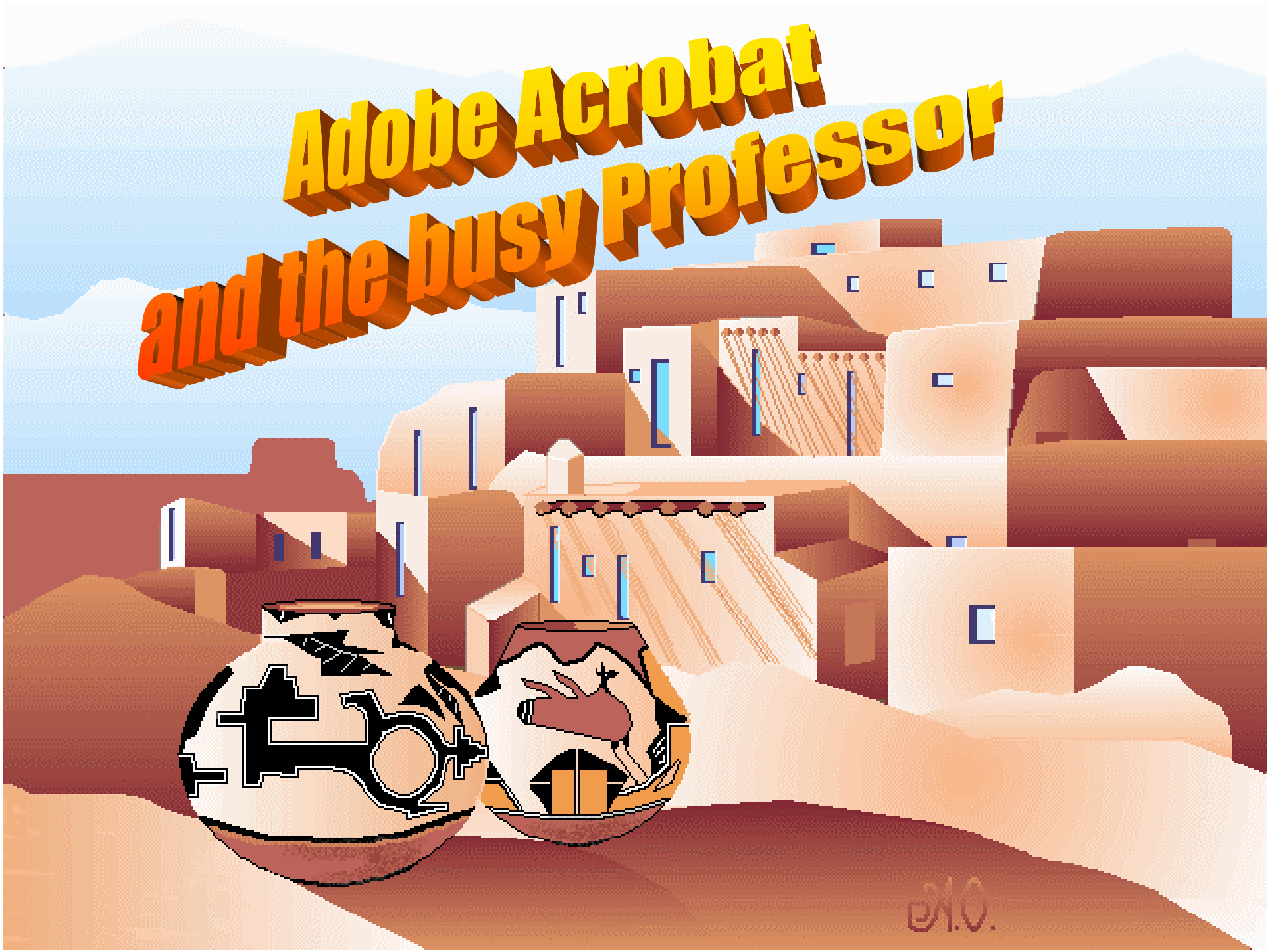
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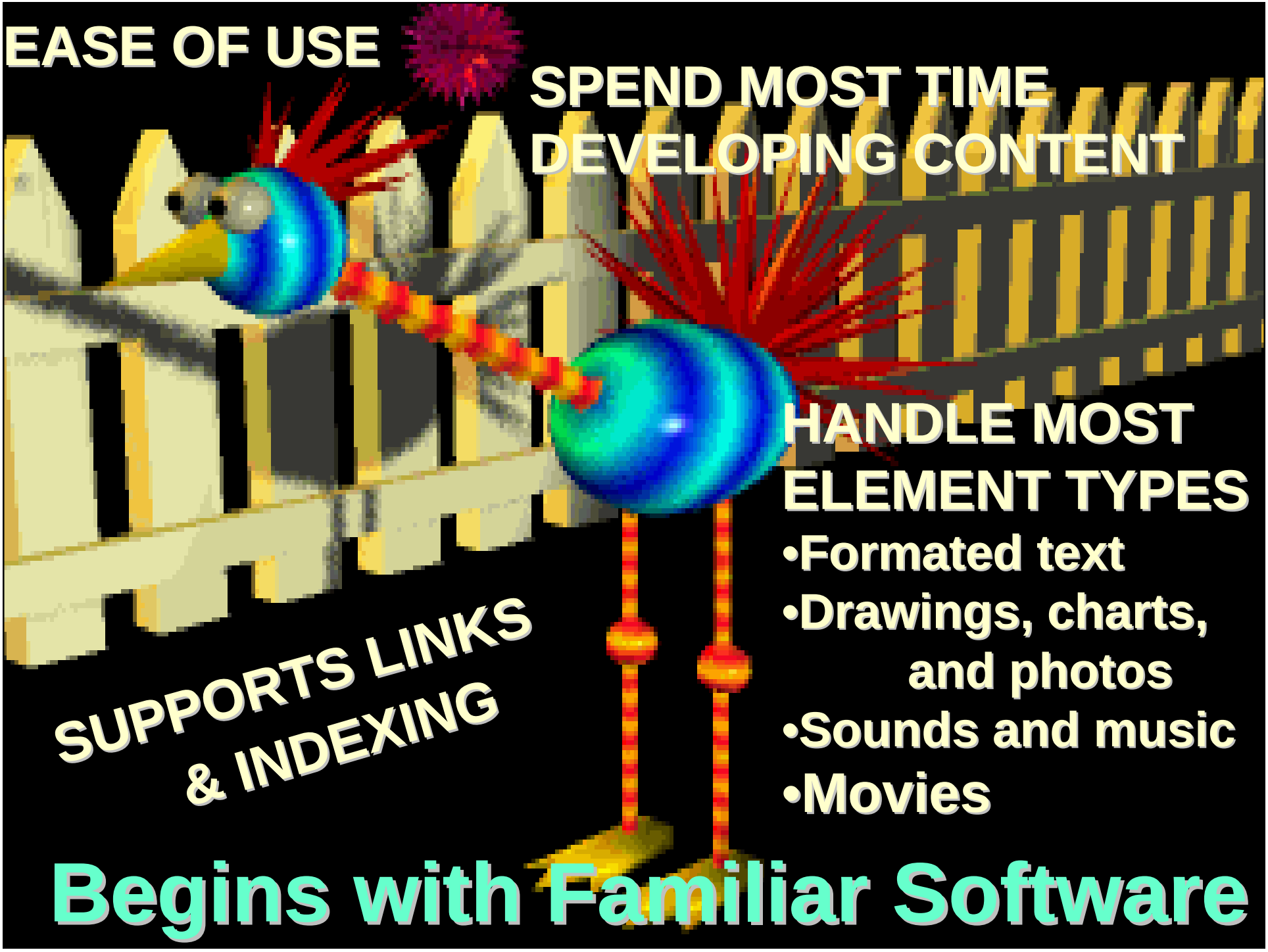
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SPEND MOST TIME DEVELOPING CONTENT
HANDLE MOST ELEMENT TYPES
