

# NEWSLETTER

INTERNATIONAL ASSOCIATION OF ZOO EDUCATORS .



8.5

No. 2

PRESIDENT'S PAGE

It is now some time since we sent you our first Newsletter. Now Newsletter No.2 has reached you and, as the response to No.1 has been so heartening, I'm sure our Editor will be amply rewarded for her efforts by the response to this number, too.

We realise that we have to try and get the Newsletter published more regularly, as it is the lifeline between the main events of our Association; and the conferences we organise every second year. But the work has to be done by only a few people, and we are still in the vicious circle of an age-old problem: to get things really working we need money, and to get money we need to have things working! To be honest, we still feel kind of shy of asking you to pay a membership fee, with the idea perhaps that we might not be able to give enough value for the money. But the fact that so many of you not only showed interest, but were also willing to become a member, or to renew your membership, shows us that our Association has all the potential to grow into a useful organization for everyone working in the field of zoo education. As I have stated before, many of our educational activities still stem from the pioneering phase, and I'm sure it will be a great help to all of us to have a platform from which to discuss our problems and to exchange our ideas and experiences.

It is for this reason that I'm very pleased to be able to announce that the next meeting of our Association is to be held at the National Zoo Washington, U.S.A.; September 26th -29th 1978. (Details of conference - see page 6 ).

We are grateful to Dr. H.T. Reed, the Director of the National Zoological Park for extending the invitation to conduct our 1978 meeting there and to Ms. Judith White, Education Officer, and her staff for all the work involved in the planning and arranging of such a conference.

Up till now conferences have been held in Europe, attended mainly by European Zoo Educators. Only a few colleagues from overseas have been able to participate in our

conferences, so I think it is high time to cross the ocean and meet on the American continent.

Our Washington colleagues are suggesting a most interesting and important program. The general theme for the conference will be: "Zoo Education - reaching different audiences through different programs". I personally feel this is not only an interesting but also a very important topic, as we are all inclined to concentrate our work on school groups. The reasons for this are obvious, but we should not forget that zoo education must serve a variety of audiences.

The conference will be opened by a talk and/or a panel discussion of the general theme, followed by a number of specific sessions that will explore some of the different programs, such as (sample topics): Family Groups, Zoo Resource Room; Elementary School Groups, Innovative Programs; General Public, getting visitors around the Zoo, ways and self-guides; High School, programs that really work; Programs for the Handicapped.

Our hosts are trying to identify speakers that they know of to give an introductory talk during the sessions. They will be most interested to hear from you if you are willing to deliver a paper on a topic connected with the general theme, or if you know of somebody who might be able to do so.

Between sessions there will be ample time for our Business Meeting, but also - perhaps more attractive! - for field trips out to other Smithsonian museums.

I'm sure that the meeting will be an important event for everyone involved in zoo education. Not only will it be the first large-scale confrontation between American and European colleagues (and we sincerely hope that other continents will also be represented!) but the conference site - the capital of the United States - is also a very promising one. Apart from the great constellation of Smithsonian museums and galleries, there are the many public buildings and monuments that will be very interesting to visit.

And..... as our Washington colleagues state: we are welcome to come and stay until the snow flies!

But there is more. The conference is planned the week after the A.A.Z.P.A. convention at the Denver (Colorado) Zoological Gardens; September 17th - 22nd 1978. This should permit those participants wishing to attend both meetings to gain several days for travel options between the west and Washington DC. Alternatively, visitors from overseas might choose a western tour prior to the A.A.Z.P.A. meeting, possible midwest stops en route and visits to other eastern cities following our conference. Reasons enough to look forward to our meeting, so I sincerely hope to see you all this coming fall in Washington:

Han Rensenbrink  
Artis Zoo, Amsterdam

-----

Mrs. Sue Josephsen - resignation

Mrs. Josephsen, Education Officer-In-Charge at Taronga Zoo, New South Wales, informed us that she resigned her position at 31st January 1978.

Consequently, she resigned her position as a member of the Executive Committee of our Association.

We wish to thank Sue for the willingness to become a Committee member and for the assistance she gave to our work. We wish her all the luck and success in her new position, lecturing in education at Macquarie University.

Her successor at the Zoo is Mrs. Nola Berglund.

-----

SECRETARY'S PAGE

Membership has been increasing steadily in the past few months with the most recent additions from North and South America and Europe. It is encouraging to see our organization grow and I hope it will prosper to match.

Activities have been directed toward developing a top International Conference this fall. Elsewhere in this issue you will find details of the proposed meetings. This I will be the first meeting to be held in North America. It is a pleasure and an honor for IZE to be hosted by the Smithsonian Institution's National Zoo in Washington, D.C. They have an excellent professional staff and facilities for our conference and Washington offers a wealth of interesting sights for international visitors.

The conference promises to be our best yet, if we can get full participation from our members. I hope that each of you can attend and that every zoo and aquarium that is represented by our members will share their experiences, philosophies and future plans by presenting a paper. All interested speakers should contact the Conference Coordinator as soon as possible to ensure a space for themselves on the schedule.

I would also like to invite all participants to bring duplicate copies of their materials to the conference to trade or give to fellow educators. Your work is best appreciated by peers and perhaps we can all share in. your successes and prevent your failures from being repeated. Come, share, enjoy and learn with a unique assembly of the top zoo and aquarium educators from around the world. Keep the dates open and plan ahead to attend.

James Waddick  
IZE Secretary

EDITOR'S PAGE

The response to Newsletter No.1 was, indeed, most encouraging - but we need far more members and much more material for the next Newsletter. Only two replies were received to the questions posed last time: Do you really want the Editor to have things all her own way?!

Putting together the Newsletter is, consequently, a somewhat slow and laborious process. The President has said that we all realise how important it is to publish regularly, BUT, without contributions and money this is very difficult: It is also very difficult to obtain a well-balanced publication when material is in such short supply.

Obviously, the Newsletter will publish the Conference proceedings. Please bring your papers typed out in full, to Washington, to be handed in at the Conference.

This doesn't mean that other material is not required - please do send other articles, letters, comments, funny happenings or children's sayings to me as soon as possible. Only with your help will it be possible to publish regularly and to raise the standard of our publication from Newsletter to Journal.

May I wish you all a very happy and successful Conference; and may you start writing your papers now.

Jan Hatley  
Devon County Education Officer  
Paignton Zoological & Botanical  
Gardens

DETAILS OF CONFERENCE

National Zoo Washington, U.S.A.

26th - 29th September 1978

Tentative reservations are made at the Holiday Inn, a hotel relatively near the Zoo and centrally located to other Washington tourist attractions.

A bus will be available to transport conferees from hotel to Zoo and to field sites.

The conference costs are estimated as follows:

Hotel \$ 33 per night for a single; \$ 35 for double occupancy.

Registration fee \$ 20.

The Zoo would like to host an opening cocktail party and a midday luncheon for conference participants and their guests. A closing dinner can be arranged on the basis of direct subscription.

Our Washington hosts are kind enough to handle registration of participants, including hotel accommodation. As this announcement is rather late, please let them have your booking as soon as possible.

EDUCATIONAL PROGRAMS FOR SCHOOL GROUPS\*  
SPONSORED BY FRIENDS OF THE NATIONAL ZOO (FONZ)

National Zoological Park, Smithsonian Institution  
Washington D.C.

Introduction

The Friends of the National Zoo education program was begun in 1968. At that time an interested group of FONZ members began a guided tour program staffed by volunteers. By 1972 the program had grown substantially and a full time staff person was hired to handle the administrative work, plus begin development of more educational services.

