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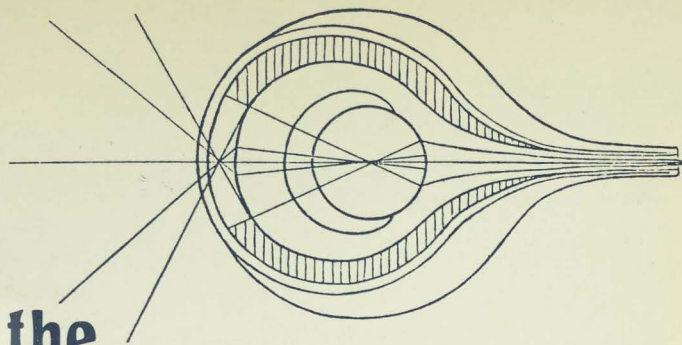
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Volume 2 Number 1



# **STUDIES** in the **ANTHROPOLOGY OF VISUAL COMMUNICATION**



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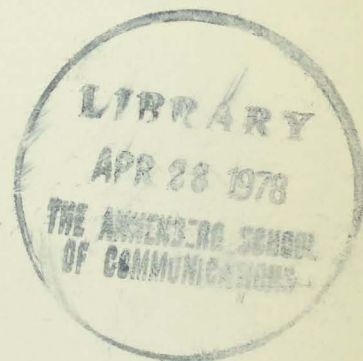
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# STUDIES in the ANTHROPOLOGY OF VISUAL COMMUNICATION

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The purpose of the Society for the Anthropology of Visual Communication (SAVICOM) is to bring together and support researchers, scholars and practitioners who are studying human behavior in context through visual means and who are interested in: the study, use and production of anthropological films, and photography for research and teaching; the analysis of visual symbolic forms from a cultural-historical framework; visual theories, technologies and methodologies for recording and analyzing behavior and the relationships among the different modes of communication; the analysis of the structuring of reality as evidenced by visual productions and artifacts; the cross-cultural study of art and artifacts from a social, cultural, historical and aesthetic point of view; the relationship of cultural and visual perception; the study of the forms of social organization surrounding the planning, production and use of visual symbolic forms; the support of urgent ethnographic filming; and/or the use of the media in cultural feedback.

The Society's primary tasks are coordination and promotion of interests and activities outlined above. To that end, it publishes *Studies in the Anthropology of Visual Communication*, occasional Special Publications and a Filmography. (See inside back cover for a list of publications available from the Society and for Information to Authors.)

SAVICOM works closely with the Anthropological Film Research Institute, a committee of anthropologists concerned with the creation of a national anthropological film archive and research center at the Smithsonian Institution in Washington, DC.

SAVICOM's annual business meeting is held during the American Anthropological Association meetings (usually held in late November). All SAVICOM members are encouraged to attend. During the AAA meetings SAVICOM sponsors a number of symposia and is responsible for the program of film screenings. Members are encouraged to develop symposia and to suggest films for screening at the annual meeting, and for review in the audiovisuals section of the *American Anthropologist* or in *Studies*.

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## A DEFINITION OF CARICATURE AND CARICATURE AND RECOGNITION<sup>1</sup>

DAVID PERKINS

### PART I A DEFINITION OF CARICATURE

The existence of caricatures has proved something of a nuisance to philosophers and psychologists bent on analyzing pictorial representation (Gibson 1971). The contrast between caricature and customary "realistic" representation poses part of the problem. A portrait caricature clearly represents a certain layout of spatial form, a face-like layout with nose so long, mouth so wide, and so forth. This spatial layout typically diverges substantially and in calculated ways from the true form of the subject's head. What sort of picture is this? It is deliberately inaccurate, yet the subject is often quite recognizable—perhaps more recognizable than in an accurate portrait or photograph. It lies about its subject's shape, but in doing so often comments delightfully on that shape. If conventional picturing is to be analyzed in terms of the picture conveying information to the viewer about its subject, then caricature is not strictly part of, but builds on, that convention, bending it to special purposes. What *exactly* is going on?

Another part of the puzzle is the variety of pictures sometimes called caricatures, but which deviate in obvious respects from the most typical usage of the term. Political cartoons in general need not represent any known political figure. Grotesque faces such as Da Vinci's famous set (Gombrich 1961:95) need depict no actual individual or class of individuals. A child's cartoon monster labelled "teacher" may offer a funny face without satirizing that teacher's specific physiognomy. Mergings of human and animal features as in Figure 1 by Levine (1969) are a bonus: caricature allows but does not demand such a mix.

The natural attack on these problems is a quest for definition, a framing of conditions for caricature which would on the one hand specify its relation to realistic

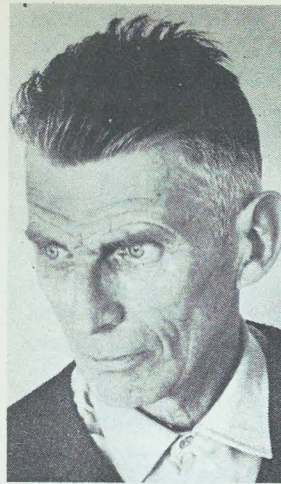


Figure 1 —Samuel Beckett

portraiture, and on the other admit or exclude, and in any case elaborate the relation of caricature to, the various sorts of pictures which sometimes are so named.

Two concepts merit special attention in the search for definition. One is *exaggeration*: a caricature typically exaggerates features of its subject. The second is *individuation*: a caricature typically exaggerates so as to differentiate the subject from his fellows. Exaggeration and individuation alone promise some unscrambling of the problems sketched above. Exaggeration seems a meaningful concept only in a symbol system where one can also tell the truth. This might illuminate caricature's dependence on and relation to a tradition of realistic portraiture. Individuation commands that the caricature remain true to the subject's physiognomy at some level, reflecting the intuition that *mere* distortion, as in the child's cartoon monster, is not caricature.

Such factors prompt a preliminary and very traditional definition: a caricature is a symbol that exaggerates individuating characteristics of its subject. Indeed, a refinement of this will provide the final formulation. But along the way some major difficulties demand attention. First, prior writers have proposed other conditions in addition to exaggeration

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## Rassenchuh



Was Gott zusammengeputzt, soll der Mensch nicht trennen,  
Was er gezeichnet, nicht zusammenmanchen!



## Der rote Drache

Wie kommt die Welt denn je zum Frieden,  
Bist man das Ungeheuer wüten?

Figure 2 —Nazi caricatures of Jews

and individuation; for instance, a caricature must be humorous. On what grounds are these additional constraints dismissed? Second, individuation and exaggeration are themselves concepts hardly clearer than caricature. The definition

becomes little more than a game of word substitution unless these terms themselves can be explicated, particularly as they relate to realistic representation. Third, it is not enough that a definition simply stake out roughly the class of pictures usually called caricatures. Many definitions could do about equally well *statistically*, including the above, the above with "humor" also required, or "grotesque drawings which represent real subjects." The discussion will argue that the above definition and its elaboration, far from being arbitrary, illuminate the essential psychology of perceiving caricatures.

## FURTHER CONDITIONS?

Prior definitions of caricature are mainly introductions, asides and ornaments to a body of work with quite a different focus. Most of the surprisingly extensive literature on caricaturing deals with the evolution of the form, biographies of caricaturists, and presentation of examples without technical discussion. The range of art treated is generally wider than portrait caricature, encompassing also the political cartoon or grotesque figures. "Caricature" is sometimes used synonymously with either of these. The details of the relation between drawing and subject are persistently neglected. Rarely does one even find a portrait and a caricature of an individual side-by-side. For some happy exceptions, see Berger (1952), Gombrich (1963), Rother (1966).

Definitions, when attempted at all, have their favorite vocabulary. Besides "individuation" and "exaggeration," key words are "humor," "idealization," "defects," and "personality" as well as near synonyms of these. Whether such terms can add to the conception of caricature sketched above demands appraisal. The conclusion will be that they cannot.