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•Drawings, charts, and photos
•Sounds and music
•Movies
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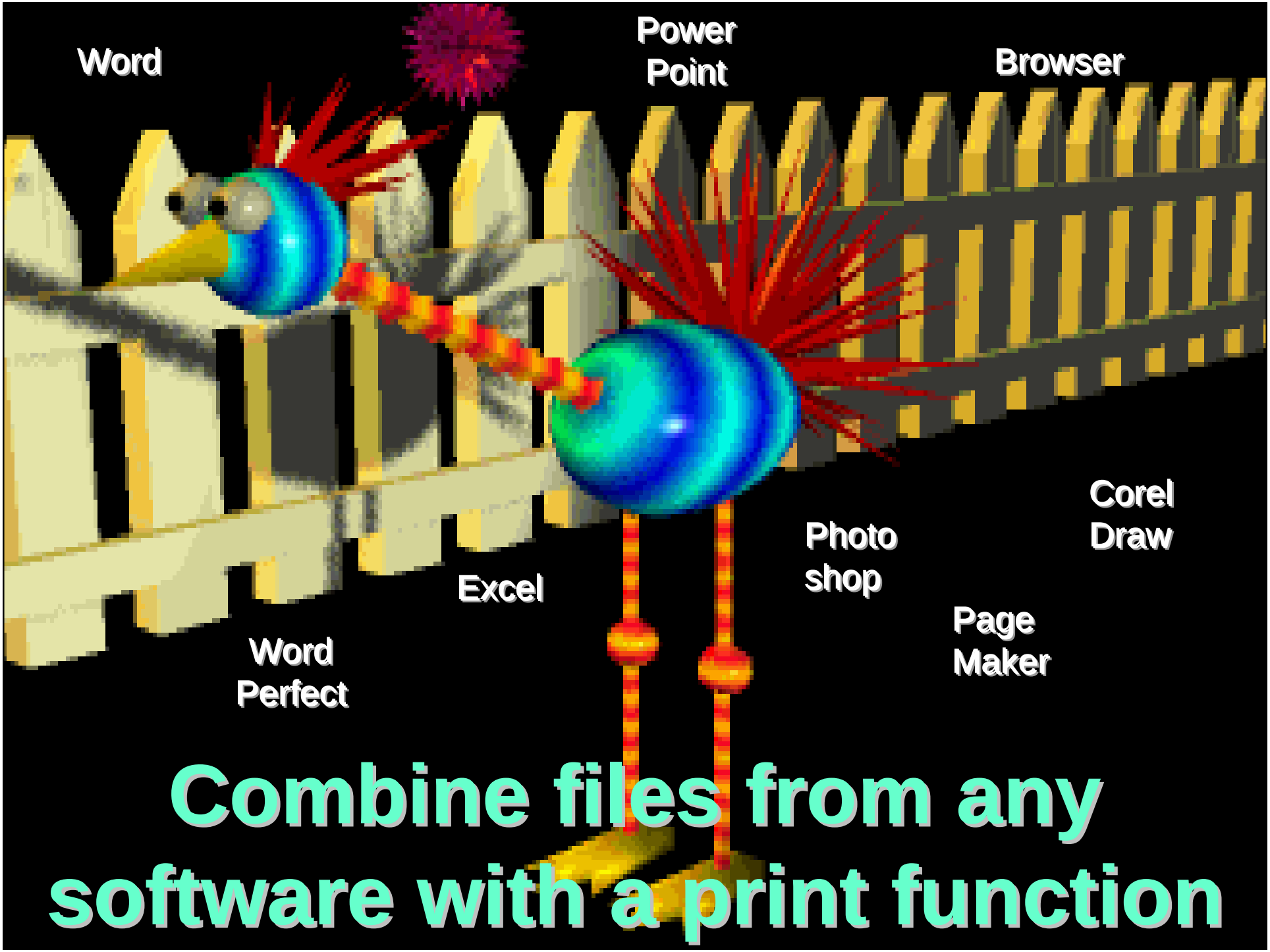
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ZOO 620 NEWS