At the present time (1975) the Education Department consists of three paid staff members (two full-time; one part-time) plus forty-four volunteer guides and six volunteer docents.

Guide Program

The guide program has been active since 1968. Participants are volunteers who have been trained to give tours covering a wide variety of subject matter; e.g. mammals, reptiles, birds, adaptations, social behaviour etc.

Guide training programs are offered by FONZ twice a year and run for five weeks (3 hours per day, 3 days per week). Training of new guides is done primarily by more experienced members of the program. Written training materials concentrate on general animal characteristics as well as providing some information on some of the species found in the Park. FONZ maintains a library for the use of the guides and much of their learning takes place without direct guidance and is self-motivated.

All members of the program meet once a month for ongoing training and several times a year members of the curatorial/research staffs give lecture series on areas of special interest.



### Docent Program

The docent program, in operation since 1973, is an outgrowth of the guide program. Those volunteers who have cultivated a specific area of interest are invited to become docents in one of the animal houses. Candidates for these positions must have spent at least one year in the guide program. Participants essentially train themselves with the help of curators.

Docents are stationed in the houses for two hours every weekday morning. Their responsibility during this time is to answer questions from the general public and groups taking self-guided tours. From time to time they may take special tours through the building. In addition, curators may request docents to aid in taking animal observations.

### Audience

The educational programs are designed almost exclusively for use by elementary school teachers and their classes (school children attending elementary schools are from 5 to 12 years of age). From time to time we provide services for older students. Requests for the latter are relatively few hence they do not comprise a major part of our effort.

Guided Tours: Available for grades 3 and over (Children ages 8 and over)

Guided tours are given Monday - Friday at 10 a.m. and generally last for two hours. Guided tours must be scheduled in advance. Upon arrival at the Zoo, classes are divided into groups of 10, each with an assigned guide.

As described in the "Announcement Brochure", elementary school classes coming for the "World of Mammals", "Vanishing Animals", and "The World of Reptiles and Amphibians" receive pre-tour materials. These materials include a set of slides and a brochure which talks about the animals in the slides. This information is provided free of charge. The slides are loaned and must be returned, however, the printed material is kept by the visiting teacher.

At the present time groups requesting other tours of the Zoo, or groups above the elementary school level, do not get pre-tour materials.

Self-Guided Tours: Primarily for pre-school through  
grade 2 (Ages 3 through 7)

We do not provide guided tours for this age group. Teachers who call in advance receive packets similar to those available in the guided tour program, but include maps which are specially marked so that the teacher can follow a route and see the same animals here at the Zoo that the children saw in class.

Self-guided groups are informed of the docents stationed in the houses in case they should require further assistance. (In instances where our guided tour program is unable to accommodate a group which would normally have a guide, self-guided tour materials are offered as an alternative.

\* The information above does not include material on educational programs which are offered to the membership, for instance, classes, lectures, films, et al.

-----

#### SOME-NEWS -FROM-THE-ZOOS

Sao Paulo Zoo, Brazil plans to start building its education centre next year. Then, a lecture theatre is to be built and a programme of zoology courses inaugurated. Meantime, lectures on wildlife conservation are given to members of the Forest Service and special training courses are held for biology and veterinary students.

Zoo Berlin has started on its projected zoo school but completion will obviously take some time.

-----

THE-PRESENT-EDUCATION-PROGRAMME-OF-THE  
ZOOLOGICAL-SOCIETY -OF-LONDON (from 1976 Conference)

A.D. Boulton, Ph.D. - Zoological Society of London

One of the prime reasons given for having zoos at all is that they should be educational. In fact a fundamental idea in the original 1825 prospectus for the setting up of the Z.S.L. was that, (and I quote), 'upon such an institution a philosophy of zoology may be founded, pointing out comparative anatomy, the habits of life.....' and so on.

Unlike some ideas for the Zoo that one is partially fulfilled. I say partially because it is apparent that even now there is still great potential for increasing the teaching. Here I wish to set out just the main ways that this department teaches and some of the reasons for going about it in the ways that we do.

The Education Officer and three Assistant Education Officers give lectures, talks and tours to people between the ages of 7 and 18 during school term times. The staff are trained zoologists with some teaching experience but not necessarily in schools. Salaries are paid by the Zoological Society and since there are no direct subsidies from Local Education Authorities a charge is made for pupils that use the facilities here and the department is asked not to make a financial loss. To do this vast numbers of children must be taught, that is why the lecture halls have one hundred seats although projecting facts into children's memories is easier to do with smaller numbers. With a restricted time and to large numbers it is never possible to impart such information as one would like nor to make sure of a real comprehension and so the aims of what we try to achieve are much less. I see our work here as not just being a way of teaching certain facts about animals but more especially trying to show how animals and animal communities are real, exciting and interesting things. Our aim is to begin to show children how to look at animals, how to see questions about them and how to try to understand the form and functioning of animals. Particularly with younger children this requires little more than a channelling of their thoughts as naturally they begin to be interested and to look in these ways. From the interest and the questioning, facts and comprehension must follow.

Because of this the subjects we- teach are those that reflect the things that children can see for themselves in the Zoo. That is to say we tend to teach those subjects that can be readily demonstrated by the Zoo's menagerie rather than those subjects that may sometimes be more popular with teachers because they are points, often unpopular ones, on their syllabus. We prefer to use those subjects that will generate an interest and will in all likelihood recall many separate points in the children's memories of classroom biology lessons and link together aspects of the syllabuses and help an all-round understanding rather than be restricted to rigid syllabus subjects. Thus we take a subject such as animal body coverings, respiration, or behaviour and give some of the stories in a range of animals rather than take a couple of animal examples and study particular factors about them. Having said that, we do also repeatedly give subjects such as 'Classification', 'Vertebrate characteristics' and 'the Pentadactyl Limb' and some others that do appear in syllabus. They are subjects that are very popular with teachers, they bring in plenty of New Pence, but we give broad ideas and involve a wide spectrum of animals rather than use only a few selected animal examples and we give much more than the bare straightforward facts. It is the Zoo that is our chief commodity and we should exploit this asset rather than simply satisfy teachers' requests to help them get through their curricula.

The typical teacher's packet that would be given to any school that booked to come to us consists of a lecture on a theme chosen from our current programme coupled with a tour and question sheet to give a two hour session. In the summer term tours are not given, although question sheets are provided, because of the difficulties of giving tours in crowded animal houses. As an alternative to a lecture, a half-hour session is given at any one house and again a question sheet is provided. These 'looking at animals' sessions are suitable for those who require simpler teaching or to whom sitting in a lecture hall is apparently too much of an ordeal. Younger children, the handicapped, remedial or those with slight language difficulties in particular find these more suitable.

The choice of subjects offered is changed slightly each year. During the summer term lectures are only given at Regent's Park to junior school children (aged about 7 to 11). Naturally we chose rather straightforward subjects with which the children can easily identify, such as 'big cats' or 'self defence' or 'reptiles'. Secondary pupils are taught in the summer term at Whipsnade Zoo and in the spring and autumn terms at Regent's Park. These lectures are broken into three age group categories and teachers may choose a subject from a choice of 4 or 5. The so-called 'A' level lectures aimed at 17 & 18 year olds are also booked by teacher training and degree students and we sometimes provide special lectures when requested.

By having these age categories lectures can be written to be suitable for a particular age group and they can be manipulated to suit the particular group of children.

We do not specialise with each lecturer concentrating on one particular age group. Each of the three AEOs lectures to and writes lectures for every level. This helps in a number of ways. Firstly it reduces the tedium and possible resulting staleness of repeatedly giving the same lecture and seeing pupils of one age sector. It also encourages us to discuss the topics and to swap titbits of information and ideas for the lecture.