## Humor

Humor stands in an intimate relationship to caricature, often figuring in the definitions put forth by various writers. Proposals that caricature is the exaggeration of an individual's characteristic features to comic effect, or the like, appear frequently (*American Heritage Dictionary* 1969; Murray, quoted in Ashbee 1928:1, 25; Berger 1952:7; Davies 1928:1). But humor seems dubious as a condition for caricature.

First of all, there are drawings which clearly deserve the label but are of doubtful humor. Figure 2 from Gombrich (1963) illustrates caricatures of Jews devised by the Nazi propaganda effort, caricatures which are too vicious to be funny. Commonly, one finds political cartoons incorporating portrait caricatures which in themselves are at best very mildly humorous. They primarily serve as reference mechanisms for the real joke of the caption or whole cartoon. It seems strange to place the humor of the caricatured face so much in the center of things by definition when it is often rather peripheral to the entire comic effect. Figure 3 points up another problem. Some artists such as James House (Figure 3), and Oscar Berger (1952) often emphasize likeness of personality rather than humor; the product is not intended to prompt a laugh. Finally, there are contrast enhancement techniques in photography and caricature-style drawings of complex machinery (Ryan and Schwartz 1956).



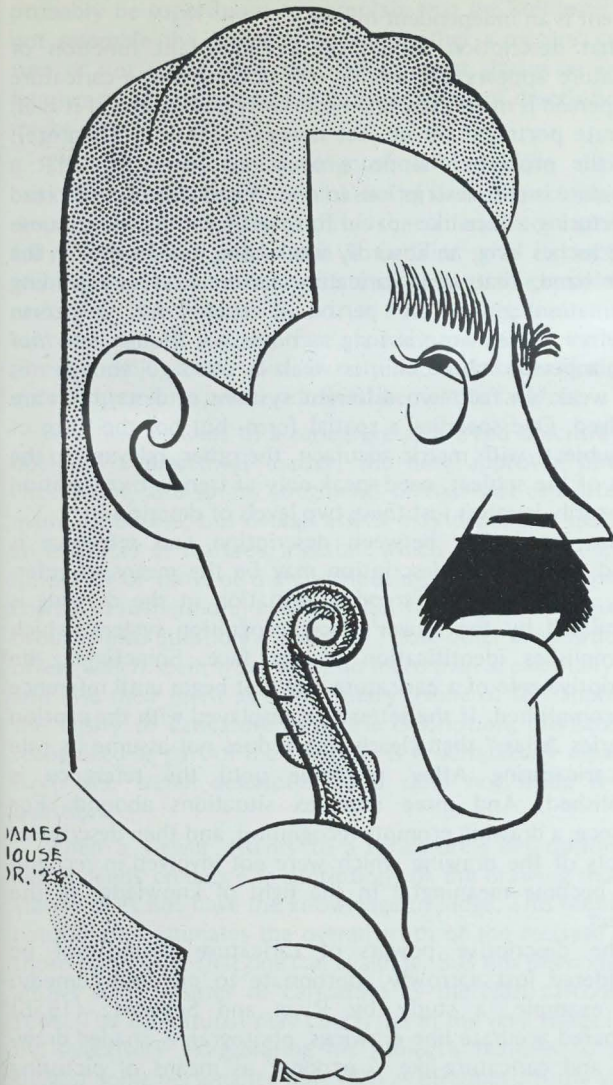


Figure 3 —Fritz Kreisler

These are hardly comic subjects, but the term caricature, if humor is not a condition, seems an illuminating name for such pictures.

If one's area of interest is portrait caricatures, the added condition of exaggeration "to comic effect" would narrow very little the class of drawings satisfying the requirements; exaggeration and individuation fix the range of the term adequately. And a requirement of humor would connect caricature logically with the snarl of philosophical and psychological issues surrounding the topic of humor. It seems prudent to stay as much on the periphery of that as possible.

Furthermore, there is a certain tension between the aim of humor and the aim of individuation. The political cartoonist Paul Szep, of the *Boston Globe*, has emphasized to me the particular difficulty of producing a caricature in which the human face is merged with an animal form. The combination can be marvelously appropriate, but the amount of differentiating information available is certainly reduced. Worse, a long nose for an inquisitive but short-nosed person may be

in keeping with his behavior, but can injure the likeness. All the above considerations sum to the conclusion that humor is best considered a contingent property of some caricatures.

If humor should not be a necessary condition for caricature, then what accounts for its undeniable close association with the form? A historical answer is, in part, legitimate: caricature has in fact been persistently used to humorous ends. But such a reply is incomplete if it does not confess that caricature lends itself to just such use. The point is that exaggeration, a prime tool of the caricaturist, is also a key device of the humorist. This does not mean that all exaggerated faces are funny, any more than it means that all exaggerated faces are identifiable. Exaggeration in various cases may serve a humorous end, an individuating purpose, both, or neither. That it so often serves both, reflects the psychology and the individual culture of the human perceiver and the caricaturist's happy exploitation of both psychology and culture.

#### *Idealization and Defects*

Idealization seems intuitively the very contrary of caricature. Both depart from faithful portraiture, but somehow in opposite directions. Roughly speaking, idealization means producing a picture of a subject so as to emphasize various canons of beauty, masculinity, or whatever, established in the artist's society. As such, idealization is one form of exaggeration. This encourages the complementary view that ugliness is as central to caricature as idealization is counter to it. Caricature is seen as the exaggeration of the *defects* of a physiognomy (Davies 1928; Balducci, quoted in Gombrich 1961:344; Grose, quoted in Lynch 1927:9; Bergson, quoted in Lynch 1927:5; *Random House Dictionary* 1968).

But such a formulation reflects a philosophy in which any departure from an ideal counts as a defect. The usage of these terms is more tolerant today. Individuality itself carries certain positive values. There is a large middle ground between what counts as ideal and what counts as defective. Exaggeration of individuating features may not produce ideal types, but need not produce ugliness. Oscar Berger (1952) presents a number of benign caricatures of various public figures, done in sittings with their cooperation. In sum, exaggeration of defects is simply too specialized a requirement to be called a necessary condition for caricature; there are too many pictures called caricatures that would not be so described.

Furthermore, ugly caricatures are not really needed to satisfy our hunch that caricature runs contrary to idealization. Another symmetry besides beauty and ugliness serves as well. Idealization is a transformation that blurs the distinctiveness of the particular face; a range of individuals all idealized are depicted as sharing many features that comprise the ideal standard and hence are less differentiated. Thus while caricature individuates, idealization disindividuates.

#### *Personality*

Many caricaturists often emphasize conveying personalities through their art (Low 1932). In their work, this aim accompanies or replaces humor. Those that take this approach must gather information about a subject's character; the personal interview and/or sitting is a favorite device



(O'Connell 1970; Berger 1952). But Paul Szep has explained that personal contact is often impossible where major political figures are concerned. First of all a physiognomic likeness is the goal. Next, the political cartoonist must generally work from his target's public character, not his "home" character—both because that is what is accessible and that is what the public knows. Finally, the aspects of character to be emphasized naturally turn on the particular, and generally critical, function of the cartoon. Thus the extent to which conveying personality is a primary aim varies considerably from artist to artist and from circumstance to circumstance. Personality is not the focus consistently enough for it to serve as a further necessary condition for caricature.

Indeed, expression of personality competes considerably with physiognomic individuation. Topffer and numerous other artists of the eighteenth and nineteenth centuries systematically explored variations in cartoon and normal portraits that yield various personality impressions (Gombrich 1961, ch. 10). More recently, psychological research employing photographs and sometimes composite line faces reveals that observers will readily—and often consistently across observers—attribute personality traits to strange faces (Shoemaker, South, and Lowe 1973; Hochberg 1964:105-110; Secord 1958; Secord and Muthard 1955). But these personality attributions do not accurately reflect the true personalities of the photo's subjects; that is, a subject's face will likely suggest a personality not in keeping with his actual personality. A caricature or portrait which is both recognizable without labels or context and also a faithful expression of the subject's true personality (not the superficial personality projected by his face) must be counted as an especially fine achievement.