Volume 1 Issue 1 **September 1994**

ZOO 620 Fall 1994

Welcome to Zoology 620, a course for graduate students new to graduate work in Zoology and Entomology at the University of Alberta. This core course is designed to teach you some of the essential skills for communicating your research plans, and later, your research results. The primary medium for this exercise will be the research proposal. In writing what for many of you will be your first research proposal, you will sharpen your writing skills and learn to think more clearly about your intended research. If you leave this course with a well thought out outline of your M.Sc. or Ph.D. research, and with the ability to effectively and convincingly communicate it to others, we will all celebrate a job well done.

In addition to the practical goals of the course, we hope that 620 will give you a better understanding of and appreciation for the research aspirations of biological disciplines far removed from your own. You should also become much better acquainted with the scope and vision of this large Department

MAJOR AIMS

The major aims of this course are summarized below. Much of this will be done in the context of tutorial groups of from 7 to 10 students, with presentations to the entire class later in the course.

Zoo 620 should:

1. help you organize your thinking about what specific questions you want to ask in your research.

It should also guide you and give you experience in:

2. writing a research proposal.

3. preparing an oral presentation about your research proposal

4. making oral presentations to small and mid-size audiences.

5. preparing and presenting posters.

In accomplishing these major goals, you will also

- gain experience in critical evaluation of scientific writing
- address many of the problems and issues involved in conducting scientific research.
- become aquatinted with new graduate students in the Department and with the projects and areas of research they represent.

Inside This Issue

THE PROPOSAL:

BASIC ELEMENTS

Research proposals are required by many types of funding agencies and by graduate committees. Depending on the intended audience and the goals of the agency, proposals vary enormously. In some cases you will be writing to a panel of referees, some of whom will not be completely familiar with your particular area of research but who will be very familiar with the practice and presentation of research in your general field (eg. one of the life science committees of NSERC). At the other extreme, some members of the review panel will not even be scientists (eg. some government funding agencies). Finally, your supervisory committee will probably be the most homogenous group for whom you will write a proposal. It would be disastrous to attempt to write a single research proposal to all three of these audiences.

In this year's Zoo 620, we will assume that the review committee comprises well informed, practicing biologists who are not necessarily in your specific field, but who are, at least, in a related field. For example, if your proposal poses a question in molecular biology, assume that a community ecologist will not be on the panel, and *vice versa.*

Fortunately, the basic sections of the proposal are similar for all audiences and the foregoing discussion pertains more to how you set up the background or introduction and to how you present details. It is to these basic sections that the rest of this article pertains.