To enable as many schools as possible to make use of our facilities and of course because of the pecuniary advantages too, we will fill the lecture halls as far as possible and this often means 2 or 3 schools sit together for a lecture. This can pose problems of two kinds. Firstly there is the obvious problem of finding the correct pitch of the lecture so that as many as possible will be interested as the abilities, aptitudes and ages of pupils from the two schools frequently differ very greatly. The other problem is that with more than one school represented it is much more difficult to find the correct pitch as school children are very markedly more inhibited when another school is present. They are much less likely to be prepared to ask and answer questions, to laugh at a joke or even to give a facial expression showing the comprehension of some point. Also although the behaviour of children rarely gives any real difficulty if the correct approach

can be found, when two or more schools are together some aspects of behaviour become, quite the reverse of inhibited and it can take some time to get the pupils to settle down to the lecture. Their behaviour must be used to bring on the required interest. For instance the more vocal of the dissidents will begin to answer questions first which may encourage other; sometimes two schools can be played against each other, one school not wanting to be shown up by the knowledge of the other. The main course is to use the children's natural enthusiasm for their 'day out at the zoo' and to channel it towards the work in hand. The great disadvantage with having more than one school in a lecture is that a great deal of extra effort must be spent in controlling the children and in bringing out their interest rather than using that effort to talk about animals.

It must not be forgotten that despite the work, the children do expect their day out to be fun and there is no reason why the lecture and the learning should not be so. If that can be achieved then we have directed a child's enthusiasm to an animal and got him interested and excited in learning about that animal. Discipline too is the last thing that children want and is almost never necessary once the children's attention has been gained. Simply by showing interest in the children and by showing that he wants to hear their questions and viewpoints a lecturer can identify with a group of children and that alone is often sufficient to make sure of their almost undivided attention.

After their journey here which may be tedious and very disciplined children enter our building and are met by austere black or white walls and regimented rows of seats and by some self-opinionated stranger who expects them to sit quietly and listen to him for half an hour or more. Some groups have not only had no preparation for their work here but have actually been deceived so that they are quite unaware of the impending lecture and work session. It is therefore important that the pupils can quickly understand just what attention and effort is required of them and that they can also quickly see that the session can be enjoyable.

The lectures are given with great emphasis on the use of photographic slides for focussing attention. About thirty slides would be used in a half-hour lecture and sometimes some short (30-second) clips of film. Once the lecture has been given a couple of times the lecture notes become rather superfluous and the slides serve as a trigger to tell certain facts about the aspect of biology or the animal. In this way it soon becomes second nature to adapt the lecture to the particular group of pupils.

In addition more recently we have begun using objects such as skulls, snake skins, feathers and other objects to make points clear and to keep an excitement for the subject. For example jaw articulation can be demonstrated and explained in all kinds of ways and it may be remembered. But if a child holds a zebra's and then a puma's skulls - and sees the different teeth and the ways the jaws move, it is something he will remember and remain excited about for a very long time. Later a teacher can use that excitement as a stimulus and a thread to hang on other bits of information. Some of these artefacts are also used in the "Looking at animal" sessions. For instance, in the reptile sessions objects such as snake skin sloughs, whole skins, fangs, and rattle snake rattles are produced and it is very apparent how these help in teaching.

One teaching aid that is growing in popularity is the use of tape slide programmes. By having a pre-recorded lecture script linked to the projection of slides, tedium can be removed and the teaching becomes much less exhausting. We have begun here to incorporate these into our lecture programmes. One important aspect is that although a tape-slide by itself is satisfactory, the children gain very much more from the tape slide if it follows an introduction of about five minutes. The optimum length is if the tape slide lasts about 15 minutes. If longer than that interest wanes and generally less facts are remembered. At the end of the tape slide we again talk about the subject, ask and answer questions and may demonstrate objects. Used this way it does mean that the lecturer only gains a little benefit from the use of the tape-slide and the time taken in preparing a tape slide of sufficient quality is barely warranted. The real benefit that such a system gives is

that the children are not asked to concentrate for too long on one system of teaching - the lecturer or the tape slide,,. It is by making use of an unfamiliar setting, or face, or teaching aid that we can implant a lot of information in a small period of time and the tape slide programmes help in this way.

We try to make our tape slide programmes more effective by using a number of simple devices. For instance by using recordings of animal noises a continuous flow of words can be interrupted, some diagrams and written titles give variety and help to imprint ideas, the slides should not all be shown for the same length of time and the speed of delivery of the spoken words is made to vary.

In my opinion there are drawbacks to the use of tape slides in this fashion. Even though they may be prepared for a given age group and although the same set of slides can be reused with a different commentary for another ability level it is simply not possible to prepare such a system to be exactly correct for even any one group of children. The choice of vocabulary, the emphasis on certain words, the amount of explanation, the speed of delivery, and the amount and type of enthusiasm and humour can all be varied in a lecture but must remain static, invariable in a recorded commentary and so any tape slide can never be as good as a good lecture although of course it will be better than the poorer lecture that must inevitably occasionally occur.

Perhaps tape slide programmes could be used here rather differently. With accompanying question sheets they could provide an alternative for those schools who we cannot accommodate due to over-demand.

Following a lecture secondary school children are shown part of the Zoo in a follow up to compliment the lecture. They are reminded of some aspects they have just been taught and shown new things too. It is an ideal opportunity for the children to ask questions. The party spends half the time with the lecturer and half with a person who knows the Zoo well and has perhaps worked in the children's zoo. The person may have few academic qualifications but has been primed with information to give answers for the most likely questions. Only parts of the Zoo will be used for several



reasons. With 3 lecturers and tours going on simultaneously we wish to avoid each other's groups and many classes come back again to see several lectures in a term and this way they see more of the Zoo. But we sometimes deliberately show one area of the Zoo more than once at a particular level so that if a class repeats an area it can see how the animals can be looked at again with quite different ideas in the mind and quite new things learnt by another look.

With the tours we use question sheets. Although there have been certain criticisms of their use we find they give many advantages. Firstly in a tour we may take - 50 children together. It is obviously impossible to give them individual attention but the sheets give them all something to be doing while we can concentrate on a few in turn. Also by watching the children's response to the questions we can spot difficulties and help to encourage the slow. The more intelligent quickly do the answers and they can be selected and spoken to to give them further information and ideas. In addition, the sheets give something tangible that the children can take away as a reminder of the learning and as a basis for further class discussion and follow-up with the aid of answers. and teachers' notes that we also provide.

Nothing dampens enthusiasm more quickly than a printed sheet of words and so we try to vary the format of our sheets by drawings and tables to fill in and we carefully word the questions. The aim is to make the children look at the animals to find the answers and certainly many children do find them fun to do.

By these means we teach about 60,000 school children a year and normally having only three people lecturing at a time. We feel that we fill an important need and our services are obviously popular. We see some children several times and they have enjoyed their time here and remember quite a lot. Many teachers continue to bring classes to us year after year. There is still great potential for expansion with us hardly beginning on some categories of teaching. If we keep on revising our system and lectures and keep ahead of changing syllabuses - one syllabus actually names our department - we are doing a valuable job and helping fulfil some of the Zoo's aims and helping to make real that justification for its existence.