## REFERENCE AND DESCRIPTION

If humor, ugliness and expression of personality are inessential to caricature, then exaggeration and individuation by themselves must resolve this art form's paradoxes. Two symbolic functions of special concern are *reference*—a caricature is of a person—and *description*—a caricature delivers certain shape information about the subject's face.

In order for the caricature to speak about its subject, the subject must be designated. Sometimes audaciously direct means are employed: human figures in pictures are simply labelled with their names, or relatively unambiguous contextual cues are provided—a white house in the background. Another major means is to provide a picture recognizable from the face as representing a particular individual. Indeed, some caricaturists hold it an obligation of their art to eschew other techniques, especially when a familiar, plausibly recognizable, public figure is the subject.

Nonabstract pictures, the sorts of concern here, will be said to *describe*. This will simply mean that they provide to the viewer information specifying spatial forms and surface properties—the shapes, textures, colors of chairs, houses, faces, or whatever. This quite deliberately ignores the often important distinctions between pictorial and linguistic means of symbolizing discussed by Goodman (1968, ch. 4). It should be mentioned that in general a description, linguistic or pictorial, need not be a description of any actually

existent thing; whether the description is ascribed to a referent is an independent matter.

That description should be an important function of caricature appears implausible, considering that a caricature of a person is manifestly and necessarily inaccurate (if it is an accurate portrayal we do not normally call it a caricature). But the problem disappears once one recognizes that a caricature is two descriptions in one. A caricature can be read as picturing a face-like spatial form with, for instance, a nose three inches long, an absurdly weak chin, and so on. On the other hand, that same caricature can be read as providing information about the person it stands for, a person therefore whose nose is long as noses go, though not *that* long, a person whose chin is weak as chins go, though not *that* weak. In fact two different systems of description are involved. One specifies a spatial form—but not the form of the subject—with metric accuracy; the other, relevant to the form of the subject, need speak only of trends. Exaggeration necessarily involves just these two levels of description.

The interaction between description and reference is varied. Sometimes, description may be the means of reference. The descriptive trend information in the drawing is assimilated by the viewer's face recognition system, which accomplishes identification of the face. Sometimes, the descriptive role of a caricature may not begin until reference is accomplished. If the letter T is displayed with the caption "Charles Atlas," then clearly the T does not assume its role of caricaturing Atlas' physique until the reference is established. And more complex situations abound. For instance, a drawing prompts recognition, and then descriptive aspects of the drawing which were not involved in recognition become meaningful in the light of knowledge of the subject.

The descriptive powers of caricature should not be considered just narrowly appropriate to pictorial comedy. For example, a study by Ryan and Schwartz (1956) compared accurate line drawings, photographs, shaded drawings, and caricature-like "cartoons" as means of picturing complex spatial layouts, including machinery. The pictures were exposed tachistoscopically and the caricatures most successfully conveyed the general organization of the spatial layouts at shorter exposures.

Furthermore, caricature-like techniques of exaggeration are actually employed in a number of communications contexts. Relief maps amplify the vertical scale. Photographers utilize contrast enhancement methods. Examples occur among pictograms used in international traffic warning signs, although however clear and emphatic these may appear to the acculturated viewer, Kolars (1969) warns us to be wary of any claim that such signs are universally readable.

## TRUTH AND REVELATION

A true description is simply a description that specifies properties true of a referent. Portrait caricature, involving exaggeration as it does, is never a true description as far as metric accuracy is concerned. But a caricature may be a true trend description of its subject. Indeed, if a viewer remarks that a caricature doesn't look like its subject, he is not likely to mean that the drawing lies about the subject's exact metric shape; that is taken for granted. Similarly, if a drawing



depicts a political figure with a bulldozer body, it would probably be superfluous to complain that the bulldozer does not resemble the subject's body. Whether a picture, caricature or not, offers true descriptions must always be judged relative to an analysis of the multiple *kinds* of descriptions it might offer.

The aesthetic functioning of a caricature depends critically on the viewer's evaluation of its truth *and* falsity as description. (A corollary of this is that a caricature cannot be fully appreciated unless one is familiar with its subject's physiognomy). Humor in caricature serves as an example. If a caricature is not taken as a true trend description, then it becomes simply a funny face, lacking a manifest kernel of physiognomic truth. But if only the trend description is noted, there is no perceived overstatement to laugh at.

A viewer's assent to a caricature as a trend description is not just a piecemeal matter, the nose approved but the cheeks not, and so on. Judgments of that sort can often be made, of course, but overall assent may depend as much on an interplay of features, a gestalt which itself cannot appear unless all or most of the contributing trends are themselves correct. Furthermore, a description false in some respects is brought into question as a whole. Those other propositions it offers which seem true, seem no more than accidentally true and lose their merit as commentary. None of this applies to the falsity of caricature as metric description; this falsity is recognized as part of the art form, is *systematically* separable from the trend description and does not bring it into question.

When a viewer assents to a caricature's description, his assent lends credence to ascriptions of the drawing that the viewer does not have the knowledge to judge. This is entirely natural; one estimates the overall truth of the message from those parts of it that one can evaluate. But this phenomenon allows such misuses of caricature as the Nazi cartoons of Jews. The caricaturist may couch lies in the very visage itself, by selectively exaggerating his subject's features so as to suggest some personality trait such as meanness. If the viewer knows the subject, but has seen in his face or behavior no contrary personality indications, the viewer, recognizing the face, is likely to take the meanness as an aspect of the true face he had not noticed before, exposed by the art of the caricaturist. On the other hand, the sophisticated viewer will have learned to distrust ascriptions of personality in caricature. That is a part of being sophisticated.

In sum, the viewer's assent to, dissent to, or inability to evaluate a caricature's trend description plays an intimate role in his whole reaction to the work. In many cases of humor in caricature, the viewer's judgment of the falsity of the picture as metric description plays just as important a role. Further, the viewer's reaction is highly individual, depending on the prior knowledge and the habits of categorizing that he brings to his encounter with the picture, on his familiarity or lack of familiarity with the subject's face, his preconceptions about the subject's personality, the degree to which he separates physiognomic, political, personality, and other ascriptions, and separates metric from trend descriptions. The viewer's response is as much bound up in the information he has available and his general habits of information processing as it is in any exclusively aesthetic

capacities he might have (if exclusively aesthetic capacities exist at all).

This theme can be carried further yet. The fine caricature of Beckett as a buzzard, done by Levine and displayed in Figure 1, exemplifies "revelation." Levine has delivered a construction that reveals an unexpected visual affinity between Beckett's physiognomy and that of a buzzard, an affinity that gains depth because of Beckett's morose literary works. The example will be discussed further later, but certainly revelation is not limited to cases of representing a person as an animal, or as anything else at all. I particularly recall a caricature of Pushkin by Levine, where the exaggeratedly large and limpid eyes led me suddenly to realize how those eyes dominated Pushkin's face in realistic portrayals. In sum, a caricature reveals when it exposes unnoticed physiognomic relationships, or the unrealized influence of particular features on the whole face, or the like.

Accordingly, revelation is a frequent achievement of, but not a requirement for, caricature. In political cartoons, the same public figure may recur again and again in the same style. His reappearances, offering little further physiognomic revelation, accomplish other functions within the cartoon, such as reference or expression.

Some requirements of revelation can be specified in terms introduced earlier. First, revelation is part of caricature as a description; that is, a caricature offers a proposition about a subject's physiognomy, such as, that it is like a buzzard's in certain respects. Second, the viewer must affirm the proposition; he does not reserve judgment or accept the proposition on faith as one might do when viewing a caricature of an unfamiliar subject. And third, the affirmation is not of an often entertained and tiresomely familiar proposition, but of freshly revealed truth. In sum, the caricature entices the viewer into affirming a novel proposition.

Why is a novel proposition affirmed? Relating the proposition to accumulated knowledge is required: for instance, the proposition may complete a pattern of other propositions; it may neatly sum up a collection of subordinate propositions, as does the Buzzard-Beckett equation; it may bring into focus a series of half-realized prior observations, as with my reaction to Pushkin's eyes. Whatever the relation to prior knowledge, it is a characteristic of revelation that the very organization of the viewer's perception is changed. Just as, after identifying a camouflaged figure, it is very difficult to recover one's original naive perception, so Pushkin and Beckett will never appear as they did, or not for a long time. In its very rapid, but long-term, reorganization of the viewer's perceptions, revelation contrasts with more gradual and painful means of shifting one's perceptions of the world.