All proposals should have the following sections:

- An introduction. This gives background information and sets your specific question(s) in a more general context. Often this section is called Background (or even experimental design) instead of Introduction. It is similar to the Introduction section of a scientific paper. It should include a general introductory statement, a short literature review, a clear expression of the rationale of your intended work, any preliminary findings, and a general presentation of your approach to the question(s) posed. Good introductions clearly show where the writer is coming from, where he or she wants to go and why it is important to go there. The best introductions make the reader excited to read on.

- A Methodology section. This is the body of the proposal, and in it you should proceed systematically and in some detail through the proposed theoretical and experimental approach, giving the rational for this approach. Major methods should be clearly explained along with your assessment of their advantages and possible pitfalls. Each of your specific aims should be covered with respect to how you will address the questions involved.

- A Summary. This is the first part of your proposal that the reviewer will read. In spite of this, it should be written last after you have well thought out Introduction and Methods sections. It should introduce the field, explain why more needs to be known (specifically why answers to your research questions are needed), how you will proceed to answer these questions, and contain a statement about the overall importance of this work. All of this is to be accomplished in one or two pages. Most people find that a good summary is difficult to write. Don't be too concerned if you have to rewrite it many times.

- Two additional parts will complete your proposal - a title page and a list of references. The title page includes the project title, your name, room number and telephone number. The references should begin on a separate page and should be in the format of your favorite journal (inconsistency will be frowned upon).

In summary, the divisions of the research proposal are summary, background (not more than two pages each), methodology (not more than 7 pages), title page and references. It should be typed double spaced, with a font size of 12 and in Times New Roman or some equally readable font.

Required Reading

Strunk W. Jr., and White, E.B. *The Elements of Style* 3rd edition. MacMillan Pub. Co,. Inc. New York, London. 92pp. 1979.

Gopen, G.D. and Swan, J.A. 1990. The science of scientific writing. Am. Sci. 78: 550-558.

Day, R.A. *How to write and publish a scientific paper*. 3rd edition. Oryx Press. 160pp.1988.

Briscoe, M.H. *A Researcher's Guide to Scientific and Medical Illustratrions.* Brock/Springer Series in Contemporary Science. Springer-Verlag. 209pp. 1990.

Nuts and Bolts

We have three major things to accomplish: a written proposal, an oral presentation and a poster. The subject in each case will be your research proposal, and the full written form should be started first.

The class will be divided into working groups (tutorial groups) each led by a faculty member. In this group you will test out your initial ideas, learn what others are planning, present the first draft of your written proposal and give your first oral presentation. During the last third of the course, your tutorial group will work as a team or teams to plan each member's poster session. Throughout, you will have the advice and encouragement of the faculty member assigned to your group. The standard meeting time will be Monday afternoon, but a group is free to organize its time as it thinks best.

Occasional general meetings of the entire class will be held on Monday afternoons for topical presentations from guest speakers. For example, preparing a teaching dossier; ethical issues in biological research. Details will be available later.

We are delighted to have Dave Spafford back again this year as the TA and the student liaison. Dave will assist the faculty in various ways, but he is also available to you if you have questions or concerns about the course.

Grading is a complicated exercise in Zoo 620, to put it mildly. You will receive a grade, in fact you will receive several grades as the course progresses. In summary:

- First draft of written proposal (graded by tutor) 15%
- First oral presentation to tutorial group (graded by tutor) 5%
- Oral presentation to entire class (graded by peers) 25%
- Poster presentation to entire class (graded by tutors as a group) 20%
- Final version of written proposal (graded by tutors, two readers per proposal) 35%

The tutors for this year are:

B.S. Heming

2-24A ESC (4173)

B.K. Mitchell (coodinator)

2-14B ESC (4637)

W.M. Samuel

Z910 BioSci (2360)

The first man I saw was of a meagre aspect, with sooty hands and face, his hair and beard long, ragged and singed in several places. His clothes, shirt, and skin were all the same colour. He had been eight years upon a project for extracting sunbeams out of cucumbers, which were to be put into vials hermetically sealed, and let out to warm the air in raw inclement summers. He told me, he did not doubt in eight years more, that he should be able to supply the Governor's gardens with sunshine at a reasonable rate; but he complained that his stock was low, and entreated me to give him something as an encouragement to ingenuity, especially since this had been a very dear season for cucumbers.

