the decoding device for the remote-controlled signals.
- 2 35 watt, loudspeakers (geloso) fed through the EGA 2 amplifier, and located 200 and 300 metres from the reading device.
- 2 60 watt JBL lansing loudspeakers fed through the TAM 657 final amplifier located near the reading device.
- 1 decoding unit for remote-controlled signals.

Stations are remote-controlled through lines from the control tower according to the following orders:

(tape cartridge No. 1 "on" (with automatic stop after 5 minutes operation)
(tape cartridge No. 2 "on" (with automatic stop after 5 minutes operation)
("off"

One pilot lamp shows the tower controller:

. the station in operation

. the scaring call transmitted

The loudspeakers are replaceable, set at 100 metres apart and sited toward prevailing winds.

ADVANTAGES: - no full-time personnel

- possible switching on of the selected station according to bird location on the airfield
- selection, from the tower, of the suitable distress call, according to bird species on the airfield. (2 cartridges by reader).

DRAWBACKS: - very costly installation

- heavy and difficult maintenance
- birds can become accustomed in case of too many utilizations of the system.

This method of scaring has given, for the time being, more disappointment than good results (great problem of maintenance and control of the equipment very exposed to bad weather.

For the future, it would be better to install the tape reader in the technical building for example,and transmit acoustical signals through land lines up to remote amplifiers located near the loudspeakers.

I.2 PYROTECHNIC DEVICES

After tests on the various shooting systems and cartridge models, we have selected the following equipment which gives all satisfaction:

- Shell crackers (designed to project a small exploding bomb which explodes at the end of trajcctory), mark: Penguin Industries Inc., USA, plastic case, calibre 12, lenght 55 mm, range 120 m for a 30° angle, very low failure rate, low price (about $1 each).
- Pistol VEREY pistol type, calibre 40 mm, with a reduction tube allowing firing calibre 12 cartridges (Manufacturer: Société LACROIX, France).
- Gun One-shot guns, calibre 12, smooth-bore gun non choke-bored, allowing firing shell-crackers with an increased accuracy and range. We use either the gun SIMPLEX made by MANOFRANCE, or the one-shot Winchester, calibre 12 MAG.

Those devices used in conjunction with acoustical scaring vehicles give often good results. Utilized alone, they allow quick clearance of the runway, but the scaring is temporary.

Acetylen and propane gas cannons

Tested at Nice Côte d'Azur to disperse gulls and at Paris Orly against wood pigeons, those two types of gas cannons gave bad results: Birds became accustomed to these regular explosions which let them indifferent.

Better results have been obtained:

- by moving cannon every 2 or 3 days,
- by changing frequency and power of detonations,
- by installing conjointly human silhouettes holding guns (scarecrows).

II DISPERSING BIRD METHODS

II.1 REMOVING OF WOOD PIGEONS

This method, the theoretical principle of which was presented at the 11th meeting of the BSCE, can be applied to all airfields where wood pigeons come to feed themselves with clover of grass lands. It consists in spreading at spring on these grass lands a solution of Super U 46 (1) (a mixture of several phytohormones destroying dicotyledones), at a ratio of 4 l/ha of product and 600 l/ha of water. Spreadings may be repeated each year up to full removal of clover. This method has been utilized successfully on Orly Airport in 1976 and 1977.

II.2 REMOVING OF RAPTORS

The method consists in destroying voles and other small mammals which are important part of the alimentary diet of raptors. To this aim we use seed grains treated with 0.0075 % w/v chlorophacinone, a patented synthetic anticoagulant destroying specificly these small rodents.

These sprayings can be made:

- either mechanically by means of agricultural seeders (dispose baits in 5 m apart parallel lines at a rate of 15 to 20 kg/ha).
- either manually by disposing plastified sachets (2) containing 25 g of grains in infested locations.

As these sachets are waterproof, it allows a better preservation of grains while avoiding their consumption by birds.

The treatment must be realised before field vole pullulation March April, i.e. the period during which the population density is low.

This fighting method against rodents has been utilized this year on the Lyon-Satolas Airport and contributed to fairly diminishing the number of raptors observed on the field.

CONCLUSION

Among the three types of acoustical equipment regularly utilized in France, at last, the semi-fixed version seems fully suitable for airport requirements while offering a maximum efficiency

The American "Penguin" cartridges, fired with calibre 12 guns are the pyrotechnical means which gave best results (reliability, security, low failure rate).

The removing methods of wood pigeons and raptors, based on removal of food sources, are easy to follow and full of promise regarding the foreseen results. An experimentation based on several years will give the opportunity to define this method's efficiency by removing hazards due to meteorological conditions.