Revelation, important throughout the arts, is related to discovery as the word would be used in science or philosophy. Both revelation and discovery involve apprehending a new structure or coherence in a body of accumulated information. Revelation emphasizes some agent's role in serving up the novel proposition, whereas discovery emphasizes the creative role of the apprehender in devising his own coherence. A discovery "comes as a revelation" just when the creator is largely unconscious of his own constructive role. Recent research (Muller, Kennedy, and Tanimoto 1972) has demonstrated that persons prefer



viewing sequences of pictures where initially distorted, unrecognizable letters become recognizable over viewing the reverse sequences, even though they judge the unrecognized distorted letters as by themselves more interesting than undistorted but readily identifiable letters. Discovery, that is, is valued for itself, independently of the value attached to the content discovered. Each of us can echo this subjectively; discovery and revelation are rewarding, often exciting experiences. This is one source of affect in caricature and in art in general.

In considering revelation, there is no need to confine the viewer to a passive role. If he does not invent the proposition that the caricaturist lays before him, at least he must read it out of the caricature, and furthermore he must relate it to his own knowledge and perceive that the proposition does lend that knowledge coherence or structure. These operations of the viewer are themselves active, constructive, and creative. Every revelation by an agent is to that extent a discovery by the recipient. Again, a viewer's response to a caricature emerges as a highly judgmental process very concerned with fact and logic; his prior information and information processing habits will determine whether he discovers what the caricaturist aimed to reveal.

## EXAGGERATION AND INDIVIDUATION

In discussing how caricatures are "read," the previous sections have underscored the central roles of exaggeration and individuation. In employing exaggeration, caricatures provide a trend description but not a metric description of their subjects. And by providing a true trend description, caricatures individuate.

At once it is clear that exaggeration must not be taken narrowly, for instance, to mean "making larger." Caricatures of aggressive chins may be larger, but weak chins are rendered weaker yet. Some general techniques of exaggeration are: making darker or lighter, larger or smaller, longer or shorter, and accentuating contours—special cases of this include rendering hair curlier or the profile more pronounced. Non-physical traits, as of personality or expression, can also be exaggerated.

In all these cases, exaggeration involves displacement along a scale measuring (if crudely) some property. More generally, exaggeration could be defined in terms of a partial ordering relation on mutually exclusive classifications of some classification system. If a symbol exaggerates, it refers to a certain subject, but read according to convention, it also implies a measurement (classification) of the subject not in fact correct, but greater than or less than the correct measurement.

But merely distortion is involved if for the same subject and circumstances "greater than" and "less than" are not differentiated. Overstating the role of alcohol in accidents is exaggerating that role, but an understatement does not exaggerate the role. Neither is what counts as exaggeration a question of conventional "greater than" scale directions for various scales; as mentioned above, exaggerated strong chins are stronger, exaggerated weak chins are weaker. Rather, exaggeration seems to involve implicit reference to a "normal point" on a scale; the exaggerated symbol indicates a

measurement for a subject which is, starting from the normal point, beyond the subject's correct measurement. When the scale has an endpoint (e.g., zero on a length scale), in some contexts this endpoint serves as the norm and there is only one direction of exaggeration. In other contexts exaggeration is relative to interior normal points suggested by population averages, or by conventions of beauty or health, or the like.

Exaggeration aside, how can scales and normal points individuate? Common usage provides a clue. We speak of people as tall or short, fat or thin, and so forth, with implicit reference to an average height or build. In this way, a scale like height and a normal point like the average height allow us to individuate members of a population. Of course, many scales and norms have no individuating value. In a cartooning context where all noses get longer, the normal point for exaggeration is zero nose length. But no one has less than zero nose length, the scale and norm do not divide the population, and the cartoons exaggerate without truly caricaturing. From a standpoint of general informational efficiency, the population median provides the most individuating norm. But for any number of reasons, other normal points may be used in sorting: the basketball coach's professional standards for "tall" versus "short" will be high.

Caricature involves a triad: the cartoon itself, the subject caricatured, and scales and individuating norms (often determined by a standard population) against which the subject is measured. The caricaturist selects certain of these scales and exaggerates along these scales the departure of his subject from the normal points. Accordingly, the same subject against a different population might be caricatured quite differently; Gulliver is a giant among the pygmies and a pygmy among the giants. Another consequence is the traditional remark that people with especially ordinary features are hard to caricature; many of their measurements fall on the norm points and no proper direction for exaggeration is defined.

Even for other subjects, the circumstances may not unambiguously suggest the scales and norms against which an artist should work; he may have to choose. For example, suppose an artist aims to caricature a profile which is rather flat as profiles go (Figure 4, center). Among many alternatives, he might choose to work from the human average, and render the profile flatter yet (Figure 4, right). Or he might take a straight line—the average of all wavy lines—as his origin, and accentuate the contours (Figure 4, left). It seems plausible that either manipulation, in its own way, might contribute to a recognizable caricature.

The viewer as well as the artist has problems and options. In seeing how a caricature is exaggerated, he faces the task of determining the scales and norms with respect to which exaggeration was attempted. Does a certain drawing depict a nose exaggerated in length, an ear-nose distance exaggerated, a tip-of-nose exaggerated, or what? Such questions are resolved (with an element of arbitrary choice perhaps) by cues in the pictures themselves, by knowledge of conventions of picturing and caricaturing, and through intuitions about what sorts of scales and norms are psychologically likely. To say just that much is to touch a complex matter lightly. Although "reading" a picture as exaggerated is a largely automatic and unconscious accomplishment, substantial cognitive activity is clearly involved.



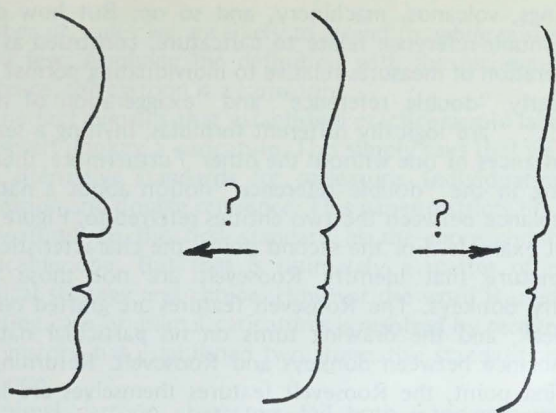


Figure 4 —Exaggeration relative to different norms

But just that much is enough for the present purpose, illuminating caricature. The thrust of this section can be condensed into two definitions. *A scale and norm, relative to a given population, are individuating just when the members of the population do not all have measurements on the scale less than, equal to, or greater than the norm. And a symbol referring to an individual, describing a measurement along a scale, and relative to a given norm, exaggerates just when the individual's true measurement on the scale lies between the described measurement and the norm.* Of course, this is an abstract from the realities of the human condition, where judgments of degree are uncertain and normal points indefinite intervals.

#### DEFINITION

The prior sections lend support to a formal definition. *A symbol referring to an individual and relative to a given scale, norm, and population is a caricature just when the scale and norm relative to the population are individuating and the symbol relative to the individual scale and norm exaggerates.* Of course, a symbol is called a caricature not just because of one—perhaps coincidental—measurement. Therefore, *a symbol referring to an individual and relative to a whole set of scales, norms, and populations is a caricature just when it is a caricature with respect to some of those scales, norms, and populations and accurate with respect to the others.* For a capsule statement and leaving some terms implicit, a caricature is a symbol that exaggerates measurements relative to individuating norms. This definition is not new; an essential equivalent was given by Samuel Johnson (Lynch 1927:1). Nor is it a radical departure from the trend of prior proposals. It simply says a little less than some, for instance in omitting humor, and a little more than others, for instance in insisting on the central role of exaggeration for individuation's sake.