Jonathan Swift "Gulliver's Travels"

Anticipating Oral Presentations

Public speaking is an essential skill of the successful scientist and certainly of the successful teacher. It is also a stressful and exhilarating undertaking. I once heard a very skilled speaker say he hoped he would never see the day when he did not feel some measure of fear before stepping in front of an audience. It was his contention that this fear (controlled no doubt) provided the edge that is essential to all successful engagements with an audience. All of the presentations in this course will require, first and foremost, that you be organized, but this is doubly true of the oral presentation. If you know what you want to say, and if you have the outline of how you will accomplish this firmly in your mind, you are well on your way to a successful presentation. The second essential ingredient is a small collection of excellent visual aids. If these aids are well constructed and organized to capture the high points of the subject, you will be able to "talk around your slides" with ease and with little or no reference to notes. Oral presentation is definitely not the faithful recitation of a well written text, just as good conversation is not the repetition of well worn phrases. The speaker and the audience have the advantage of being together in the same place at the same time, and while individual conversation is not appropriate, conversation of a kind with the audience is.

In a sense, the contact or rapport between the audience and

the speaker is even more important than what the speaker has to say. This means that you should have your outline so well in hand and your visual aids so well prepared that you can give your audience considerable attention. You then will speak with them not at them. Of course, in most cases they cannot respond until the end of your talk, but you can structure your talk in such a logical manner, and present it so engagingly that it seems to the audience as if they are engaging you in conversation. In addition to good organization and visual aids, this kind of talk must be supported by real enthusiasm, not only for the subject but for the process of communicating with other human beings.

I have outlined some of the elements of a very good oral presentation. When it happens, both the audience and the speaker know it, and it is one of the most rewarding communicative experiences you will encounter. It is not unlike a successful performance on the stage or in the concert hall. If you attend to the details of organization and good visual aid production, if you like people and enjoy passing on something that you have just learned, or communicating something of importance to you, you can reach this level of performance at least some of the time.

In your tutorial group you will deal with many of the details of putting together what may be your first talk, all of which are necessary and important. However, these are really only the props for a performance. In the oral presentation, when the topic is a scientific paper, art most certainly meets science.

Bev Mitchell

A Note from your TA

Hi and welcome to Zoo 620. You are going to have fun in this class. It is a class with good intentions, namely, to make you a better graduate student. Take it from me, or anyone else who has taken the course, it is worth the effort. I took 620 two years ago, and I believed then as I do now that it was wise to take a class in which I could practice my communication skills, both oral and written. As an added bonus, 620 provided me with a forum where I could meet other biology students in the same position as I was, at the beginning of my graduate program. Without such a class, I probably would never have made the effort to meet so many other students outside my immediate area of specialization or my particular building locale.

Unfortunately, Zoo 620 has not always had a good reputation. As you might expect in any class with a close mentor-apprentice relationship, there have been times when students have had minor conflicts with tutors. Such is life, but such smoke sometimes distracts students from benefiting from, and most importantly, enjoying the class. To improve relations, an official student designate has been included in the last year or so. This year, as last, it is me. My primary role as student ombudsman is to ensure that 620 is your class with graduate student programs in the foreground. I am an impartial class member with no responsibilities for evaluating your performance. Yet, I do work in close cooperation with the tutors. You might consider me to be in a shop steward's position; there to help you with problems or questions that you may have at a time when you may not feel comfortable talking to one of the tutors. Another role for me is to chair the final oral presentations. Here I will ensure that students are given priority over asking questions of fellow students. These oral sessions have worked well in past years, and everyone seemed to enjoy participating in them. We get into some interested and sometimes intense discussions.

I have just started the third year of my doctoral program in which I am studying the hydrozoan jellyfish, *Polyorchis penicillatus*, a species considered to be among the most primitive organisms with a nervous system. I study this creature because it provides me with clues to the evolution of nervous systems in metazoans. Presently, I am trying to clone jellyfish voltage-gated sodium channels. Once this is accomplished, I hope to examine the structure and function of these key nervous system proteins in detail.