Aufgaben und Arbeitsweise der Z o o s c h u l e  
des Zoologischen Gartens Leipzig

-----  
Zooschule - eine Einrichtung des Zoologischen Gartens  
Leipzig - seit dem 1.9.1969 allen Schulklassen und  
Interessengruppen zug nglich - der freizugige Zoobesuch  
(zwanglose Verbindung von Erholung und Bildung) wird nicht  
eingeschr nkt.

Aufgaben und Methoden des Zooschulunterrichts

Unterst tzung des Heimatkunde- und Biologieunterrichts  
der Unter-, Mittel- und Oberstufe der Schulen nach den  
jeweiligen Lehrpl nen: Aneignung, Festigung und Erweiterung  
naturwissenschaftlicher Kenntnisse durch einen geplanten,  
anschaulichen und erlebnisreichen Unterricht im Zoo ( bernahme  
einzelner Unterrichtsstunden, Vor- und Nachbereitung gr Berer  
Themenkomplexe).

Methodische Zielstellung: Selbst ndige und anfangs  
durch problemhafte und zielgerichtete Aufgabenstellung  
angeleitete Beobachtungen (Aussehen, K rperbau, Lebens- und  
Verhaltensweisen der Tiere, Beziehungen zur Umwelt, Vergleiche  
nach bestimmten Gesichtspunkten, Feststellung gemeinsamer  
und unterschiedlicher Merkmale, Erkennen von Zusammenh ngen)

Au erunterrichtliche Arbeit in Kursen und Zirkeln:  
Zoologie, Tierzeichnen, Tiermodellieren, Tierfotografie

Ablauf und Organisation des Unterrichts

1. Im Unterrichtsraum der Zooschule Bekanntgabe des  
Lehrzieles, .Verteilung der gedruckten  
Beobachtungsaufgaben und Schreibunterlagen sowie  
Erl uterung der Aufgaben
2. Beobachtungen der lebenden Tiere in den Tiergehegen  
(nur in Ausnahmef llen im Schulraum) und Eintragung der  
Ergebnisse in das Beobachtungsheft
3. Kontrolle und Auswertung (Systematisierung, Vertiefung,  
Erweiterung) der Beobachtungsergebnisse im  
Unterrichtsraum der Zooschule unter Zuhilfenahme von  
Preparaten, Bildtafeln, Lichtbildern, Tonfilmen,  
Tonb ndern usw.

Dauer des Unterrichts: je nach Klassenstufe 1 - 3, Stunden  
hr wird von pädagogischen und wissenschaftlichen Kräften  
des Zoos erteilt und ist kostenlos - bisher pro Jahr über  
10 000 Schüler planmäßig betreut

#### Weitere Aufgaben der Zooschule

Unterstützung und Anleitung von Lehrkräften bei  
Zoobesuchen, thematische Führungen, Mitarbeit bei der Aus- und  
Weiterbildung der Lehrer, Ferienveranstaltungen für Schulkinder  
und Ausarbeitung schriftlichen Anleitungsmaterials für Lehrer  
und Erzieher

Einrichtung der Zooschule: Unterrichtsraum (150m<sup>2</sup>) mit  
52 Arbeits - plätzen, Lehrmittelsammlung, Bibliothek,  
technische Ausstattung, Arbeitsraum für Lehrkräfte der  
Zooschule und Labor mit 15 Arbeitsplätzen

Weiterhin besteht Vertrag über Kooperation in Forschung  
und Lehre zwischen Karl-Marx-Universität Leipzig und Leipziger  
Zoo

-----

#### LEIPZIG ZOO SCHOOL

The recreational and educational facilities of the  
Leipzig Zoo have been available free to all school classes  
and interested parties since 1.9.1969.

Sessions to supplement syllabus work in biology and  
ecology are available for all levels. They are aimed at  
providing an enrichment of experience to reinforce and extend  
the knowledge of natural sciences. The Zoo will take over  
individual lessons or provide preparation and follow-up work  
on wider themes.

Projects on morphology, ethology, comparative and  
systematic studies - all related to ecology are undertaken.  
Courses and group work in the Zoo include animal drawing,  
modelling and photography.

Introductory sessions in the classroom (and the provision of worksheets) are followed by observations in the Zoo. (Living animals are only used in the classroom in exceptional cases). The theme is then developed back in the classroom with the help of suitable audio-visual aids.

Each lesson lasts from 1-3 hours depending upon the age of the pupils and instruction by the Zoo's scientific and educational staff is free.

So far these prearranged sessions have been given to over 10,000 students per year.

The Zoo School also provides help and instruction to visiting teachers and holds In-Service Courses. In addition, the education staff produce teaching material.

Holiday courses for children are also arranged.

The Zoo school has accommodation for 52 pupils and laboratory space for 15. There is a collection of teaching materials, a library and technical equipment.

There is also an agreement for co-operation in research and instruction between the Karl Marx University, Leipzig and the Leipzig Zoo.

-----

#### MORE NEWS FROM THE ZOOS

The Tynehead Zoological Society of British Columbia, Canada is establishing a large Wild Animal Park in the Vancouver area. This complex will include facilities for recreation, education, conservation and research. Educational programmes are being developed at all levels.

The Jardin Zoologico, Barranquilla, Colombia is developing its educational facilities and, together with the Museum of Natural History, provides an excellent service for students. The Zoo as a whole is a study centre for all ages and it aims to promote an understanding of the urgent need to conserve native wildlife.

## THE EDUCATIONAL ASPECT

### The Jerusalem- Biblical- Zoological Garden, Israel

-  
The Biblical Zoo was established with the intention of repairing the scarcity of visual material available for the study of nature. It was at first a collection of animals existing in Israel today. As the number of exhibits increased, so did the number of visitors from Jerusalem and other parts of the country. The ratio of organized class visits also grew in proportion. To assist the pupils, the Zoo posted explanatory signboards but being of cheap material for lack of funds, they were soon damaged. There were no zoo-keepers available with sufficient knowledge to provide the pupils with proper guidance, and teachers themselves were worried that they might not be able to answer their pupils' questions. For these reasons the number of class visits began to decline.

An attempt was made to overcome these obstacles by initiating meetings with the teachers, but lacking official institutional backing, participants were few. A radical change took place three years ago when the Ministry of Education and Culture appointed someone to be responsible for educational activities at the zoo. A short time afterwards the head of the Pedagogic Secretariat held a meeting to appoint a committee of Zoo representatives and science teachers who would draw up a programme of nature studies requiring a visit to the Zoo at least once a year. The Jerusalem, Tel Aviv and Haifa zoos were to be directly involved in the preparation of such a program. Mr. G. Bergson, district head of the Ministry of Education and Culture, appointed a group of Jerusalem educators under the auspices of which guidance material was prepared for two age-groups - 10 to 12 year olds and 14 to 15 year olds. This material is now made available to teachers prior to their class visits to the Zoo and includes an introductory lecture by the teacher, questionnaires based on a specific topic, an independent walk through the Zoo and a concluding discussion to be continued in the classroom. A visit of this type may also provide a basis for homework and additional classwork. As a rule, teachers who prefer organised tours may arrange for them.

The Zoo's present day educational activities area direct continuation of the nature workshops for youth organized by the "Agudat Eig" nature sciences society from 1937 to 1939. These workshops, headed by young scientists and students of the Hebrew University, have been held from time to time ever since the establishment of the Zoo.. One of the first counsellors of the Agudat Eig workshops was Professor Ephraim Katzir, the fourth President of Israel. Topics dealt with have included comparative and functional morphology of animals, animal behaviour and. environmental adjustment, social relation-ships within families, poisonous animals and the effects of their poisons, and animal feeding.

