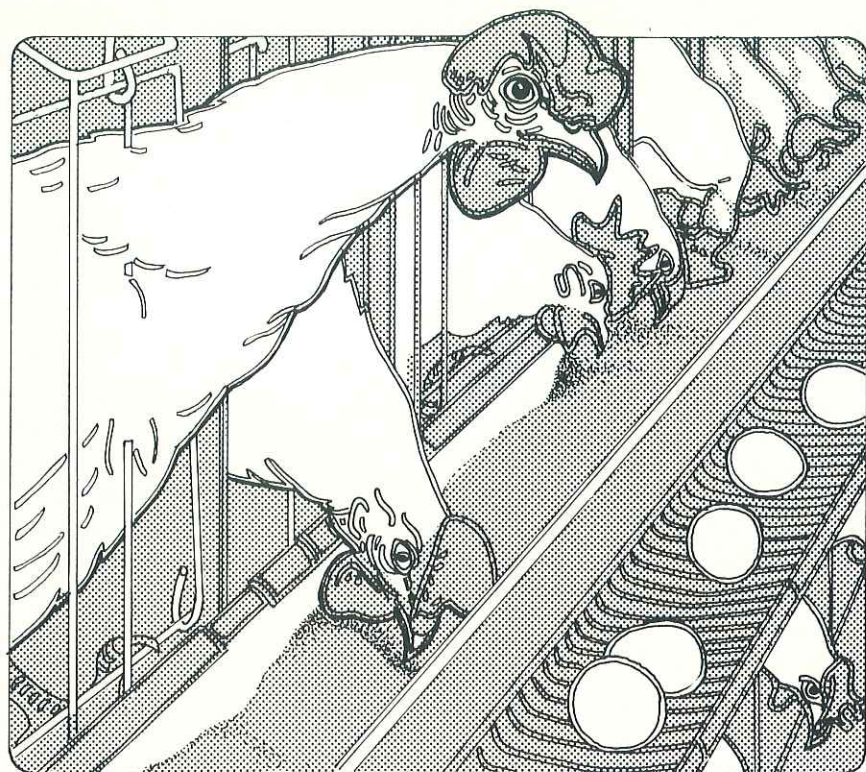


Your Place In Tomorrow's Egg Industry



Since the beginning of Poultry International in 1962, the world's egg industry has gone through an amazing evolutionary process. Traditional centres of egg production have rapidly adopted new technologies, while less developed countries have completely by-passed older systems. Today's rapid communication techniques assure a minimum of time between the formulation of an original concept and its adoption by alert egg producers everywhere.

The world's egg industry has numerous similarities which allow broad application of many basic principles. Poultry breeding is international in scope

with less than two dozen breeding companies of any significance. The science of nutrition is universally understood with most practitioners having essentially the same background. The veterinary profession is well integrated with numerous international conferences and journals for scientific exchange. And finally, the engineering community has developed all types of equipment and housing concepts with broad application possibilities throughout the world.

Even though we see these common threads throughout the world's egg industry, there are many areas of uniqueness that tend to separate one geo-

graphic region from another and even one farm from another. Examples of these include: brown vs. white egg preferences, hot vs. cool climates, presence or absence of animal welfare pressures, regulated or non-regulated industries relative to growth, surplus vs. deficit producing areas, marketing methods, proximity to feed supplies and the availability and quality of feed ingredients.

During the twenty-five years since 1962 each country has gone through its own unique set of experiences. The major egg producing countries have struggled to maintain egg consumption at previous levels as other foods promoted their way into areas previously occupied by eggs. Changing life styles tend to eliminate traditional outlets for eggs. Many consumers believe that eggs are no longer the "perfect" food and have limited their use.

As egg industries develop in an unregulated environment, the size of the industry continues to grow until costs and income are essentially equal. This phenomenon occurs as efficient producers justify more and more growth while the inefficient struggle to hang on just one more year. The efficient then buy out the inefficient; farm numbers decline and producers get bigger. This cycle of events is evident in the United States. (Table 1).

Between 1980 and 1985, the number of egg producing firms in the U.S. decreased by more than 700 which represents a loss of 7% per year. The average firm size during this six year period increased from 76 000 layers to 114 000—a 50% increase!

Countries with regulated industries have similar problems as quota numbers which were at one time adequate prove to be insufficient to keep up with other economic pressures. Once again the efficient buy out the inefficient and the big get bigger. Attempts to restrict maximum ownership by individuals have generally proven to be ineffective.