Dave Spafford

About this Newsletter

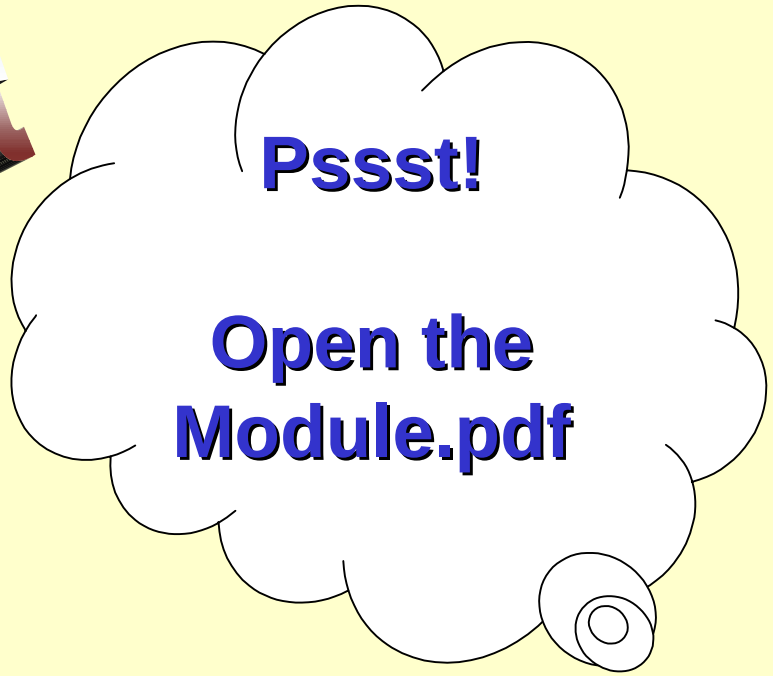
ZOO620 NEWS will contain the usual written communications between instructor and student. It is also a potential forum for comments related to the course. The goals of this course will be better understood and the course itself will improve if interested faculty and students communicate their critiques, suggestions and concerns. We ask you to participate by writing to ZOO620NEWS. Submissions should be on computer disk in minimally formatted text files and addressed to Bev. Mitchell (4637).

parthenogenesis [Gk. *parthenos*, virgin; *genesis*, descent.] Reproduction without fertilization by a males. Offspring are genetic clones of the mother.

female aphid giving birth to live young during its parthogenetical phase.