The definition functions by paring away pretenders to the name "caricature," to reduce the concept to its most central core. First of all, the definition requires reference. Certain sorts of pictures are at once excluded: grotesque faces, gargoyles, harpies, monsters of various breeds, and so forth. Referring to no subject, they cannot ascribe properties to that subject and hence cannot deliver humor, revelation, or expression of personality in the manner of true caricature.

Of course, realistic pictures and photographs refer to and describe their subjects. But such pictures are not usually called caricatures, and the exaggeration requirement excludes these. Also, exaggeration emphasizes that caricatures occur in the context of an established system of "more accurate" representation. Caricature is not simply a trend description, but a trend description by means of exaggeration, a means which uses as its instrument the metric descriptive powers of picturing.

Exaggeration by itself leaves some problems, however. Portraying a person of average or smaller nose length and ear size as having a long nose and large ears might prompt a laugh, but cannot gain the viewer's affirmation of true description that is so intimately involved in humor in caricature, as discussed earlier. Such exaggeration does not provide description differentiating between that particular subject and any other, information necessary for most of the other functions of caricature as well as humor. The insistence that caricature exaggerate with respect to individuating norms excludes drawings which to not attempt such differentiation.

Just as caricature denies transformations which exaggerate without individuating, so it denies transformations which individuate without exaggerating. For instance, an artist may eliminate details of a face in order to throw the broader structural features into prominence. True, the manipulation packages some individuating properties of the subject for easy perceptual access. But the means of packaging is critically different. Many portraits which would never be called caricatures use such simplification, and though caricaturists often simplify as well as exaggerating, everything a caricaturist does need not be strictly caricature.

Finally, the relation between caricature as an abstraction and caricature in a human context must be explored. In light of the formal definition, the casual question "Is such-and-such symbol a caricature?" is badly formed, incomplete unless symbol systems, scales, norms, and so forth are specified. Most any symbol will be a caricature with respect to some trumped up specifications. But informally asking whether a symbol is a caricature makes implicit reference to our system of pictorial representation, the populations out of which subjects must be differentiated, and the scales and norms we routinely employ in perceiving and making judgments about pictures or real world scenes.

Certainly to be avoided is an oversimple conception of seeing a picture as a caricature, where a visual system methodically and exhaustively checks through some list of norms and scales to see whether the picture fits the definition. A prime concern of the viewer is to make sense of the picture, to determine its referent, and the relation between referent and subject. If the viewer can discover several scales and norms with respect to which the picture is a caricature, and notices few other scales and norms where the picture seems *merely* distorted (though there are almost bound to be many) then he will construe the picture as caricature. Therefore, whatever scales, norms and so forth a psychologist might list as "usually attended to," some pictures would formally be caricatures with respect to this list without always being recognized as such, some pictures would not formally be caricatures without the discrepancies always being noticed, and some pictures would be caricatures



with respect to scales not on the list, but brought to the attention of the viewer by the caricaturist's skill.

### ANIMAL CARICATURES AND CARTOONS

The definition of caricature, abstracted from several crucial examples, should now prove its ability to analyze cases not figuring in its conception. Previously, various sorts of pictures were placed relative to caricature: portraits refer, describe their referents, but do not exaggerate; grotesques may exaggerate norms of ugliness but do not refer to or exaggerate an individual; and so on. Now the definition may be tried on a fresh domain, the cluster of problems surrounding the use of animal-like figures in caricatures and cartoons. Levine's buzzard caricature of Beckett has already been introduced, but the logical status of such a mix of human and animal characteristics was not discussed and remains puzzling.

Drawings wherein a recognizable subject is presented wearing the clothes—as it were—of an animal, are often especially engaging. Such drawings are generally called caricatures, but whether or not they merit the name in the technical sense proposed here is a subtle issue. A further example appears in Figure 5 from Gombrich (1963:213-214), who comments on its economy. Establishing reference with such a drawing depends on (1) a few effective clues—the cigarette holder, the smile, the tilt of the chin, (2) a context of current events and conventional symbols—the donkey, and (3) absence of counterevidence. The interplay between (1) and (3) is worth stressing. Recognition can take place with very few clues so long as features in the picture serving solely humor or other purposes (e.g., the ears of the donkey) are not taken to be attributes of the subject's real face.

Cartoons of this sort have at their heart a pun-like double reference, both to Beckett and buzzard, to Roosevelt and donkey, and so forth. In Goodman's terms (1968:27-41), Figure 1 denotes Beckett but is also a buzzard picture, and pictures may represent individuals not only as animals, but as

buildings, volcanos, machinery, and so on. But how does such double-reference relate to caricature, construed as the exaggeration of measures relative to individuating norms?

Clearly "double reference" and "exaggeration of measures . . ." are logically different formulas, inviting a search for instances of one without the other. Furthermore, there is nothing in the "double reference" notion about a natural resemblance between the two entities referred to. Figure 5 is an apt example. For the second point, the characteristics of the picture that identify Roosevelt are not those that identify donkeys. The Roosevelt features are grafted on, so to speak, and the drawing turns on no particular natural resemblance between donkeys and Roosevelt. Returning to the first point, the Roosevelt features themselves are little exaggerated, at least as compared to the accompanying photograph. There is the lengthened cigarette holder, but on the whole the picture is not much "caricatured" in our sense.

Levine's Beckett-as-Buzzard (Figure 1) is a contrasting case. Here several characteristics of the drawing perform double duty, describing both buzzards and Beckett. The beak-nose, the neck and chin, the facial wrinkles, and even the collar, are examples. Further, the portraying of the buzzard, accomplishing the animal reference, goes hand in hand with exaggeration of individuating trends of Beckett's face. Finally, implicit in the choice of buzzard is the exaggeration of personality characteristics of Beckett as reflected in his work.

In qualification, it is worth noting that the ears, so emphasized in the caricature of Beckett on the right of Figure 1, are reduced in the buzzard-Beckett so as to avoid an absurdly large-eared buzzard; the buzzard's ears seem even smaller than Beckett's true ears. Further, the buzzard version is certainly less recognizable all in all than the other, and functions particularly well when placed beside it. As always, there is this tension between manipulations for the sake of humor or personality comment and manipulations for the sake of individuation. As remarked earlier, many drawings caricaturing several measurements would merely distort others. But in the balance, the Beckett-buzzard caricatures a



Figure 5 —F. D. Roosevelt



number of scales we are likely to attend to, while missing on but a few. Applying the definition with the recommended tolerance, the cartoon is a caricature.

The fact remains that established practice would label the Roosevelt-donkey a caricature. This simply says that we have two alternative standards for caricature: individuating exaggeration and double reference. This paper restricts the term "caricature" to the first standard as the more commonly applicable one. But that is ultimately a matter of philosophical strategy and choice. However the word is used, the puzzling case of animal caricatures is resolved by recognizing that history has established two alternative standards rather than one.

Animal cartoon characters fail both standards; usually they do not involve double reference, nor are they usually caricatures in the present sense. A drawing of Donald Duck is not intended to be identified as anybody but Donald Duck (a fictional construct created by a series of such pictures) and is certainly an accurate, not an exaggerated, portrayal of him. True, Donald and many other cartoon characters exhibit a mixture of various animal and human features, often distorted—web feet and too-wide bill, the frontally located eyes, and arms with four-fingered hands. The result of course is a creature that is neither much of a duck or much of a human, as *Mad* cartoonist Bill Elder points out in Figure 6.



Figure 6 —Donald and other ducks

But Donald in shape is no effort to caricature either a duck or a human, though his actions may caricature human foibles. The distortions and mixing of human and animal features must be attributed to different aims. One of these is clearly the anthropomorphizing of the animal form, so that it will appear less alien (the frontal eyes are important here!), can manipulate objects with hands, and so on.

## CONCLUSIONS

The context so far has been the pictorial caricaturing of individual physiognomies. But the term caricature has a wider application than that. First of all, a caricature need not

be pictorial. A mimic may offer an overblown version of his subject's voice and gestures; a writer may satirize another's work by exaggerating his idiosyncracies of style. Such efforts can certainly be called caricatures. And the usage does not reveal limitations in the present definition, because that definition nowhere requires pictorial symbols. The generalization is already there.