(1) mixture of 2.4 - DP, MCPP and 2.4 - MCPA

(2) these sachets are manufactured by "LIPHA", (Lyonnaise industrielle pharamceutique in France).

Hungary:

Acoustical scaring is to be introduced shortly.,Presently, no experience available.

Israel:

Up to the beginning of this year several bird dispersal devices were in use, both visual and acoustical by the usual means: gas cannon, noisy rifle shots, broadcasting of distress calls, and also the suspension of "scare models".

Only now, in 1978, did we start systematic and regular actions, and we shall be able in future to evaluate the results of everyone of the means employed - including chemical bird repellent RETA which we shall try in combination with other means

It is regretted that up to now we have not arrived at any clear conclusions.

The Netherlands:

Devices used at Schiphol are:

Device used:	Effectiveness:
Pyrotechnics	very good, good } in combination
Tapes with bird cries	
Corpses	good, as long as they are fresh
Bird models	medium, have to be shifted
Day-glow wind mills	- , - - - -
Search lights	in darkness - medium
Gas cannons	good

A rather unsuccessful demonstration with a bird of pray was held. A new demonstration is on the 1978-programme.

Poland:

Pyrotechnics and hunting with moderate results have been used.

South Africa:

No sophisticated devices used. Shotguns are used. Vehicles are used to reach points on airfields where birds congregate.

Sweden:

Swedish Civilian Airports are equipped with:

A. Signal pistols
used for firing bird crackers. The effect is good, especially, at flock-living birds (gulls and waders). Handled by the field staff or the fire brigade.(been used together with "distress call", where this is available).

B: Rifles and shotguns
most airports have shotguns (for birds and small game shooting) and rifles (for big game) available. Special permissions are given by the authorities, permitting shooting (of selected species) outside the open hunting season, and to use cars when hunting.The aim of the shooting is not to reduce the number of birds, but as a scaring device.

and some airports are equipped with:

C: distress calls
distress calls have been used mainly at Gothenburg/Torslanda Airport (in connection with signal pistol and shooting).
Good success has been reported.

Finally, in the near future we hope to be able to start experiments with a machine gun dummy (originally constructed for military training purposes). The dummy can be remotely controlled from the Tower,and up to 20 (or more) dummies, that are highly mobile, can be in use simultaneously.

Switzerland:

Military airfields:

- Pyrotechnical means (best results, when the explosion is combined with development of smoke: (Rauch-Knallpetarden).
- Models of dead gulls (experiments just begun with colour prints on gull silhouetts)
- Distress calls (no reliable results because usually used in combination with pyrotechnics; in the few cases where distress calls have been used alone, the result was good: gulls staying away for several hours or even for the whole day)
- From time to time single birds are shot in order to increase the effect of the dispersal methods
- 2 months experiments with ultrasonic noise gave no positive result.

Zürich Airport:

- Carbid cannon (only short-term effect, quick habituation)
- Shell crackers (only limited effect)
- Flares (good effect when carefully applied)
- Shooting at single birds (gulls), only effective when used in combination with other methods
- Deposition of dead gulls (effective only during a few day; afterwards the carcasses look too badly or are taken away by other animals
- Deposition of gull models (experiments just begun with colour prints on gull silhouettes), first trials seem positive but time-consuming
- Distress calls (if not used very carefully, no convincing results can be obtained).

United Kingdom:

a) The following dispersal devices are in regular use at all British Airport Authority controlled airfields:

(1) Distress Call Broadcast Equipment (SAPPHO)

DETAILS OF SAPPHO EQUIPMENT

1. The technical specification is that recommended by the Pest Infestation Control Laboratory, Ministry of Agriculture and Fisheries.

Cassette Player:		Output Impedance	- 20K OHM
		Power Supply	- 12V
Amplifier	:	Power Supply	- 10-16V DC
		Output Power	- 10W - max 15W
		Distortion Rate	- 3 % at 10 W
		Output Impedance	- Variable 4-8 OHM
		Frequency Range	- 200 to 10000 HZ
		Deviation	- 3 dB
Speaker	:	Power	- 30W
		Impedance	- 80 OHM

2. These units are locally packaged using tapes supplied by PICL.

(2) Shell Crackers

Large quantities of shell crackers are used together with smaller quantities of hammers. We also use some saluting blanks in congested area near buildings and aircraft, or where fire crackers might cause a fire hazard (e.g. dry grass area). We also experimented with 12-Bore Shotgun percussion caps but these are less effective.