More information on glossary

Working with a PowerPoint stack

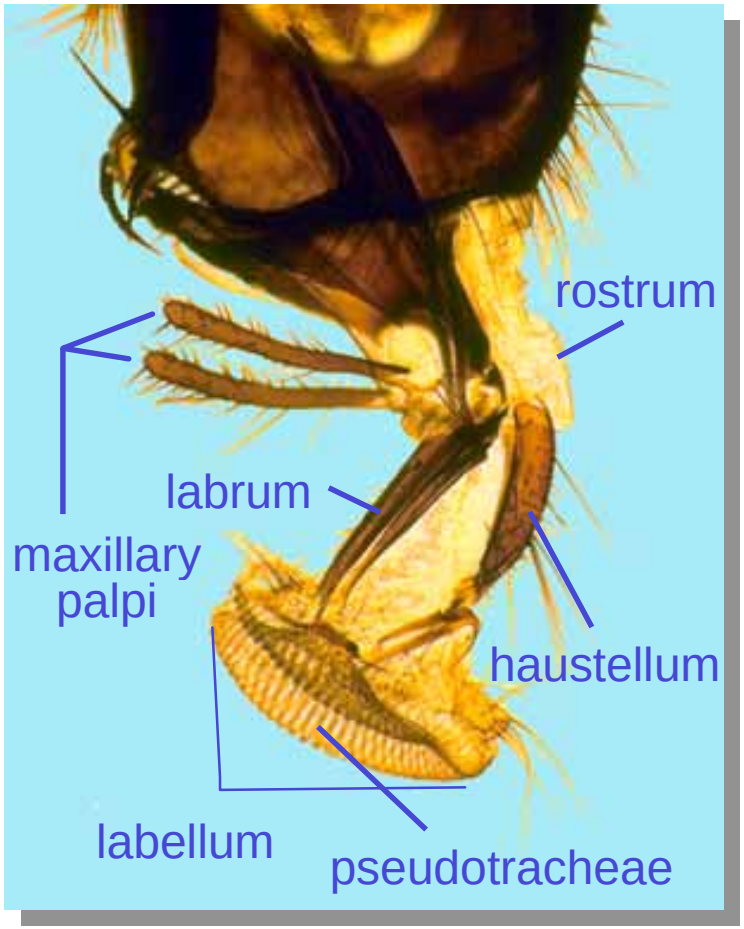


About flies that suck, bite and seive

forward >

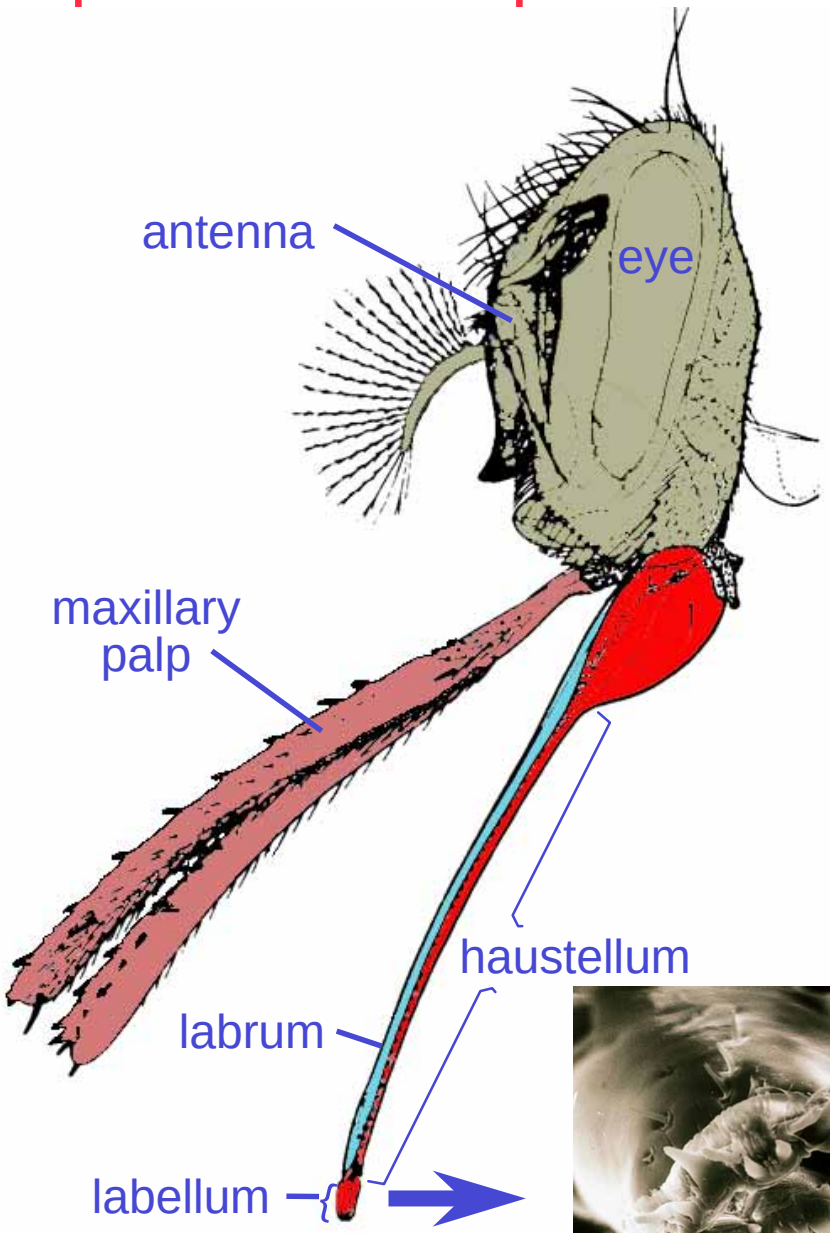
Dipteran mouthpart modifications

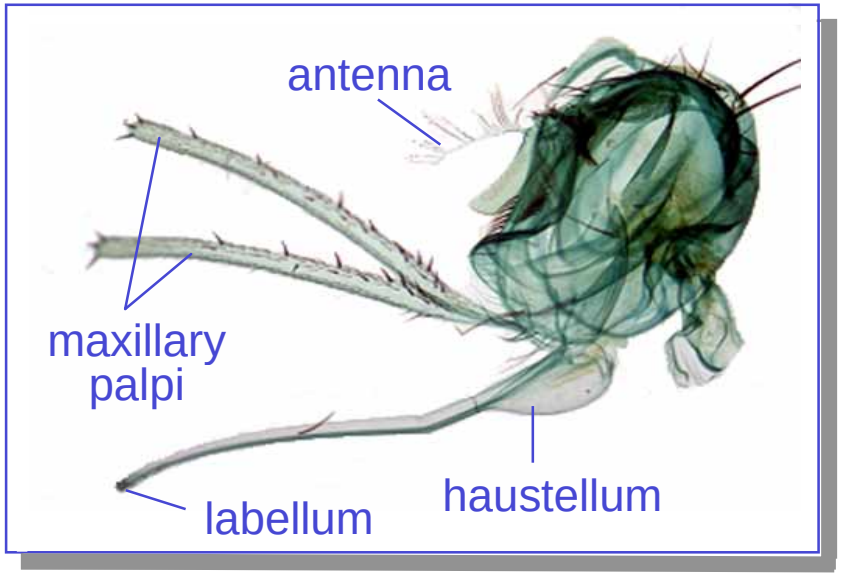
The higher flies (houseflies and relatives) have lost the mandibles and maxillae, except for the maxillary palpi. They specialize in modifications of the labial appendages only to produce sophisticated lapping, probing, scraping and piercing mouthparts. Most of them cannot pierce host skin but some, like the tsetse fly (later slide) can.



The fly labellum is a complex sensory organ and feeding structure looking something like a sock. It's dexterous being controlled by numerous small muscles.

Dipteran mouthpart modifications





Tsetse flies have carried labellar modification to an extreme unmatched by any other insect. The fine labellum with its tooth bearing tip makes a needle-like penetration of the host skin.