Caricatures of fictive individuals—Clark Kent, for instance—also occur. A generalization to accommodate this case comes fairly easily. If pictures of Clark Kent denote nothing, at least they are still descriptions of three-dimensional shapes which collectively and pretty consistently establish what the Clark Kent face shape *is*. Accordingly, that shape can be caricatured much as any other face shape. Such a caricature, of course, can't be said to denote Clark Kent any more than a "realistic" picture of Clark Kent does. But both can be treated as fictive representations, for instance, in the manner discussed by Goodman (1968:21-26).

However, some fictive individuals—Donald Duck, perhaps—may be quite difficult to caricature in any strict sense. With Clark Kent, the usual norms of human appearance may be invoked. But what norms apply to Donald Duck, when he is one of a kind? Certainly one can make distorted pictures of Donald Duck, but the distinction between individuating exaggeration and mere distortion tends to collapse.

This leaves the present formulation constrained to caricatures of individuals, real or fictive. But caricatures of classes are commonplace. The Nazi caricatures of Jews from Gombrich (1963) have already been mentioned. Today blue collar workers, hippies, intellectuals, and dozens of other groups are routinely lampooned by the caricaturist's art. Figure 7 offers a contemporary example. Ideals like "beauty" or concepts like "cold war" can also be caricatured. Unfortunately, the easy substitution of "class" for "individual" in the present definition does not yield an adequate generalization. Caricatures of classes simply involve more complex symbolic relationships, and require a more general construal of the concepts exaggeration and individuation.



Figure 7 —A caricature of classes



These concepts, as well as those of describing, revealing, truth judgments, and so on discussed earlier, have been the instruments for drawing a fairly sharp line around the notion of caricature of individuals. Certainly that line's placement has been guided by a personal intuition, but not an arbitrary one. The aim has been to systematically respect evident gulfs between the T which is not a description and the hulking T labelled Charles Atlas; between grotesques depicting no subject and equally monstrous images lampooning a victim; between the mere lie of the child's monster picture labelled "teacher" and the truth-in-lie of caricature; between drawings that in simplifying characterize and drawings that in exaggerating caricature; between pictures merely half-animal, half-man—the Roosevelt-donkey—and pictures with parts simultaneously animal and man—the Beckett-buzzard. The logic of the analysis hopefully does not blur or ignore, but rather delineates and explains, caricature as a unique art form.

## PART II CARICATURE AND RECOGNITION

With all their distortions, we recognize caricatures. The puzzle is how. But perhaps the emphasis on caricature as the thing to be accounted for is wrong. Caricature recognition need not be explained as some adaptation, adjustment or success-in-the-face-of-adversity of the normal recognition process. One can turn the issue upside down and suggest that caricature recognition is a full manifestation of the normal recognition process, which is itself to be explained. And caricatures provide a means of investigation. The caricaturist is a natural experimenter, exploring distortions for the sake of satire, expression of personality, and so forth, while also meeting the need to deliver an identifiable image. In diverging from accuracy but preserving identity, his works provide a measure of which facial properties are important to identification.

The aim here is to explore these physiognomic invariants, these constancies between caricature and subject and between one caricature and another of the same subject. The approach is analogous to that of J. J. Gibson (1950, 1966) who bases his analysis of visual processes on invariants in the optic array. But the sources of perturbation across which constancies are sought are not only the shifting perspectives of the viewer and changing illumination. The transformations are provided by the caricaturist, and the search for constancies encouraged by his need to supply an identifiable work in spite of these transformations, or even by means of them.

E. J. Gibson's work (1969:102-105) provides a framework for restating the subject in another way. She, like myself, feels that the recognition of caricatures can be explained via the normal face recognition process. Caricaturists exaggerate "distinctive features" of the human face, those features by means of which viewers discriminate face from face and identify individuals. Choosing its own terminology, this paper will speak of individuating "properties" or "attributes" of the face, taking the terms in the broadest sense and as synonymous.

Like sonnet or sonata, this approach is a form needing explicit content to be meaningful. Of necessity, recognition depends on individuating properties of the stimulus. On what else could it depend? The essential questions are which and what sorts of attributes contribute to identification. Many alternative sets of properties may be *logically* adequate bases for discrimination over a given range of stimulus materials. Which properties are psychologically relevant must be determined. These could vary from culture to culture, or even from perceiver to perceiver. But the very phenomenon of caricature recognition suggests that at least within a culture, constancies prevail and await discovery.

Any such quest must acknowledge that a caricature incorporates many devices irrelevant to recognition. Certain features of caricatures are better accounted for as purely comic devices, as conventions of cartooning, as means of expressing personality, or in like ways. Furthermore, some apt caricatures require the assistance of labels and other cues, because the subject is not well known or because the caricature abstracts too far from the subject's appearance—consider a large capital T labelled "Charles Atlas." If recognition from the image itself plays an important role in caricature, there is no pretense that it is the only role. But that role is the focus of this study.

A search for individuating attributes also demands respect for the alternative hypothesis, that caricature recognition occurs in spite of, and not because of, the selective transformations wrought by the caricaturist. Perhaps a viewer must become familiar with the distortions caricaturists generally employ, so that he may discount this false evidence. Perhaps the viewer must learn that certain information is generally absent, in order not to be confused by that absence. Perhaps he must learn that caricatures often tell lies in ways not involving exaggeration, such as displaying the wrong number of wrinkles on a forehead. In short, possibly a successful reading of caricatures depends on a sophisticated familiarity with the genre.

The argument will be that this is not true to any great extent. The circumstantial evidence points strongly to this conclusion. However, the gleeful exploration of the caricaturist is not the methodical manipulation of the scientist. Neither is the response of his audience carefully surveyed and quantified. Perfectly rigorous findings must emerge from more engineered circumstances, in which both the drawings presented and the responses of viewers are subject to systematic control and analysis. The present paper will perhaps point directions into such research, and anticipate some of its conclusions.

### AN EXAMPLE

As leader of the United States government, the President seems always to acquire the uncomfortable status of "most caricatured person." When this work began in 1970, cartoons representing President Richard Nixon proved far more available than those of anyone else, and a large collection of these provided the basis for the study. Later on, some tentative generalizations will be made from consideration of this one case; the reader may judge their plausibility for himself. But one point deserves emphasis: this study concerns recognition of very well known faces and hence



concerns highly practiced acts of identification. Results will require at least minor adjustments if applied to recognition of less familiar or just learned faces. The caricaturist is well aware of this difference. Paul Szep, political cartoonist for the *Boston Globe*, has remarked to me that he can exercise much more freedom in his treatment of a very well known face. Less prominent public figures allow less latitude and require more care if the caricaturist's effort is to prompt recognition.

Mapping the relationships between caricature recognition and the recognition of normal faces requires first of all answers to two questions: which attributes of caricatures of the President distinguish them from caricatures of other individuals, and do those attributes represent exaggerated properties of the President's true face? The treatment of the nose is particularly interesting here. Figures 8(a-l) are in most respects typical. First of all, the nose is long, but also quite narrow. Such a shape is remarkably uncommon in caricature in general, the usual "big nose" being much broader at the base, large but not as thin. But the properties of thinness and elongation are common to almost all caricature presentations of President Nixon's nose. There is a further attribute, common again to nearly all caricatures of the President, but also not infrequent in caricature in general: the nose slopes downward from the root.

The swelling toward the tip of this example and the upward curl of the bridge are properties not as persistent as the above, but nevertheless common devices occurring in somewhat better than half of the cartoons examined. A final feature frequent in caricatures of the President is the vertical seam in the tip of the nose.

These observations argue that the treatment of the nose does not merely invoke general conventions like an eye represented by a dotted circle. Rather, several properties of the nose are relatively specific to caricatures of the President. The next section will pursue how important these properties are to recognition. Here, the question remains whether the attributes are simply conventions specific to the President, or whether the caricatures reflect features of the real face. If they do, this supports the interpretation that caricature recognition borrows the normal recognition process.

