

Acknowledgements

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PICTURES, PUPILS AND GEOGRAPHY

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An examination of some aspects of the provision and use of pictures in the teaching of geography in a developing country.

The teaching of geography should begin with a study of the local environment and proceed from the known to the unknown. From the scene we can visit to the scene we can only visualise. The local study can be completed without the use of pictures, though this is, in my view, quite wrong and will be discussed later, but the geographical study of places quite remote, physically and economically, from the environment of our school, is very dependent on our pupils ability to visualise the unfamiliar scene. To see 'in his mind's eye' a true picture of the landscape when presented with suitable data and visual material. My concern in this article is to draw attention to the need to develop the pupil's skill in visual perception which becomes increasingly important as he advances in his study of geography.

A fairly recent experience brought home to me the lack of understanding that occurs through a student's inability to visualise the exotic scene. I was observing some student teachers taking geography lessons in Secondary Schools. They had arrived in the schools at a time when the syllabus dealt with Holland. This was an example of land reclamation, drainage ditches and dairy farming. It was obvious to the trained observer that the student had 'done his homework'. He had all the 'information' readily available and proceeded to use it. It was then apparent that he had no true conception of what the terms meant, he could not from the data and pictures available, visualise, ('picture in his mind') what Holland really looked like or understand the scale of operations involved in the reclamation of a polder.

The student possessed information but lacked understanding. His visual experience was too poor to enable him to visualise the scene described in words. It is likely that he could not fully perceive the complex illustrations available to him in the textbooks. He had never seen films such as "Hold Back The Sea" or "Land Below the Sea", He was presenting to his pupils geographical data that was to him either meaningless or misinterpreted. If the teacher does not understand how can he help his pupils to do so? It must also, regretfully, be admitted that this may not prevent them passing examinations in geography.

Somewhere along the line of geography teaching these students, who may have started with a study of what they could see and understand, turned off along a course which gave them information but not understanding, facts without the ability to visualise, and, very likely, pictures they could not fully perceive and which growing in visual complexity, finally left them unable to use potentially useful visual material.

Without a well developed skill in visual perception the student of geography is severely handicapped. This is not confined to students of geography. Any potential student unable to view and perceive, for example, instructional illustrations is severely handicapped in any attempt at self-education. In geography, it is essential for the student to be able to use fully and effectively the visual aids to geographical understanding. How then can we ensure that our pupils, on leaving school, have developed this essential skill in visual perception?

It would be wrong to suggest we know the answer to all the problems of visual perception in East Africa. We do not. There is still much to be learnt and some of us are actively pursuing these studies. However some vital facts are clear.

From the data available there is good reason to presume that given an environment rich in visual material and sound guidance in the perception of pictures the African child will equal his counterpart in other continents.

There is much evidence to show he has a very inadequate supply of visual material in his pre-school environment, little appropriate indigenous visual material in school and little help to develop his skill in visual perception. Africa cannot afford to wait until all our questions on visual perception have been answered, or pupils may die of old age before then, and there is much that can be done immediately. We need to ensure an adequate supply of suitable visual material for our pupils at all ages.

We need to understand better their problems and we need to help them develop their visual skills. In all these we must apply our basic educational principles and realistically assess what our economic resources can finance. To be realistic is not to be pessimistic. There is much to be done and much that can be done. Space will not permit a detail study of each aspect but the following points will indicate lines of development.

1. *Motion Pictures.* 16 mm and 8 mm. For an audience conditioned to film conventions, motion pictures can be a most useful aid to understanding. It must, however, be appreciated, that full understanding can only come from an understanding of the conventions used in film making. Preparation prior to showing, evaluation and follow-up are also essential to ensure full and effective use of film. More than one screening is usually desirable. The films must also be appropriate to the age of the pupils and preferably, made for educational use. Films, however, are very expensive, to make, to hire, or to loan. In East Africa we have a situation in which most Secondary Schools have projectors and there are extremely few educational films available. There are furthermore, very few good educational films on Africa. It would also be realistic to state that no East African country could afford to stock and operate a film library on the scale of the national 'Foundation Film Library' in the U.K. or some of the libraries in the U.S.A. With some external aid and some form of circuit distribution an extremely useful, but relatively small, film loan service could be organised. Films such as "Expedition Into a Volcano", (the outdoor shots of which were filmed in the Congo) is an ex-

perience every senior secondary student of geography should enjoy. A realistic approach to external aid and internal organisation could make such an experience possible.

Motion pictures are complex, potentially very valuable, aids to the teaching of geography but they are likely to be limited in use, confined to post-primary education, and mainly for presenting exotic experiences.

2. *Projected Still Pictures.* In practice our projected still pictures are likely to be slides or filmstrips, with a limited use of the overhead projector for maps and diagrams.