Extensive growth has been observed in developing countries in Africa, the Middle East, Asia and South America. Some of the growth has apparently already reached a point of saturation as growth outstripped the consumer's ability to purchase the product. Certain regions appear to have enormous potential for growth, but the

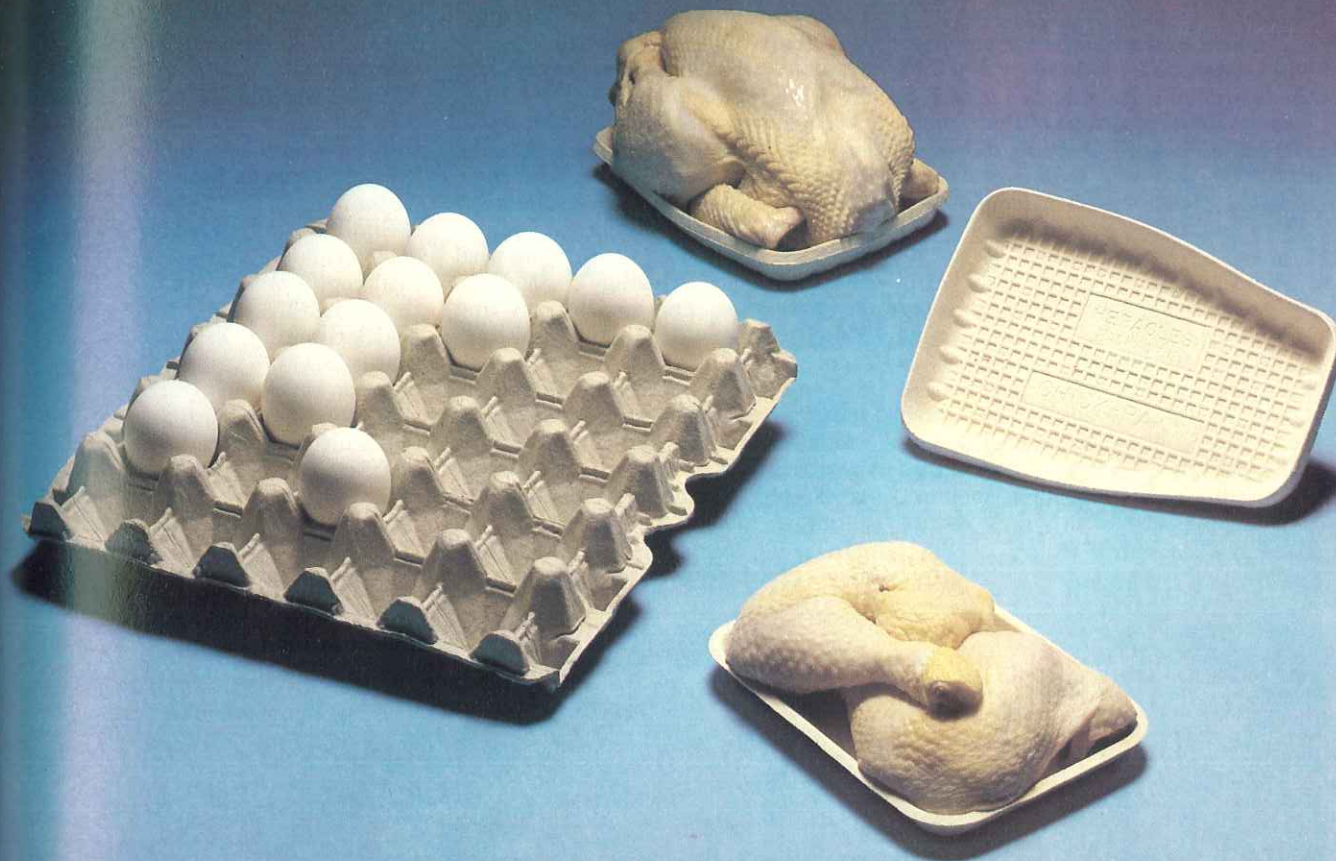
TABLE 1. CHANGES IN FIRM NUMBERS & SIZE—1980-85 (USA)

YEAR	SIZE IN THOUSANDS						TOTAL
	10 TO 20	20 TO 50	50 TO 100	100 TO 500	500 TO 1000	1000 OR MORE	
1980	948	799	342	316	57	22	2484
1981	915	776	347	302	54	21	2415
1982	761	711	358	302	49	24	2205
1983	679	678	327	299	54	29	2066
1984	592	608	295	296	56	28	1875
1985	510	548	297	285	52	33	1725

When it comes to packaging eggs and poultrymeat we have the answer!