HOME
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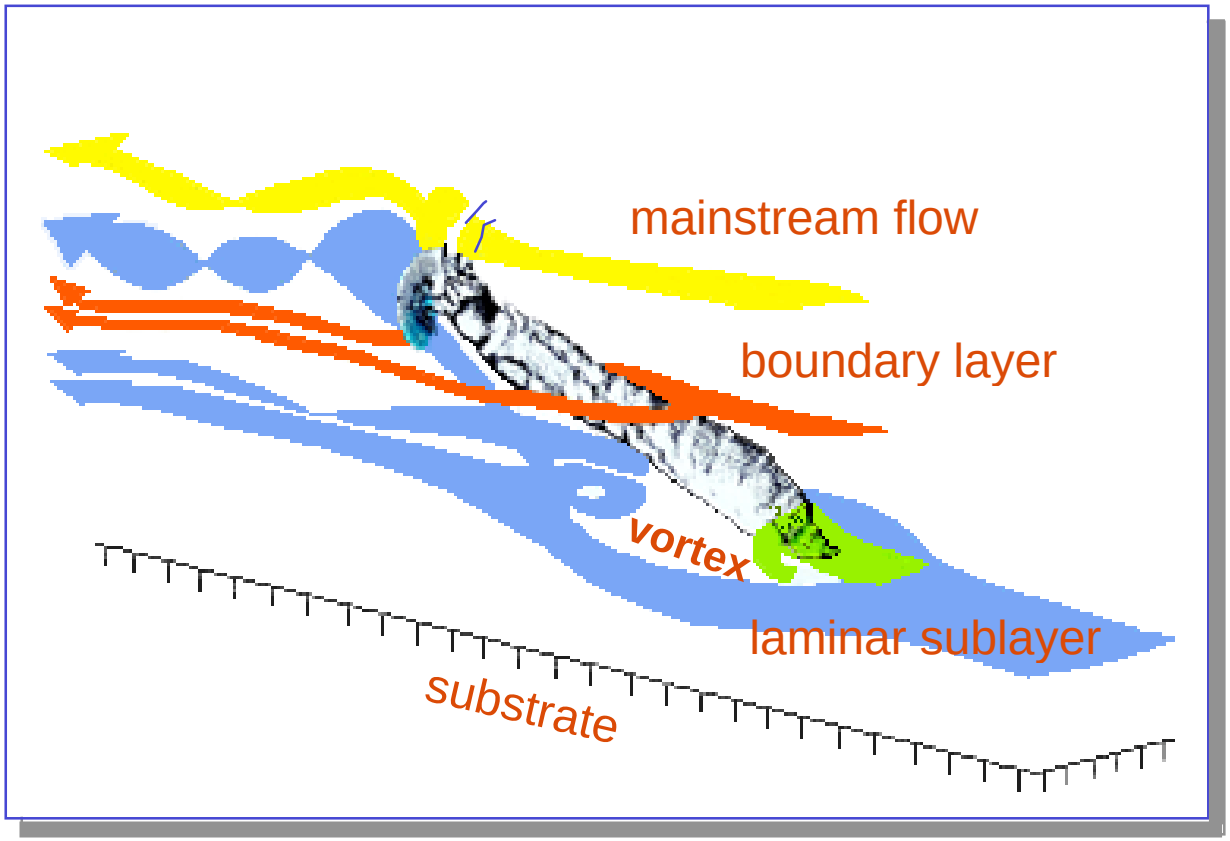
forward >



The entire abdomen can also serve important functions in arthropods. The tail flick that is part of the escape response of the crayfish is perhaps the best known (it's part of the reason that lobster tails are such good eating). Here is another use of the whole abdomen displayed by blackfly larvae. They twist their abdomen 180 degrees so that their feeding fans can be properly oriented in the mainstream water flow.

Other Examples

Note: You need to be on- line to get these files

Data-rich report

Poster

Complex notes


SECURITY

THE FOLLOWING CAN BE DENIED TO READERS

- Printing
- Changing the document
- Selecting text
- Selecting graphics

YOU CAN ALSO

- **Use a password**
- **Add a ‘watermark’**

TEST DOCUMENT TO DEMONSTRATE A BACKGROUND WATERMARK

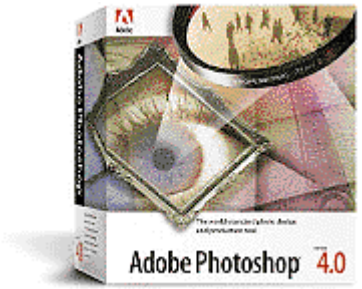
Procedure: When creating the PS files with Acrobat Distiller Assistant, set the watermark colour to 249, 249, 249 (light grey). And select outline and background. See very light BKM across centre of page on this document.

SoftWare

ADOBE

ACROBAT

ADOBE



PHOTOSHOP

SYNTRILLIUM

COOLEdIT

Microsoft Word

Microsoft PowerPoint

animated graphics by GIF Construction Set

FREE Microsoft Internet Explorer

Acknowledgements

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