Figures 9a through 9f present profile, three-quarter, and full-face photographs of the President. The representation-in-caricature of the nose as long and narrow seems amply justified by the profile and three-quarter views. These properties are not as evident in the full face photographs, which instead display the rather broad structure of the nose. More on this later. Most views show that the bottom edge of the nose slopes markedly down toward the lip, a feature common to most of the caricatures investigated. The occasional vertical seam in the tips of caricature noses is evident in Figures 9d, though few of the photos examined were sharp enough to contain this detail. An upward curl is also apparent in the photographs. The bridge of the nose near the eyes is distinctly more vertical than near the tip. Examination of photographs of other men reveals that this is not generally so.

However, the bulb end is dubious as a caricatured feature of the real face. Photographs 9a and 9d offer no signs of such a physiognomic structure. Photographs 9b and 9c might be



Figure 8a —by Haynie



Figure 8b —by Szep



Figure 8c —by Feiffer



Figure 8d —by Feiffer



thought to do so. But this is an illusion, a consequence of the dark nostril denting the profile of the nose. Just the same effect is apparent in photographs of other men with varying types of noses. Whether the bulb end contributes at all to recognition still remains somewhat uncertain. The bulb might express some property other than shape—a fleshy quality for example. But of course, there is no need to account for everything in terms of recognition. Comedy is reason enough in caricature. Such features as the seam, the elongation, the downward slope, the curl, are on the face of it aspects



Figure 8e —by Oliphant



Figure 8f

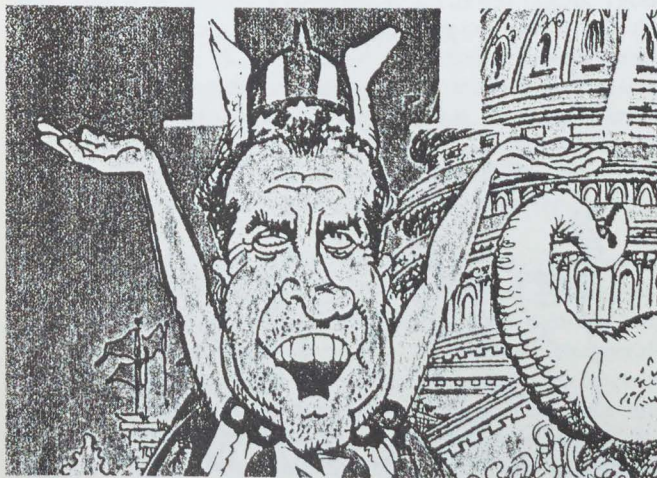


Figure 8g —by Drucker

common to caricature and man. If this is not so of the bulb, or at least not obviously so, then the feature can readily be ascribed to objectives other than recognizability.

Full face caricatures of President Nixon pose an interesting problem for cartoonists. Above, it was remarked that the long nose, a nearly universal feature of the caricatures, was not apparent in the full face photographs. Logically it should not occur in full face caricatures. The natural expectation is that the cartoonist would caricature a view as seen, indicating the wide nose with the tip dipping well below the sides, but sacrificing indication of length. But only one cartoonist to my present knowledge has taken this course, Jules Feiffer (Figure 8c).

What is the alternative? An obvious ploy is for the caricaturist to avoid the full face view, and indeed the full face view proves quite uncommon. But there are other means. Figure 8g displays a caricature that is unquestionably full face except in one respect. The artist, Mort Drucker, has cocked the nose slightly to the right in order to portray its length. Challenging the geometry of the viewpoint, he insists on displaying an attribute he thinks to be important for his caricature.

Feiffer does much the same in reverse. Just as Drucker brings his particular conception of the nose, suggested by three-quarter or profile views, to full face caricature views, so does Feiffer employ his wide nose style in three-quarter caricature views as well as full face. Figure 8d is an example. Thus each artist emphasizes different properties of the nose, and extends this emphasis to viewpoints where, in a photograph, these properties would not be as apparent.

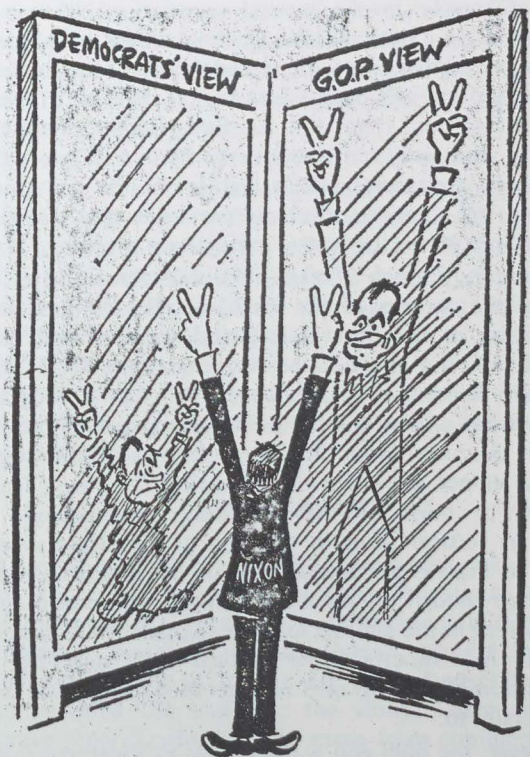


Figure 8h —by Hungerford



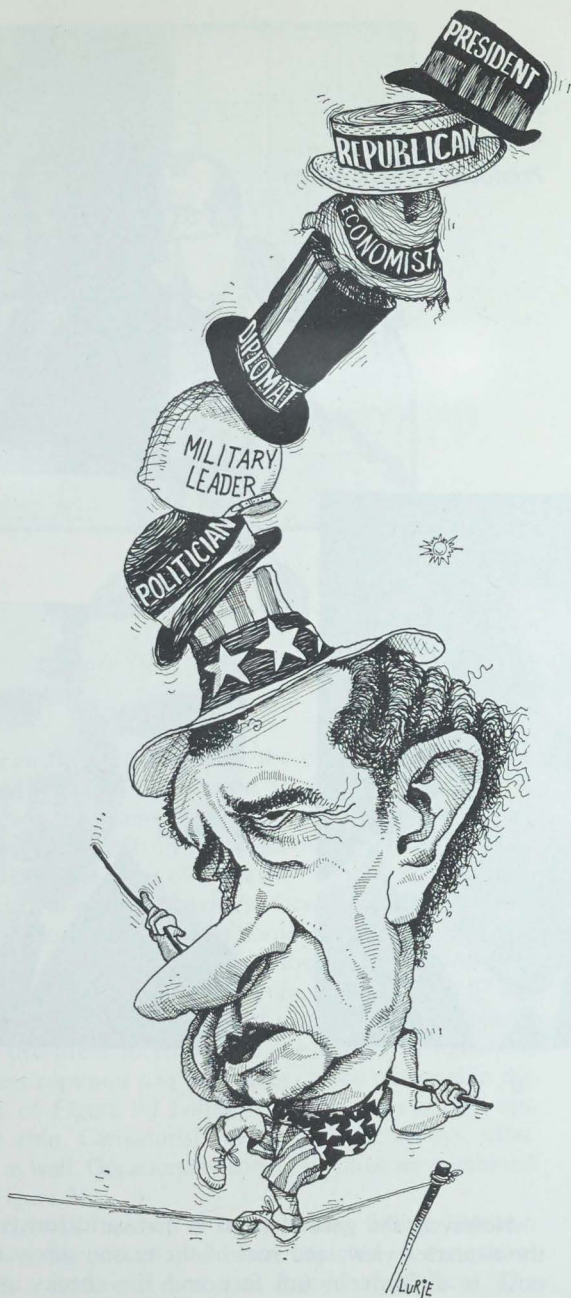


Figure 8i —by Lurie



Figure 8j —by Drucker

Figure 8k —by Szep



Figure 8l —by Herblock



The hairline and hair also appear to contribute to recognition. The photographs present the contour of the hairline clearly. A very distinctive lock runs back along the center of the forehead, a lock surrounded on either side by bays. Viewing photos of other men of similar age reveals that such a hairline contour in this pronounced degree is quite unusual. Almost all cartoonists drawing the President have capitalized on the uniqueness of the hairline by rendering it in their cartoons. A deepening and rounding out of the bays is the most prevalent means of exaggeration. Almost all caricaturists do this. Slightly narrowing the center lock is another common device. Fairly often cartoonists will also represent waves in the hair, glossiness, and highlights (Figure 8a). Indeed properties of the real hair as photographs 9c and 9d illustrate, often are not indicated at all.