(3) Visual Scares

Operators adopt visual methods (e.g. beating arms, etc.) when appropriate. The above methods when used by a trained operator are judged effective. BAA also investigate other techniques with the Pest Infestation Control Laboratory (PICL) and hope shortly to try sculptured gull models (from) and a Swedish acoustical system which broadcasts aircraft noise through fixed amplifiers

b) Some 10 % of UK military airfields use Falconry methods, but it is always used in conjunction with one or more of the alternative techniques. As a technique falconry is successful, but is, nevertheless, unacceptable on the majority airfields, e.g. no UK civil airfields use Falcons to date.

Below is a review of unsuccessful techniques:

REVIEW OF UNSUCCESSFUL TECHNIQUES

1. Regarding unsuccessful devices, it is tempting to ignore them as of no consequences but realising that other researchers may wish to confer on such matters, brief summaries of some of the more topical investigations on which Pest Infestation Control Laboratory has some information, are presented. It must be understood that under different circumstances some of these methods may prove more successful but their promise has not warranted further action. None of this work has been published.

2. Bird "Models". Up to 20 skins of herring gulls (Larus argentatus) and lesser black-headed gulls (L fuscue) mounted in realistic attitudes (standing and resting) had neither attracting nor repellent effects when placed on an airfield frequented largely by common gulls (L canus). A life size wooden model of a gull equipped with a wind vane and an extended wing which (sometimes) flapped idly in the wind was also unimpressive.

3. Life-size silhouettes of black-headed gulls (L ridibundus), common gulls (L canus) and herring gulls (L argentatus) with wings outstretched and cut out of 1'' polystyrene sheet and then painted, had limited scaring effect on gulls when scattered on o loafing site by a refuse tip. Some models were damaged by pecking including those placed in a small breeding colony of common gulls on an airfield. Although results to date are disappointing,work continues on low priority.

4. Ultrasonic noises in the range of 18-30 KHz generated by an electric pump operating on galton whistle produced no avoidance reaction in aviary tests with starlings (Sturnus vulgaris), jackdaws (Corvus monedula), magpies (Pica pica), jay (Garrulus glandarius) and feral rock doves (Columba livia var) and very little response from house sparrows (Passer domesticus).

5. Synthetic sounds. In 1968 field tests, using broadcasts of minimum duration of 10 seconds, were carried out with an electronic device produced by the Av-Alarm Corporation, 1901 Old Middlefield Way, 15 Mountain View, California, USA, against house sparrows, starlings, feral rock doves, lapwings (Vanellus Vanellus), oystercatchers (Haematopus ostralegus), golden plovers (Pluvialis apricaria), common gulls and carrion crows (Corvus corone). The results were regarded as being very poor. In the winter of 1970/71 a further device of this nature was tried operationally on an airfield largely against gulls, lapwings, corvids and starlings. Effective clearances were obtained in 45 % of dispersal attempts which compared poorly with the 85 % normally achieved with distress call broadcasts. It should be mentioned that Av-Alarm equipment is capable of producing a very wide range of frequencies with almost infinite variations and this, in the absence of explicit recommendations on how best to operate against particular species, makes testing a time-consuming business.

USA:

A variety of bird dispersal devices have been are being used on U.S. airports again with mixed results. The most successful techniques have been acoustical scaring (both synthetic noise and bird distress calls), visual scaring, pyrotechniques (shellcrackers and live ammunition), and gas cannons. Bird corpses, bird models, ultrasonic sounds, birds of prey, and remote-control model aircraft have been judged as unsuccessful.

3. Three courses of action should be considered by the Aerodrome Working Group:

a) Due to the diffences in the local conditions at each airport in each country, no recommendation should be made, and the problem be left in abeyance after the above material has been made available to the competent authorities.

b) A recommendation from the meeting should be worked out.

c) Based on the discussion on the Working Paper the Chairman should be asked to draft a recommendation to be presented at the next meeting of the Working Group for approval.

BSCE/13 AERODROME WORKING GROUP WP

Organization of the Scaring away of the Birds.

Use of Fixed Installation or Mobile Units.

(presented by the Vice Chairman of the Aerodrome Working Group)

1. INTRODUCTION

In accordance with the recommendation of the 12th BSCE Meeting in Paris in October 1977 the Vice Chairman asked by letter of January 3, 1978, participants to the Aerodrome Working Group Meeting from 18 countries to give information on the following subject:

How is the scaring away of the birds organized ? Do you use fixed installations or mobile units, and do you scare away both before take-off and landing ?