HERACLES egg trays feature exclusive "pocket-cell" construction. This unique design provides individually seats and separates eggs to provide cushioning and prevent egg-cracking. In addition, the flexible molded pulp used for the production of the egg trays ensures maximum protection of the eggs during packing (automatic or manual), stacking and transit.

For the modern packaging of poultrymeat, HERACLES offers specially shaped trays for whole or portioned chicken, fresh or frozen. Made of pure paper pulp, they are absorbent on the inside and moisture resistant on the outside, thus ensuring hygienic protection, longer life and attractive appearance of your poultrymeat.



HERACLES serves the poultry industry all over the world with high quality packing trays.



HERACLES
PACKAGING COMPANY S.A.

P.O. BOX 3500 - GR 102 20 ATHENS GREECE
Tel. 01 2898412, Telex: 215168, 215169 AGET GR

TABLE 2. HEN-HOUSED EGG PRODUCTION TO SIXTY WEEKS OF AGE

NUMBER OF EGGS/HEN-HOUSED	PERCENT OF FLOCKS			
	1973-75 HATCHES	1976-78 HATCHES	1981 HATCHES	1984 HATCHES
LESS THAN 170	20.3	06.3	00.5	00.0
170-179	22.4	19.9	04.8	00.2
180-189	27.5	33.7	10.6	04.3
190-199	20.3	25.7	36.0	17.7
200-209	08.6	11.4	34.6	37.5
210-219	00.9	02.6	12.5	30.9
220+	00.0	00.4	01.0	09.3
NUMBER OF FLOCKS	232	272	208	440
% 200+ EGGS	9.5	14.4	48.1	77.5
AVERAGE PRODUCTION	181.0	187.3	198.8	205.4

support industries are simply not there and in many cases the population has neither the means to purchase a relatively high priced animal protein nor the nutritional background to justify its use.

Whether or not today's egg producer will be around twenty-five years into the future will depend upon a host of factors. Most important of these must include his desire to be in the business. This, of course, will depend upon his satisfaction with his economic returns and the style of life afforded him and his family.

Much has been said about "efficiency" and what it means to the success of a firm. We all recognize that it doesn't take much know-how to make money when profit margins are large, the difference is merely in how much the profit is. Under these circumstances management often makes no attempt to cut costs or to seek out new technologies which may reduce costs by a fraction of a cent.

The real test of management is

when economies must be found or the company will fail. Under these circumstances, the good manager will really prove his worth. Ideally, though, this procedure should not have to wait for low margins in order for it to function. This constant effort to improve results is what separates the efficient from the inefficient.

Efficiency is a term applied to all aspects of the egg business. We like to think in terms of feed efficiency, production efficiency, labour efficiency etc. These all have very precise definitions but the standards which are used to separate good, average or poor efficiency are oftentimes arbitrary and not based on good up-to-date information.

The breeder is probably the single most important source of performance standard information. He not only is involved with extensive testing of his stock, but he also observes its performance under a wide variety of field conditions on customer farms. The geneticist knows the characteristics of

each strain and the factors that may limit them.

Competition for the egg producers' business, though, means that tomorrow's bird will be dramatically different from today's in many important traits. The breeder is constantly striving to improve the persistency of egg production and shell quality of his strain. Age at sexual maturity is gradually being reduced, peaks are being raised and egg production rates at the end of the cycle are higher. The alert manager must recognize these changes as they occur.

Stock improvement during the 1973 to 1984 period was dramatically emphasized in a California study of some 1152 flocks. Average egg production to sixty weeks of age improved from 181.0 to 205.4 eggs, an improvement of 2.2 eggs per hen per year. (Table 2).

Most importantly, though, in our discussion of efficiency, the survey illustrates the wide range of production levels in commercial flocks. For example, in the 1984 hatched flocks, 22% produced fewer than 200 eggs while almost 10% of the flocks produced more than 220 eggs. This twenty egg difference represents one-half of an egg difference per week between 20 and 60 weeks of age.