The Biblical Zoo is becoming increasingly important as a place for independent study and research. Studies carried out by students have dealt with the development of the egg of wingless birds (ostrich and emu), the biology and effects of the poison of black widow spiders, comparative animal morphology, the biology and poison of scorpions, the study of animal noises and the relationships between female baboons and their offspring.

A unique experiment carried out at the Zoo involved the rehabilitation of high-school dropouts, who had turned to delinquency, through a special one-year course for Zoo attendants. The project was initiated by Mr. Y. Maiden and supported by Mr. Yigal Allon, then Minister of Education and Culture. Participants in the course were selected through the assistance of Mr. N. Mizrachi, of the Youth Employment Bureau. The course began with sixteen boys and girls who were given courses in basic chemistry, mathematics, geography and animal development. Mathematics studies involved calculation of the amounts of food given to animals and their nutritional value; chemistry took the form of the physiology of digestion; physics was taught by examination of the flight of birds and insects; geography concentrated on the distribution of animals. Mrs. Devora Ben-Shaul and Mr. Pinhas Amitai, the course leaders, did their best to interest the youngsters and create an atmosphere of discipline and study. By the time the course was over, potential juvenile delinquents had been transformed into useful members of society who were later integrated into University and Government laboratories. Four of the participants even continued to study independently and sat for matriculation examinations.

The holding of public exhibitions has been a tradition ever since they were begun by "Agudat Eig" long before the actual establishment of the Zoo. The first exhibition was set up in 1937 in the basement of a building near the old Knesset on King George Avenue and was devoted to snakes. This was the first attempt to impart an understanding of nature to members of the "old Yishav" (pre-World War 1) in Jerusalem. A few people even brought bags of earth which they wanted the guides to feed the snakes in keeping with the passage in the Bible "and earth shall ye eat". Another exhibit focused on butterflies and other insects.

The Agricultural Settlement Department of the Jewish Agency financed two travelling exhibits dealing with rodents and weeds assembled by teachers of zoology and botany in Tel Aviv and at the Hebrew University. One exhibit was brought to 64 different places in 1938 and the second to 132 in 1939. Heading this project were Mr. Yerahmiel Naftali and Dr. E. Gordin, both to become senior officials at the Israel Ministry of Agriculture later on. Despite the difficulties, two other displays were set up, one of parasitic worms and the other of agricultural pests. Both were housed in a shack which was the only existing building at the Shmuel Hanavi Street zoo. When the Vivarium was erected on the present Zoo site, exhibits became more complex; they were set up in such a way as to appeal to the public on two levels large explanatory charts with clear illustrations for the majority of visitors and more detailed information printed for teachers, nature lovers and outstanding students. These exhibits are generally opened around holiday time so as to be available to the largest number of visitors. Topics have included snakes, the underwater life of the Red Sea, locusts, harmful insects, the "Ten Plagues" of Egypt and so on.

Special guided tours of the Zoo at sunrise, sunset or at night are available, and there are tours designed for groups of blind people, the elderly, and children from the Alyn Crippled Children's Home. During the summer vacation, nature films were lent by the American, British and Dutch Consulates. This project had to be discontinued, however, because the films attracted many more people than could be accommodated in the small space of the Vivarium.

At present a complex of classrooms is being constructed at the Zoo in memory of Uri Maimon. It was he who had been responsible for making the necessary contacts between the Jerusalem Zoo and Ministry of Education and Culture for the implementation of educational activities. These classrooms will be used for lectures, film screenings and special-interest workshops at the Zoo. For the past two years the Zoo has become a centre for university lectures and demonstrations in such fields as comparative animal morphology and the anatomy of vertebrates. Students of psychology and animal behaviour often come to carry out observation on which to base their theses.

An important part in the education of young nature lovers is played by the organized summer camps at the Zoo supported by the Jerusalem Municipality. Participants in these camps hear lectures on zoological topics, build nature corners, learn to care for the animals and report on their findings in papers. At the end of the summer they put out a newspaper summarizing their activities.

-----



#### PROGRAMME

Comune Di Roma Servizio, Giardino Zoologico, E. Museo Di Zoologia

In my opinion the realization of an education programme in the Zoological field is necessary and urgent, in order to develop the naturalistic feeling of the Italians, which is still very uncertain and very often disorientated by non-qualified information, which is quite inadequate and in many cases erroneous or having the effect of making the public less interested. The information media, from Press to Television, do not have available any discriminating agency for Wildlife matters, and often circulate -along with occasional valid news - too many mistakes and erroneous data. Arbitrariness, superficiality and incompetence are the general rule in this field, and they are so much more obnoxious for the public is less prepared and unable to evaluate what is presented to it.

In order to educate the Italian public to a better naturalistic and specifically zoological attitude, the Direction of the Rome Zoo intends to realize soon the following initiatives:

1. DEVELOPMENT OF CONTACTS WITH SCHOOLS of all orders and grades.
2. WALL NEWS REPORT, to be affixed in special stands, with tables, posters, photographs and news relative to events in the zoo, (births, arrivals, buildings etc.)  
Alongside educational material on zoological and ecological problems - mainly of national interest - of a critical form whenever it is advisable to stop or correct some wrong initiatives (e.g. in the control of poisonous snakes which stands the risk of becoming excessively destructive), or to rectify erroneous information reported by the press or other sources.
3. DISTRIBUTION OF LEAFLETS on the above subjects or for information on matters of general interest.
4. INSTALLATION OF LOUD SPEAKERS near the cages and enclosures, to give information about the animals kept therein. The explicative talks, recorded on tapes, will be both in Italian and in the main foreign

languages (English, French, German, in order to assist also the many foreign visitors to the Rome Zoo. The equipment of course shall have suitable technical characteristics in order to avoid interference between the various listening points, to avoid disturbance between two close points, and with such a periodicity of transmission as to enable visitors to listen to the entire programme in its various parts.

With the same system will also be given to the public suggestions and advice on the best way to watch the animals and on the proper behaviour to be observed towards the animals, the installations, the plants and flowers, and for the sake of cleanliness.

5. PRINTING OF INFORMATION AND EDUCATION BOOKLETS for distribution to visitors of the Zoological Garden.

6. BOX FOR COLLECTION of suggestions, criticisms, questions etc.

7. PROMOTION OF AN ACTIVE COLLABORATION with organizations such as the Italian World Wildlife Fund and wildlife associations, in order to promote and organize campaigns and manifestations in the respective fields of action and interest.

-----  
REPORT

Zoological Garden of Rome

In the Zoological Garden of Rome does not yet exist, in official form; an Education Service, but in practice the administration staff has been for years taking care of the activity in the field of education, in addition to its other engagements.

The first step of course has been the preparation and affixion of labels with the nomenclature of each animal species, which are often accompanied by explanatory and descriptive plates which illustrate the most important morphological and ethological aspects of the most remarkable

species, or groups of genera, or of the major systematic entities (families or subfamilies). These plates, executed in plastic materials, are affixed to the cages or enclosures of the animals which they describe, or are placed in a suitable position in order to refer to an entire group of cages housing separately various species of the genus or family described.

Near the enclosures which house some particular animals (e.g. Ostriches) are placed some large plates with information and unusual facts, as well as recommendations concerning the relevant animals.

At the zoo entrance, along the avenues, and by some cages and enclosures are exhibited some plates with instructions for the behaviour of visitors (e.g. "Do not go too close to the animals", or "Do not feed these animals" etc.). These notices are very important to avoid improper actions by the public, although they are not totally effective in eliminating the bad habit of bothering the animals or offering them unsuitable foods. This area of zoo management can be considered as part of the educational work and the confiscation of the improper food is followed by an explanation - unfortunately not always well received - of the dangers and consequences involved in wrong feeding. This task is performed by any member of staff who happens to discover the infringement: 'managers; keepers, gardeners, etc.