To deal with the latter first; the great advantage of the overhead projector is daylight projection. It is, in fact, the only large picture daylight projector. Maps, diagrams, line drawings can be reproduced by direct drawing onto the transparency or by a variety of photocopying processes. It is also possible by photographic processing (not photocopying) to produce large 10" x 8" photographic transparencies, but unfortunately these are expensive and require special film etcetera and in East Africa, are unlikely to be widely used. Slides and filmstrips require either some darkening of the room (or a dark corner) or a reduction in picture size to attain an acceptable standard of screen illumination. When suitable conditions for use are available they offer an inexpensive method of illustration, especially in colour. The equipment for projection is now in a state of change with many of the older makes and models going out of production and new models with low voltage, low wattage, Tungsten-Halogen lamps, which give less heat but better illumination.

It still pays to avoid automatic gadgets in slide projectors. It saves money and reduce the risk of breakdown. Filmstrips are widely used, they usually have too many pictures on them and, unless ruthlessly edited, can become out of date and therefore misleading. Just check the date of production of some of your filmstrips, you may be surprised to learn how old they are. Slides have much to commend them. They are easy to copy, and every educational service should have facilities for the copying of coloured slides. On a non-profit-making basis they cost only about 1/- each. Every Geography Department should acquire a library of good geographical slides covering the subjects in the school syllabus. Either directly, or in liaison with the local audio-visual aids centre or service, copies of these should be available to school teachers.

Duplicated notes to accompany sets of slides have much to commend them and are inexpensive to reproduce. How many slides? The slides selected for each topic to be illustrated should be very good and very few. Each slide should be evaluated as an object to be studied "by the pupils" for several minutes. Slides should not be used as 'flash' cards. They should be studied. If unsuitable for study they are unsuitable for use.

It may be a suitable point here to stress the need to use illustrations correctly. Illustrations may bear references for recognition but should have no captions which inform. Pupils should not be told what can be seen. Any

teacher who 'tells' a pupil what he can see "presumes" the pupil perceives it and this may be a seriously wrong presumption. Secondly 'telling' does not teach perception. The pupil should tell the teacher what he sees, in this way any errors of perception are noted. By suitable directions and questioning all the facts can be elicited from the pupils. Where objects are variously interpreted the point can be discussed and other examples selected. Where it is found that objects are not correctly perceived exercises to develop correct recognition can be organised. Adherence to the technique of asking and not 'telling' will enable the teacher to avoid most of the pitfalls of visual perception and, in so doing, he will help his pupils develop their skill in visual perception.

Slides and filmstrips are normally used as what I call 'Teacher Illustrations'. Pictures used from the blackboard position to be observed simultaneously by the whole class. They must therefore be presented under conditions that make it possible for every child in the class to see clearly all the essential detail. This is not always easy to achieve.

Where conditions for projection are suitable slides and filmstrips are the cheapest method of display, subsequent to the purchase of equipment. Where projection is not practicable or possible we must use non-projected still pictures.

3. *Non-Projected Still Pictures.* In practice we can consider these in two forms, "Teachers' Illustrations" and "Pupil's Illustrations". The former, as just described, displayed from the blackboard position, the latter, placed on his desk in front of the pupil. In general, non-projected still pictures, for use as "Teacher's Illustrations", are difficult to produce, and expensive to manufacture. In African schools they are often difficult to display and almost impossible to store in the classroom or school. "Pupils Illustrations" can be postcard size or occupy half a sheet of foolscap. Storage of material this size is a much simpler problem.

Although we are accustomed to illustrating textbooks for our pupils we seem to have neglected the possibilities of providing "pupils' illustrations" instead of "teachers' illustrations". The object of the latter is to provide 'visual aid' for the pupil and usually it can be provided cheaper and more effectively by producing it as a pupil's illustration. Stated in another way, it will be found cheaper to produce 40 pictures the size of the pages in this journal (20 if used one between two) than to produce one illustration 120cm x 90cm for use from the blackboard position. It is also likely that the child will find more acceptable his own copy and examine it more thoroughly. We also seem to have ignored the possibility of producing printed illustrations unaccompanied by text and little has been done to produce small, inexpensive, illustrated booklets on geographical topics. Such publications offer a number of advantages. They can be produced much more quickly than a comprehensive geographical textbook. They are relatively inexpensive. They can be produced locally with the use of indigenous illustrative materials. They can provide the wealth of

visual material so essential for our pupils to develop their skill in visual perception. There are three possible lines for development, two reproduced by duplicating and one by 'offset'.

a. *Hand Cut Stencils.* Almost every Secondary School, Teachers College and Educational Office has a fluid ink duplicator, e.g. *Gestetner*. In general these are used solely for the reproduction of words. For an outlay of less than 600/- it is possible to buy a Gestetnerscope and accessories. This is fundamentally a light box designed to hold a stencil while drawing on it with hand tools. Various tools and accessories are essential but are included in the price of 600/-. There is very little recurrent costs and the stencils used are the same as those used for typing. Anything which can be traced can be copied onto a stencil. For example, there may be one copy of the Uganda Atlas in the Library. Using tracing paper, greaseproof paper, or typists copy paper, a tracing can be made of any map in the atlas up to foolscap size. Detail can be adjusted to your special need, adding or omitting as required. You can write or type any additional information. When completed it is duplicated in the usual way. Cost, one ordinary stencil and cost of duplicating. Diagrams, statistical charts and line drawings can be copied in the same way. If you have a duplicating machine, seriously consider buying a *Gestetnerscope* next time you've a little money to spare for equipment. It may be your best buy.