2. Answers have till April 14, 1978 been received from the following countries: Austria, Belgium, Canada, Czechoslovakia, Denmark, the Federal Republic of Germany, France, Hungary, Israel, the Netherlands, Poland, South Africa, Switzerland, United Kingdom, and USA
and are as follows:

Austria:

Representatives nominated by the Aerodrome Operator are responsible for scaring of birds before take-off and landing of aircraft. At each Airport there is individual proceedings in use - preferably mobile devices

Belgium:

Civil Airports: Shotgun patrol operates to repel birds. In the near future this patrol will be equipped with distress calls.

Military Airports: Next to the methods already used it is planned that at each airport a "birdman" will operate. He will use distress calls with the method already used to repel birds.

Canada:

Bird scaring activities are the responsibility of the airport manager and his staff. Most activities are carried out from a mobile unit. The frequency of the activity is related to the number of birds on the airport. When bird numbers are heavy, scaring generally takes place before each take-off and landing.

Czechoslovakia:

The scaring away of the birds is performed mainly by means of mobile equipment using alarm horns, lights and flashing lights on a vehicle.

Denmark:

Copenhagen Airport:

Scaring of birds from the airport area is carried out by specially picked persons from the airport police staff. They are equipped with a motor vehicle "VW Golf", shotguns, pyrotechnics, distress call tape recorder, and VHF radio with tower frequencies. The staff can either on their own initiative or on request from the tower or pilots scare the birds away. The bird scaring staff is on duty all the 24 hours of the day. Normally, only one person and one vehicle is on duty, but if large flocks of birds appear, extra staff might be called. This special staff has taken a course in hunting, as Danish law demands a licence for scaring birds away with live ammunition. In total about 20 persons of the staff have the required training. The persons who are not on bird scaring duty, participate in the normal airport police work.

The military airports and the provincial civil airports use mobile units, and scaring is carried out both before take-off and landing.

The Federal Republic of Germany:

Devices for scaring away birds are mounted on vehicles (mobile installation). These measures are taken to scare away birds both at landing and take-off of aircraft.

France:

Airport at which the rate of bird hazards is frequent, and consequently, a serious threat against aviation safety (16 in all) have been equipped with acoustical scaring away devices installed either on vehicles or mounted on fixed installations. The Airport of Nice - at the Mediterranean - is the only airport that use, and with success, a fixed installed acoustical scaring away device, however, causing much trouble with the maintenance.

Hungary:

The organization of regular bird scaring is presently under way, the final set-up yet to be determined.

Israel:

Although we have up to now not arrived at any clear conclusion we employ one single man, who activates static means in the field. In the near future we propose to convert this into a mobile unit, but it is evident that we snall have to continue with static devices like the gas cannon as well.

The Netherlands:

There is a round-the-clock bird patrol with a special car, equipped with a tape recorder and pyrotechnics. The bird patrol is carried out frequently during the day and night. Special attention is given to the runways in use. Prior to allowing traffic on a runway which has not yet been used for some time an extra bird check is carried out.

Poland:

Pyrotechnics and hunting with moderate results have been used.

South Africa:

Shotguns are used. Vehicles are used to reach points on airfields where birds congregate.

Sweden:

No answer.

Switzerland:

No fixed installations are used. Flight safety personnel is responsible for the application. Cars are used to get the appropriate location. At Zürich Airport application is made on request of the tower or of the pilots; at the military airports application is made according to the own decision of the personnel responsible for scaring.

United Kingdom:

A senior member of the aerodrome management/operations staff should be responsible for the Bird Control organization, co-ordinating operator training, supervision and maintaining records of operational and incident data. The CAA inspect the bird-control organization as part of their licensing inspection, giving advice and making recommendations as necessary. The Pest Infestation Control Laboratory is employed as specialist advisors in this context. On airfields operated by BAA, bird-control is exercised by Apron Control Staff. Depending on airport size they are equipped with up to three vehicles with SAPPHO, etc., and operate throughout airport opening hours. Most of these staff will have attended the Pest Infestation Control Laboratory training course. Bird scaring is carried out whenever necessary, including both before take-off and before landing.

USA:

Mobile units are used with greater effect in the U.S. than fixed installations. It is our belief that fixed installations lose some of their effectiveness over a period of time.

3. Three courses of action should be considered by the Aerodrome Working Group.

a) Due to the differences in the local conditions at each airport in each country, no recommendation should be made, and the problem be left in abeyance after the above material has been made available to the competent authorities.

b) A recommendation from the meeting should be worked out.

c) Based on the discussion on the Working Paper the Chairman should be asked to draft a recommendation to be presented at the next meeting of the Working Group for approval.