As from 1964 all school classes (accompanied by teachers) of any order and grade, both public and private, Italian and foreign, are admitted free to the Rome Zoo.

It has been ascertained that the specific Zoological knowledge of school teachers is often inadequate and, since 1970, guided tours for schools have been organized. Some university students of Biology; Natural Sciences or similar faculties have been entrusted with the task of accompanying school classes on their visits to the Zoo, giving information on the animals and replying to the questions posed by children. A sum of 5 million Lire (8,000 dollars) has been allocated for the reimbursement of these guides. A volume of 128 pages, typed and

duplicated, prepared by the Director of the Zoo and his Scientific Assistants, has been edited for the specific training of the guides.

Within the Zoological Garden exists also a Civic Museum of Zoology, which houses large mammalogical, ornithological, entomological and malacological collections, to which all visitors to the Zoo are freely admitted. This Museum is often visited by school classes as a complement to the Zoo visit. Here, too, the guides give explanations and illustrations.

The following cultural and informative activities, although not properly educational, deserve to be mentioned. All members of the Zoo Administration (scientific) staff as a whole participate in some informative activities, such as editing of scientific publications, scientific consultancy for cinema and television zoological, ecological and ethological documentaries etc. All are credited either singly or in collaboration with others, with many publications and documentaries.

From time to time papers on zoological subjects are presented publicly in a special conference hall of the Museum.

The Museum houses the headquarters of some Associations of people interested in various zoological sciences (Malacology, Entomology, Herpetology, etc.)

-----

#### A DESCRIPTION OF OUR EDUCATIONAL PHILOSOPHY AND PROGRAMS

Mrs. Max K. Jamison, Education Coordinator, The Greater Los Angeles Zoo Association, Los Angeles, California

On the premise that man has evolved from a more primitive animal to become the most sophisticated and able of all the species, we believe he must accept the idea of being responsible for the preservation and welfare of all other members of the animal kingdom. Even if you cannot agree with the above concept of evolution, you must admit that by virtue of his superior reasoning power, man must still accept this responsibility.

Modern zoos have accepted this responsibility and are playing a major part in the field of conservation. No longer are they content to just display unusual and rare animals; they have heeded the warning signals and are working with all the facilities they can command to counteract and divert the flood of disaster that lack of knowledge and irresponsibility have initiated.

The Los Angeles Zoo, aided by the volunteer members of the Greater Los Angeles Zoo Association, is well to the fore in this tremendous undertaking. They realize that a zoo is less desirable than the animal's natural habitat. They also realize that in many cases the progress of civilization has either depleted or polluted the environment necessary for the subsistence of the animal; in some cases natural areas have been completely destroyed'. As a result, the Los Angeles Zoo is providing animal exhibits as similar to the natural habitat as space and finances will permit, remembering that zoos may provide the only sanctuary available to many species.

A most active breeding policy is being maintained by displaying only intermingled sexes. New blood lines are introduced whenever possible. The birth rate at the Los Angeles Zoo is excellent. This is an excellent criteria of its policies and facilities. Experiments in artificial insemination of certain primates and birds of prey are being conducted. This has never before been attempted in zoos and, if successful, will add much toward assuring the continuation of endangered species.

The "No Feeding" policy introduced with the opening of the Zoo has proven most beneficial. The Los Angeles Zoo is the first major zoo to adhere to this. It facilitates the maintenance of a balanced, nutritional diet and eliminates the possibility of illness or death caused by the consumption of foreign objects, unsuitable foods, disease carrying publicly proffered tidbits. All diets are prepared in a fine, modern commissary, staffed by specially trained workers.

The Los Angeles Zoo Health Center is as antiseptically clean and well equipped as any good, small hospital. Here the veterinarian and his staff perform necessary operations, such as Caesarean sections, and carry on other medical duties as required. A quarantine center also exists for the confinement of newly acquired animals or the isolation of existent animals whenever the necessity for isolation is indicated.

The "living classroom" provided by our Los Angeles Zoo is one of the best possible ways to educate the youth and adults of today. Here we can not only provide basic knowledge of our furred, feathered and scaly friends, we can better explain the differences in their behavior and needs as related to "in the zoo" and "in the wild" habitats.

Enthusiastically encouraged and assisted by our Zoo director and his staff, the Greater Los Angeles Zoo Association has for the past ten years, willingly assumed the responsibility for the provision of teacher guides and zoologically oriented education programs to over three quarters of a million persons in the greater Los Angeles area. We have provided them with the opportunity to learn to become the true conservationists of tomorrow by coupling idealism with practicality.

The education programs were initiated with the commencement of a volunteer docent program in March of 1965. Due to its immediate and overwhelming success, today over 200. Dedicated women conduct thousands of school children each month from throughout Southern California on tours of the Los Angeles Zoo.

The various tours offered are designed to augment the formal education program of each age group from second grade through the college level. All tour formats are planned jointly with the Education Committee and the professional Education Coordinator (a trained educator) of the Greater Los Angeles Zoo Association. The Committee consists of

representatives from the County, City, private and parochial schools in the area, qualified Greater Los Angeles Zoo Association members, and members of the Zoo's professional staff. Every effort is made to serve as many teachers and classes as possible, keeping the number of children in each group limited in order to maintain a desirable Docent-to-child ratio.

Approximately 12,000 children a month visit the Zoo and participate in well-planned conducted tours which are tailored to fit their specific educational needs. As a result of this careful planning, the school systems have accepted the tours as a supplement to their regular education programs. Tours are scheduled by a staff tour consultant. When a tour is scheduled, the teacher receives preparatory material along with pictures of animals the class may see on its tour.

Programs offered by the Greater Los Angeles Zoo Association using volunteers are:

1. Teaching tours in ecology, adaptation, endangered species, and primates.
2. Seventeen week course for the adult blind in "Zoology".
3. Reptile and Aviary teaching tours as requested by either young people or adults.
4. Specialized educational programs for children having mental and/or physical handicaps.
5. Regular school teaching tours in all areas of zoo for elementary and secondary school children.
6. Taxonomic tours for high school and college science classes.
7. Six-week workshops in basic zoology (taxonomic) on mammals, birds and reptiles. Fall, Spring and Summer for ages nine through fourteen. A Primate Workshop is also available.

8. Student volunteer training for ninth, tenth and eleventh grades. For service in the Children's Zoo, walk-through aviary and reptile house.
9. Primate teaching tours for high school and college science classes.
10. Fill speaking engagements as requested. (114 in 1972)
11. Animal behavior classes for secondary, high school and college classes.
12. In conjunction with the Los Angeles County School's Division of Special Education, we have developed a study guide for teachers of children with learning disabilities titled "Study Trip to the Zoo - Curriculum Supplement".
13. We have created three film strips now being distributed on a nationwide basis. "The Children's Zoo", "North American Animals to Know" and "African Animals to Know". A fourth, "South American Animals to Know" is now in the making.
14. A zoological workshop is presently being given in the Los Angeles Children's Hospital for Convalescent and Rehabilitation Center patients on a twice-a-month basis.
15. For the past three years an on going, slide-lecture program has been presented by our docents at Lathrop Hall. This is a County facility which cares for delinquent girls for ninety days prior to their release back into society. This program has proved to be one of the most effective rehabilitation aids ever provided at this institution.
16. Zoomobile, a semi-truck and trailer unit carrying representative specimens of birds, reptiles, amphibians and mammals, visits City schools on a scheduled basis. Docent teachers are assisted by a qualified driver-keeper and pre and post visit. materials are supplies to classes.