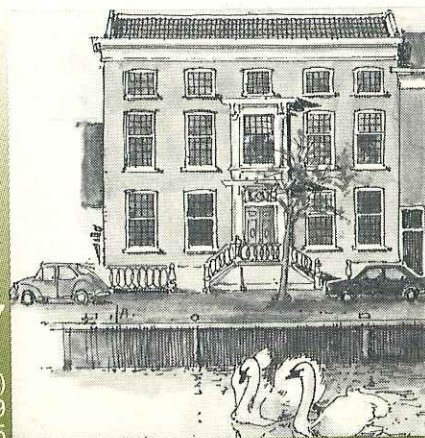
Similar variations occur in all areas of performance under apparently identical conditions. Pullet rearing practices using different lighting, feeding, beak trimming, disease prevention, space allowances etc. can have a major effect on life-time performance. These conditions must be under the control of the ultimate user.

Efficiencies of performance must recognize all factors which contribute to improved flock income or to reductions in cost. The true business approach must recognize optimum per-

Otterboer
a combination
of reliability and
competence



P.O. Box 19, 3100 AA Schiedam (Holland)
Tel. 010-4272599 Telex 26339
Telefax: 4272565



Circle No. 139 on Inquiry Card

Fishmeal of Danish, Icelandic, Norwegian, Chilean and Peruvian origin.

Meatmeal and meat/bonemeal of Dutch, French and Belgian origin.

Feathermeal of Dutch origin.

Soybeanmeal.

Maizeproducts.

Beetpulp pellets.

Lucerne/Grassmeal.

Milkpowder (denatured).

MACHINERY FOR MOULDED PAPERPULP

Leotech offers specially developed machines and complete installations for the production of moulded paperpulp packaging for e.g. eggs and fruit:

- small units, hand operated
 - medium size units, semi-automatic
- Raw material: waste paper.

50 YEARS' EXPERIENCE

Leopack is a group of companies with extensive experience in the production and marketing of moulded paperpulp packaging since the start of eggtray production in 1938.



Leotech

Zuidelijke Industrieweg 3
P.O. Box 5
8800 AA Franeker - Holland
Tel.: (0)5170-2841
Tlx.: 46057 leo nl
Fax: (0)5170-7006

Member of the Leopack group

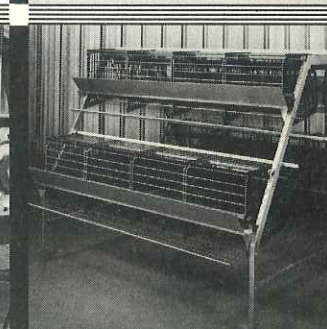
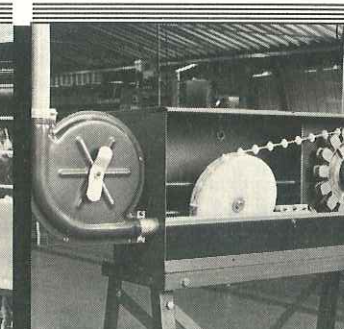
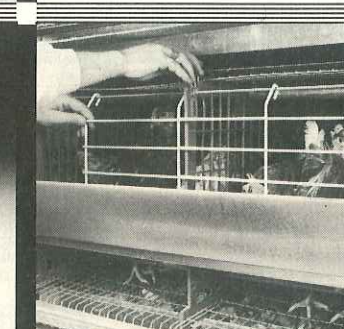
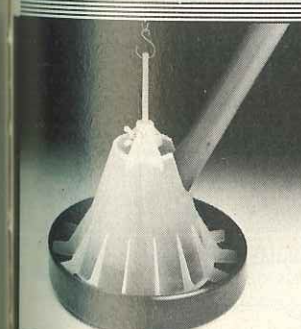
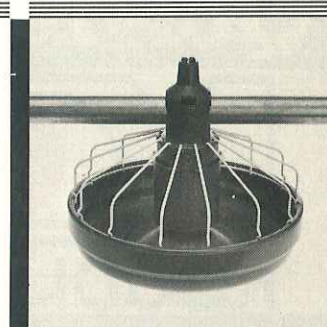
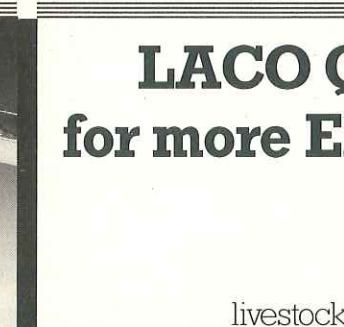
ALL UNITS CAN BE INSPECTED
IN OPERATION AT OUR PULP
FACTORY IN FRANEKER