b. *Electrically Scanned Stencils.* An electric scanner is a piece of equipment which will copy electrically onto a stencil, type, drawings, diagrams, and specially screened photographs. It is an expensive piece of equipment, unsuitable therefore for general use but ideally suited for centres providing a service to educational users. It can copy almost any black/white original, with a surprising degree of fine detail. It is therefore ideal for the reproduction of maps with much fine detail, or with detail too complex or time consuming to be copied by hand.

The scanner can only take sheets but does not in anyway damage the original. In Uganda, schools can send in original material and have it electrically scanned for a cost of 6/- per stencil. The stencil is used on a standard duplicator and duplicated in the usual way (see examples on insert). It is also possible to reproduce good quality line drawings, sketch maps etcetera by this method, and we are currently producing a prototype production designed to encourage Ugandans to illustrate Uganda and thus provide visual material for use in Ugandan schools. Duplicating, especially when supported by materials produced on a *Gestetnerscope* or Scanner, is often the cheapest method of reproduction for educational use and is capable of reproduction at school level. The maps published in the April 1969 issue of this journal could all be reproduced effectively on stencils with perhaps the exception of Map 2, Page 18.

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The maps and diagrams on pages 16, 54, 57, 69, 74, 75 could be traced and reproduced on a Gestetnerscope while the remainder are more suitable for an electric scanner. The pages of this journal could not be used on a scanner as the type on the other side of the page shows through and would be copied, the original maps would have to be used on the scanner.

Offset. While being significantly dearer than duplicating offset offers a quality of reproduction not found in duplicating. In our context it offers in particular the reproduction of black and white photographs in good quality if printed on suitable paper. Offset photographs can be of a standard suitable for 'O' level photographic interpretation.

Summary and Comparison of Costs for the reproduction of Pupil's Illustrations.

1. Hand-out Stencils reproduced on a Gestetnerscope.

Foolscap stencil 1/50, plus ink and paper for duplicating, any number of copies, reprints as required. Approximate cost per copy, printed one side only. 3 to 4 cents. Printed both sides. 4-5 cents.

2. Electrically Scanned Stencils.

Stencils @ 6/- each. Printed one side only on normal duplicating paper. Cost per copy. 5 cents. Printed both sides on high grade paper. Cost per copy 7 to 8 cents.

NB. With illustrations, four drawings 13cm x 17cm can be reproduced on one sheet of paper, printed both sides. Reprints as required.

Offset. An illustrated booklet of 16 pages, full B3 size (353mm x 500mm). Strong covers with illustrations, eight centre pages of illustration and eight pages of text (plus inside of covers if required for either). Cost, 5000 copies 4,000/- Cost per copy. 80 cents. Additional copies 700/- per 1000 i.e. 70 cents each. This booklet could reproduce 8, full page $6\frac{1}{2}$ x $4\frac{3}{4}$ photographic prints, an ideal size for geographical use. Full details of production can be supplied. Production of less than 5000 by Offset uneconomic.

Where Do We Start.

It has been shown that particularly in the form of projected slides and the production of Pupil's illustrations, we can do much to supply our own needs for geographical illustrations. Let us now consider where we start to organise production. The obvious place is at the beginning. When we start to teach geography as a local study, with everything visible by direct sight, we should also start producing visual aids. By simple line drawings made by staff or students capable of same we should reproduce what the pupils actually see during their local study. I agree with a colleague who would like to see draw-

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ing and sketching taught at this stage for its contribution to visual perception. If available and economically possible, photographic coverage should also be made. We should proceed "from the known" in developing the skills of visual perception as in any other form of learning. The pupil must first learn to recognise, in an illustration, the familiar scenes he has viewed in his own environment. The scenes from his environment would serve the second stage need of his counterpart in the same country but where there are some differences as well as some similarities. In this way visual experience is gradually enriched and widened. Collectively, working on the lines indicated, the geography teacher of the country could acquire a wealth of visual material for educational use.

Reproduction for local, regional and national needs is economically possible. It is possible also to get teacher and pupil participation at all levels.

With appropriate teaching methods, perceptual skills can be developed with a constant check from the pupils answers that we are not proceeding too fast or being misunderstood. From the basis of understanding, provision of material, and an awareness of the problem we can build a sound approach to our development of the pupil's ability to visualise the geographical scene outside his own environment and thus enable him to really understand the world in which he lives.

ILLUSTRATIONS. A duplicated insert illustrates reproduction of Gestafax Stencils by ordinary duplicating methods.

1. Line Drawing of a Field Sketch.
2. Map of Kilimanjaro to indicate the detail that can be reproduced by this method.
3. Photograph printed through a 65 line screen and reproduced on a Gestafax Stencil and then duplicated.