17. A School Safari Unit featuring docents with coloured slides visit City, County, parochial and private schools.
18. In-service teacher training, for those teachers planning to use the zoo as an extension of their curriculum.
19. Career opportunity course for high school seniors involving twelve lectures and four field work activities.

The excellent training received by our Docents has been of utmost importance to the success of our education programs. The Docent provisional training class consists of seventeen intensive three-hour lecture sessions in basic zoology, emphasizing the three classes of animals (Aves, Reptilia and Mammalia) exhibited most frequently at zoos, with special emphasis placed on the orders of animals displayed at the Los Angeles Zoo. These lectures are prepared and presented by the Curatorial staff, assisted by qualified docents. A reference notebook is provided each Docent which contains pertinent orientation and zoological information; individual fact sheets on all animals exhibited at our Zoo which have been researched and prepared by Docents and approved by the professional staff are also included. In-depth seminars on reptiles, birds and mammals are provided for the Docents' continuing education and are conducted by the staff and qualified Docents.

In addition to the Docent program, the Greater Los Angeles Zoo Association has several other ambitious educational services in operation. Four film strips (in sound and color) for use of elementary schools have been produced: "The Children's Zoo", "North American Animals to Know", "African Animals", and "South American Animals to Know", which are now being distributed on a nationwide basis. Two guide books have been published: the "Los Angeles Zoo Guide Book" and the "Children's Zoo Guide Book". The former is unique in that it is the first such guide book to become a part of the Library of Congress and also to be transcribed into braille (by the Pomona Valley Transcribers Guild) which enables blind children to tour the exhibits with greater ease, understanding and enjoyment. "Zooview", a magazine published quarterly, is provided to keep members of the Association informed of Zoo activities; it is also available to the general public.

A Research Assistance Committee, made up of especially qualified volunteers, is available for use by the professional staff of the Zoo for assignment such as translation of foreign language zoological papers.

-----

#### HARNESSING THE RESOURCES OF THE ZOOMOBILE

Mrs. Max K. Jamison - V. Chairman, Public Education Committee,  
American Association of Zoological Parks and Aquariums

The Zoomobile, as an extension of zoo activities, has been around for a long time. The vehicles involved have been varied, to say the least. Every kind has been put into service from the ubiquitous station wagon, converted pickup trucks, vans, even in one case, a renovated hay-wagon. Generally the experience has been a rewarding one for all concerned even though it hasn't always been the easiest job to take proper care of the animals involved, plus plan lectures and create study materials necessary to making the visit worthwhile.

With the realization of today's zoos that education is their primary reason for existing, a renewed interest is taking place in developing the interdisciplinary, educational potential of zoomobiles that can, indeed, provide a much needed service to the schools of the community in which they are located.

As a result, today's zoos are taking a second, thoughtful look at the appearance and operation of their "other" face.

About a year and a half ago it was decided that the time was right to start a Zoomobile operation here in Los Angeles. One that would combine the strengths of the Los Angeles City School District through its Pettigrew Science and Animal Center; the Department of Recreation and Parks from whom the Center is leased; the Los Angeles Zoo and our own Greater Los Angeles Zoo Association.

Research which included discussions with zoos such as Philadelphia, Boston, San Francisco, Minnesota, Houston, Chicago and Oklahoma indicated that a great deal of expertise and thought had been put into many of the existing zoomobile programs which, for the most part, was not matched by the vehicle themselves. We benefited from their experiences.

On receipt of the grant monies in July, 1974, we began the rehabilitation of a tractor trailer unit previously used as a California Wildlife Unit. The cost of refurbishing and structural changes made came to about \$4,500.

The trailer is 24 ft. (7.3 m.) long and 10 ft. (3 m.) wide. Three large cages 48" (122 cm.) x 35½" (90 cm.) x 34½" (88 cm.) and two slightly smaller cages, 48" (122 cm.) x 34" (86 cm.) x 23½" (60 cm.) are located on one side at the bottom level. Twelve smaller cages 22½" (57 cm.) x 23¾" (60 cm.) x 22½" (57 cm.) are located on the same side on the second level. The distance from floor to ceiling is 6' 6" (2 m.) providing ample space for easy movement of the animals. Two exhaust fans have been placed in the ceiling, one 110 volt and one 220 volt as well as a 110 volt space heater. A fifty gallon (227 litres) water tank has been added to the interior of the animal compartment along with a flexible hose for washing down the area. Removable trays which can be lined with newspaper have been installed under each cage to facilitate waste disposal. A metal rod locks into place to prevent unnecessary jostling of the cages while the Zoomobile is in motion. Great care is taken by all concerned to ensure the welfare and well being of the animals, birds and reptiles carried aboard.

Canopies on either side of the trailer can be raised. Animals in the cages may be viewed from the left side. On the right side, a teaching platform allows the driver-keeper to handle and display whatever animal is being introduced or used as an illustration.

Built-in shelving in the front of the trailer holds written material, study skins, skeletal samples, various types of eggs and birds nests. Two portable, collapsible demonstration tables are used on which to display these teaching tools. Lavalier-type microphones with amplifiers have been installed for use by the Docent teachers.

We realize that all structural requirements must necessarily reflect the circumstances surrounding the operation of each individual unit. Climate and the length of time

involved in each school visit have a direct bearing on what is needed for the safe transportation and comfort of the animals. For instance, the Minnesota State Zoo foresees its zoomobile operating for several days at a time, covering long distances in extremely cold weather. Therefore, our Los Angeles Zoomobile is not meant to serve as a model, but rather as an example.

The majority of the animals used on our zoomobile are kept at the Pettigrew Science and Animal Center and are cared for by the driver-keeper whose salary is part of the Grant responsibility.

The selection of animals to participate in the program is given very careful consideration. In addition to carrying wildlife indigenous to California, we feel that youngsters benefit by learning something about animals from various parts of North America. Animals that have strange characteristics or that have been the subject of "old wives tales" are always attention getters. It is also necessary to make sure how each individual animal takes the showing off and touching and for how long a period. In all cases, the selection is based on what knowledge can be gained from being able to see and touch the animal for that is what makes the zoomobile learning experience so different and so valuable as an extension of the more usual classroom, textbook situation.

Dr. Warren Thomas, Director of the Los Angeles Zoo, enthusiastic and deeply involved in the project, also supplies appropriate exotic animals when the occasion requires it. The zoo's Curator of Mammals is assigned to oversee the selections and assist the Science Center in their proper maintenance. Veterinary aid is provided whenever necessary. To avoid stress, two to three back-up animals should be maintained in the case of each species.

The zoomobile teaching concept is a logical extension of the many education programs provided at the Los Angeles Zoo by the Great Los Angeles Zoo Association.

The programs we use on the Zoomobile are an extension of the science curriculum used in the Los Angeles City schools. In displaying mammals, birds and reptiles, Docents emphasize Three specific concepts; living things are interdependent with one another and with their environment; a living thing is a product of both its heredity and its environment; and living,

things undergo constant change. Study materials and discussions involved in the explanation of these concepts are tailored to each grade level to ensure understanding. At this time our pre-visit material is in the experimental stage. Kits include a large zoomobile poster, audio tapes, and study material written especially for certain academic levels of students. The material is designed to motivate and build background with students prior to the Zoomobile's visit.

Post-visit kits include a "living things" science kit for a rabbit, a guinea pig and a garter snake. Additional audio tapes reinforce information gained from the visit as do other especially designed study materials. Pre-visit and post-visit tests are given in the classroom to determine the extent of, and in what areas knowledge was gained.