Circle No. 140 on Inquiry Card



LACO QUALITY for more EFFICIENCY

livestock equipment



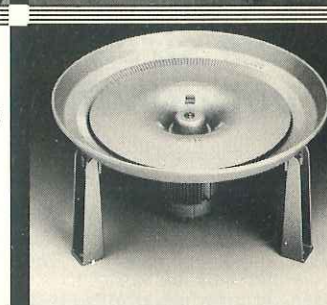
LACO

**LACO BV
UDEN - HOLLAND**

Circle No. 141 on Inquiry Card

Erfstraat 3, 5405 BE Uden
P.O. Box 120, 5400 AC Uden
Phone 04132-50505
Telex 74670

- Delivery program:
- automatic feeding systems
 - rearing batteries
 - laying batteries
 - egg collecting systems
 - climat control systems
 - complete projects



012

formance relative to returns on investment. High performance or low costs are not in themselves the objective of the egg business if they are achieved at the loss of returns on the invested capital.

Costs and prices, even within a relatively small area, are subject to similar variations. But, don't confuse price with quality. It doesn't take too many extra eggs to offset a slightly higher chick cost. Feed quality must be evaluated on the basis of total egg value produced per dollar of cost and not simply on feed conversion.

Expensive equipment and housing must be justified by better flock performance or reduced costs. Careful analyses must include evaluations of differences in feed consumption, livability, egg size and quality, egg breakage, and equipment life.

What are your chances of still being around twenty-five years from now? This will depend more upon your skills to remain competitive than on any other factor. This implies an extreme consciousness of what's going on around you in competing regions, on

the other farms, in the laboratories of the leading poultry research institutions, and probably most importantly on your own farm.

It will depend upon your willingness to try something new without over-committing your resources. Careful analyses of results will be absolutely essential if correct decision are to be made with few errors. No farm can be a test station for all new ideas, but any idea deserves a certain amount of study to determine its possible application.

Sound programmes must be established for all aspects of the business. These are too numerous to list here, but each farm should make an effort to determine these policies and such policies need to be taken apart from time to time and analyzed to see if they still are applicable under today's conditions. New price levels, changes in stock disease conditions, etc. can all make programme changes essential.

Tomorrow's egg industry will contain most of the technologies currently in operation on today's more advanced

facilities. Change will be gradual and adoption will proceed from the innovator first to the follower, oftentimes years later. This is the natural sequence of events with decisions requiring individual judgement. The innovator of sound practices, therefore, has a several year advantage over the follower.

New concepts just now being promoted will become universally accepted in the not too distant future. New diagnostic tests for various diseases will be further refined to allow strain differentiation. Tests will be improved to provide for more rapid diagnosis using eggs for the test rather than blood serum. Such procedures will encourage poultrymen to adopt more routine sampling procedures, thus providing the diagnostician with a more complete picture of the condition.

New testing procedures for nutrient levels and mycotoxins will allow us to evaluate incoming feedstuffs before they're incorporated into feeds and similar testing procedures will test the finished feed before delivery. This

will lessen the incidence if mixing errors and problems with sub-standard feed ingredients.

Performance and environmental conditions will be monitored with improved communication systems. More attention will be given to ensure equal treatment for all birds within the house and house ventilation systems will be improved to accomplish this.

Chances are that we may also see major breakthroughs in several areas, especially in disease control, genetics and nutrition. These are areas where relatively few companies are involved and competition is very strong. Breakthroughs are anticipated in these categories because of the great strides being achieved in biotechnology. Gene transfers, splicing and other techniques offer mind-boggling applications to plant and animal agriculture. New multi-strain, multi-disease vaccines will be perfected. New techniques will be utilized to eliminate undesirable characteristics and to incorporate new traits not now present into our chicken strains. Feedstuffs will also benefit from advancements in plant breeding techniques. Grains now low in certain amino acids will be altered to make them more complete relative to the requirements of our poultry.