Two Docents accompany the Zoomobile on each visit. Pupils are involved in a questioning, investigating type of instruction and are invited to the petting table where touching the animals may take place, feathers, eggs and skeletal material handled and examples of parallel evolution can be observed. A large chart identifies the food chain or "pyramid of life".

Usually, at the close of each presentation, a homing pigeon is released bearing message written by the students. This is really an exciting climax to the session when we can get our pigeons to cooperate.

Four schools are visited each week with sessions from 30 to 40 minutes long. This allows us a maximum of five sessions per day beginning at 9.30 a.m., ending at 2.30 p.m. A pre-visit with the principal of the school is held at least one week prior to the Zoomobile visit to set up scheduling and logistics. A follow-up visit one to two weeks later is available to teachers of certain grades with an evaluation form to be completed by the teacher as well as the Docent.

During the first pilot year, 1974-1975, we were scheduled to visit seventy five elementary schools, several Junior High Schools and several schools for exceptional children. Since October we have involved 30,000 youngsters and by June this Number will have been increased to 50,000.

-----

#### VISITING THE -ZOO-- PART OF THE EDUCATION

Lars Lunding Andersen, The Zoo Education Department,  
Copenhagen

Copenhagen Zoo opened its gates to the public for the first time on the 20th September 1859, and is thus one of the world's oldest zoos.

For many years Copenhagen Zoo kept a very large stock of animals - large anyway in relation to the very small area it took up. However, in common with go-ahead zoos in other countries, the zoo has gradually adopted a policy of showing fewer species of animals, and endeavouring to keep them in conditions which are more akin to their natural surroundings. It has become obvious that a zoo's value does not necessarily lie in having a vast selection of different animals on show, but more in the "experience" of animal life as such, that it can offer to its public.

It seems more and more obvious that zoos play a vital role in society as a means of recreation, as well as being a source of educational and scientific knowledge. Just like other zoos, Copenhagen Zoo has clear aims and ideals:

- To exhibit characteristic types of animals which are suited to living under local conditions, and can be housed properly in accordance with the latest developments in zoological research and display techniques.
- To be a cultural institution with public tasks of recreational, educational and scientific nature.
- To increase the interest and understanding of the animal world.
- To take part in the international efforts to save animal species in danger of becoming extinct.

All these activities must be based on zoological research so that the zoo is the intermediary of the knowledge of nature.

Thus the zoo has reached a milestone in its history. From being an odd menagerie it has changed into an educational institution. Therefore, in 1972 the experimental department of the Copenhagen Education Authorities and the zoo initiated close collaboration in order to establish an education service for schools in the zoo.

#### The ZOO Education Service for Schools

In a modern industrial society like ours most children have little or no contact with nature. Many people think that the ability to react to nature is blocked if a child does not at an early age receive a stimulating milieu, i.e. gets a chance to deal with living animals and plants.

In the zoo, the children have the possibility to work with those parts of biology which are primarily necessary in that connection, viz. ecology and ethology (behavioural biology).

For this purpose the ZOO education service for schools has worked out various educational options ranging from assignments for kindergarten children to assignments for children in the 8th - 9th class. The work sheets give each individual pupil the possibility to concentrate on one specific biological problem, and to work with this subject at his own pace. The assignments help the children think in a biological manner.

Each assignment can be solved separately, but by far the majority of them are intended to be part of a greater whole, or as a chain of separate assignments which when combined cover a certain subject. In the work sheets we have tried to avoid questions which cannot immediately be answered through observations in the zoo or logical reasoning based on former observations. The assignments being based on observations of the living animals means that they can only be solved in the zoo.

All the educational material is distributed free of charge at the information office of the education service, which is near the elephant house.

The ZOO education service is available for enquiries every school day between 9 a.m. and 4 p.m. for information and advice about the arrangement of teaching sequences.

If you inquire at the ZOO education centre at least two weeks before your visit you will receive a written draft with suggestions as how to arrange the teaching sequence, and references to literature, films, slides, and any other material suitable for the preparation of the visit to the Zoo.

According to previous arrangement with the teacher the staff of the education service for schools will receive the children, instruct them briefly, and give them the material relevant to the central problems in the present education system.

While the children work on their own in the zoo, the staff of the ZOO education service and the teacher discuss the assignment problems, and if he so wishes the teacher gets some material which he can use when the subjects are later discussed in the classroom.

#### Biological Education Service for Schools

The education services of the Zoological Garden, the Zoological Museum, and the Aquarium have initiated close co-operation about a co-ordination of the education material. This opens the possibility of studying thoroughly one specific biological subject in one or more of the institutions; so that each institution contributes to the general educational theme within the specific area in which each individual institution has its special strength.

Unfortunately, it is not possible to print copies of the delightful and stimulating worksheets sent with this paper for which the editor apologizes.

-----

#### CALGARY ZOOLOGICAL SOCIETY

Mark Hamill, Education Co-ordinator, Calgary Zoo

During the last couple of- year the Calgary Zoological Park has made a number of improvements in its services to the visiting public and school groups. Ours is a small department - numbering exactly one and we have concentrated on providing services that can be used by a large portion of our visitors.



Our major concern is the visiting public

#### New Cage Labels

We have replaced all our old plastic signs (done on a Hermes Engravograph) with metalphoto plate signs. The signs are exceptionally popular and visually pleasing. Our texts are concerned mainly with the animals relation with man, their behaviour, ecology and conservation. Will be glad to share our experiences.

#### New Graphics

We have built a number of large interpretive signs - One on Aquatic Adaptations and the other for our new Flamingo Building. These are colorful, easy to read and provide packets of information that can be read in whole or in part. Included are Zoo Pollution Exhibit, Cartoon Do Not Feed Signs and Symbol Directional Sign.

#### Audio-Visual Program

Quite a lot of audio-visual equipment was purchased this year. We plan on making many programs for visitors and school groups and hope to have a good selection soon. The Zookeepers provide Zoo talks in the evenings to interested groups and this equipment will be of benefit to them - allowing a good variety of programs. It is a portable dissolve projector unit and replaces our movie projectors for field services. We hope to use this sort of equipment in our new Children's Zoo Contact Centre and in the Gate House - Orientation Centre when they are built.

#### Schools

Our library has received many much needed books. We are trying to become a resource centre more than anything as it is impossible to go out to the schools with such limited personnel - me. We have a Zoo Pre-Visit Package and plan on providing classes to teachers on using the Zoo, although the package is meant to supplant this.

A former Zoo Director, Mr. Thomas Baines, has a really unusually large collection of animal related artifacts, all touchables, that he takes to the schools. So far this year he has been to see over 70,000 children with his snake, Agnes. He has been doing this for YEARS and I can remember

his visits when I was in school. His program is extremely successful and is run through the Devonian group of Charitable Foundations in Calgary.

#### Tours Summer Programs and Public Information

This year we used Tour Guides for visiting groups. They made up their own programs and proved., 2.,\_ar and well used service.

The City of Calgary offered a Zoo Summer Program for 8 - 10 and 11 - 12 year olds. They offered a "Diploma in Zookeeping" and involved about 400 children this summer.

#### Current Events

To keep people posted on Zoo events, we have a current events board of births - deaths, etc. This will be expanded into a display case that will feature Zoo News, Art, new books and static exhibits such as those on comparative anatomy, eggs, and explanatory models of enclosures. We are just starting to roll and are looking forward to an exciting future.

-----

Editor's footnote - and so say all of us!