Even though we'll have fewer separate ownerships in most major countries in the future, those who innovate and excel will always be rewarded with higher returns. The ultimate successful company will be the one that recognizes the value of details, consistently selects the optimum technology for the time, responds to his flock's needs, and effectively markets his product at value and not at cost—Donald Bell, Poultry Specialist, University of California, USA.

—Editors note: This author contributed to the first edition of POULTRY INTERNATIONAL.

New System Will Help Automate Processing

Georgia Tech has already proven that computerised systems can be designed to withstand the processing plant environment with the Computerised Inspection Monitoring System. Now Tech engineers are beginning work with a system that could help automate processing despite the irregularity of the product involved. This system uses a technology called machine vision.

Machine vision involves recording an image with a video camera, then sending that image to a sophisticated

computer for analysis.

Georgia Tech engineers believe machine vision can be used profitably for repetitive tasks in the poultry processing plant. In addition to the above advantages, vision technology offers others: it reduces the need for people to do boring, repetitive jobs; it increases the potential line speed since all computerised 'workers' can function at a fast, consistent rate; and it is easy to incorporate into an existing processing operation, since little modification or building is needed to install machine vision.

The first poultry-related task the engineers hope to accomplish with

machine vision is the computerised sizing of slaughtered birds as they pass on the processing line. The next goal is to grade birds on the line, electronically spotting skin tears and discolorations, missing parts, or other downgrading factors.

The engineers eventually hope to accomplish actual inspection using machine vision. The computer in such an application would either sort out birds with suspicious characteristics for manual inspection, or perform the full inspection electronically. This application will require very complicated programming for the computer as well as extensive testing.

Tama Automatic Egg Collection Systems yield

21% FEWER EMBRYO DEATHS

compared with hand collecting.

Leading growers in the United States and other countries report significant decreases in incubator embryo deaths among eggs laid in Tama nests. Naturally, this contributes enormously to hatchability and the number of Grade-A Chicks. For example, an on-site study of identical AA flocks at Kibbutz Yavne, Israel, showed these results:

	Average Embryo Deaths	Hatchable Eggs per Hen Housed	Grade-A Chicks per Hen Housed	Average Hatchability
Hand Collecting	3.44%	158.6	131.5	82.9%
Tama Collecting	2.71%	165.6	139.1	84.0%
Results:	-21%	+7	+7.6	+1.1%

In just two and a half years, Tama has installed hundreds of profit-making Automatic Egg Collection Systems - more than half of them in the USA. Tama Systems: perfected by growers, for growers.

For a copy of the Yavne Hatcheries report and those of leading poultrymen around the world, contact Tama or your nearest Tama distributor.

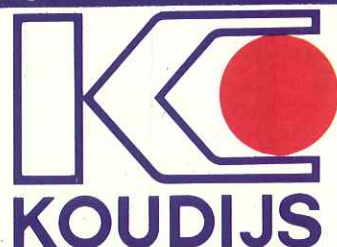


Tama Plastic Industries

Kibbutz Mishmar Ha'Emek, 19236 Israel. Tel: 04 894171. Tlx: 46879. Fax: 04 892901

Circle No. 144 on Inquiry Card

QUALITY MAKES PROFIT



KOUDIJS HOLLAND
ANIMAL FEED, CONCENTRATES
AND PREMIXES

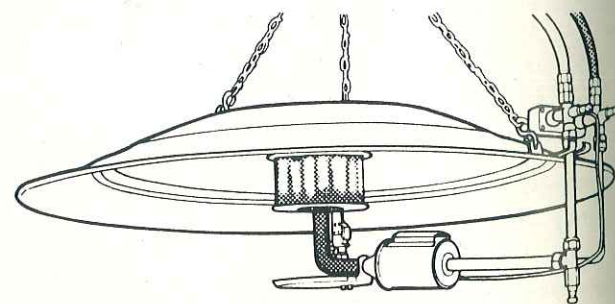
Telephone (international) + 31 73 819882
P.O. Box 204, 5201 AE 's-Hertogenbosch/Holland

TELEX 50263 KDSVM NL

Circle No. 142 on Inquiry Card

Maywick Titan

The most advanced gas brooder in the world — in five sizes and up to six control options.



Maywick (Hanningfield) Limited, Rettendon Common, Chelmsford, Essex, CM3 8HY, England.
Telephone Chelmsford (0245) 400637 or Kings Lynn (0553) 671783. Telex 995746.

Circle No. 143 on Inquiry Card