Well worth stressing is that the hairline with the nose, or even by itself, seems remarkably distinctive of the President. Caricaturist Haynie offers us in Figure 10a President Nixon clearly recognizable from just the nose up. Concealing either the hair or the nose with a finger gives some idea of the relative importance of the two features, suggesting that the hair, for a single feature, provides the viewer with a considerable amount of distinguishing information.

The modest jowls evident in the photographs are treated by virtually all caricaturists. The jowls, like the nose, are subject not only to accentuation for recognition's sake, but for humor's sake as well. In the popular three-quarter view, the jowls are rendered by indicating the bulge in the profile of the cheek, and, near the mouth, by proper manipulation of the facial creases from the nose to the tip of the mouth and from the tip of the mouth down toward the chin. Sometimes one of these creases is omitted, or the two are combined into one. Essentially the same technique serves in full face views (Figure 8g). The degree of exaggeration varies from the relatively benign Figure 8a, to the utterly grotesque, as in Figures 8e or 8f.

Earlier the awkwardness of portraying the elongate nose in full face caricatures was discussed. Problems of full face versus three-quarter versus profile views arise again with the



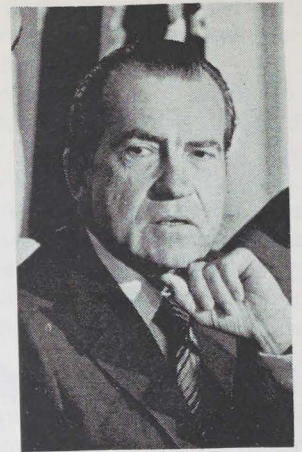


*a*



*b*

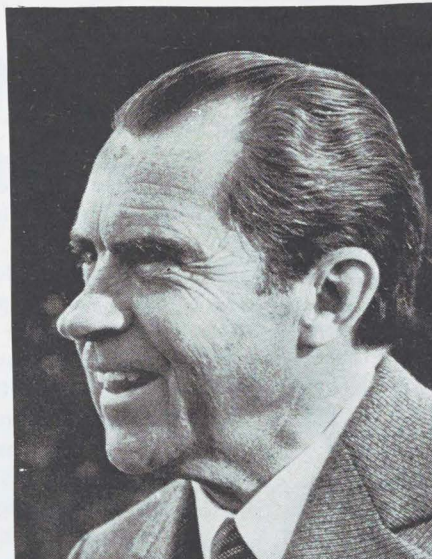
*Figures 9a-f*  
*—Photographs of*  
*President Richard Nixon*



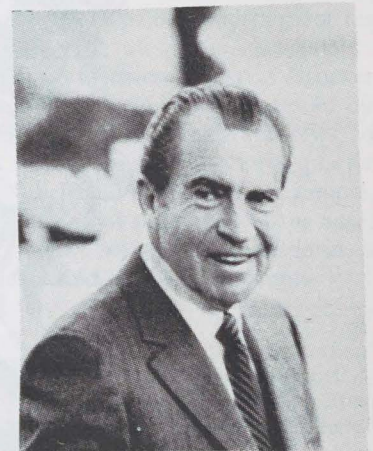
*e*



*c*



*d*



*f*

cheeks. In photographs, neither the full face nor the profile view displays the jowls distinctly. In full face, this situation has dismayed caricaturists not at all. They proceed to employ their normal techniques for the cheeks as mentioned above, ignoring the fact that the jowls are less visible in full face.

The profile photographs, however, suggest difficulties; in these the jowls though visible are apparent largely through shading, a device not so much in the cartoonist's repertoire as is pure line. Near omission (Figure 8j) or extreme exaggeration so that the cheek profile shows (Figure 8k), are two resolutions. Caricaturist Herblock offers a third of particular interest. The lacing of wrinkles apparent in Figure 8l serves to indicate the jowls even in a profile view. These wrinkles are not at all evident features of the real face. In a few of the photographs examined, there was the hint of a single crease dropping from the eye along the side of the cheek. Even in those cases, there was only one. The truth-in-lie nature of caricature was never so bald. These creases, lying as they do about themselves as specific features, nevertheless succeed in conveying the slump of the cheek.

However, the general trend is that caricaturists employ a three-quarter view, and part of the reason surely is that the nose is difficult in full face and the cheeks awkward in profile. Of some 38 caricatures of the President examined for this work, only five were full face or nearly full face, and only six were profile views. Paul Szep has told me that in general a three-quarter likeness is usually easier than one in profile or full face. Rother (1966), in a "how-to-do-it" article promotes the three-quarter view. Berger says that the profile comes easiest—a minority opinion (Berger 1952). At least in examples presented here, advantages of the three-quarter view relate to particular difficulties in representing specific properties of the face.

A further attribute common to almost all caricatures of President Nixon is a "box chin." Figure 8g exemplifies, portraying the tip of the chin as protruding below the basic line of the jaw. The effect is often quite pronounced in the caricatures, so that as in this example, the borders of the box chin become vertical before touching the jawline. A look at the photographs supports the box chin as a property of the



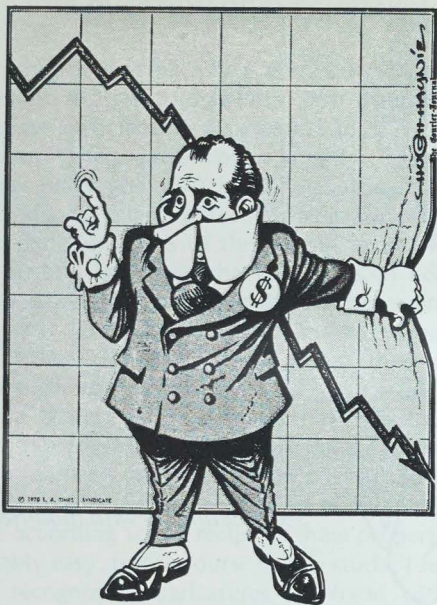


Figure 10 —A partial view

true face. The tip of the chin in the photographic profiles clearly depends below the jawline. In the three-quarter and full-face views, the seams dropping from either side of the mouth, and a slight shift in the angle of the jawline, serve to set off an area in the front of the jaw.

Several attributes of Nixon's face in caricature and in fact have been considered in some detail. Several others deserve brief mention. Prominent in the former President, as in many others, are the creases running from the sides of the nose to the sides of the lips. Caricaturists generally represent these, and use them to emphasize the cheeks as remarked earlier. A less common pair of creases can be observed in the photograph of Figure 9d falling from the sides of the lips toward the chin. Caricaturists often, but not always, offer these lines as well. Occasionally these two lines are combined into one—Figure 8f.

The horizontal crease, or near-crease, falling between Nixon's lower lip and chin is often depicted in caricature; this again is a feature common to many human faces. The cartoonists further generally supply crow's feet and furrows in the forehead. These are rarely apparent in photographs, but are real enough and can be seen in the particularly sharp photograph of Figure 9d. There seems little effort to replicate the exact patterns of these creases.

Further features near the eyes are of interest. The eyebrows are dark, and have a distinctive shape, rising from the middle toward the sides, peaking and then hooking down again. A number of caricaturists represent this contour (see, for example, Figure 8g). But better than half do not, even though it would seem a plausible contribution to recognition—indeed, Rother (1966) claims that the eyebrows are often an especially effective point of identification. Almost all photographs reveal distinct bags under the eyes. Some caricaturists represent these, but just as often not. Again this is somewhat surprising, since this feature like the eyebrows seems *a priori* fully as evident and characteristic as the nose

and perhaps more so than the box chin. Thus there are various potentially distinguishing features of the President's physiognomy that are just as often omitted as used by caricaturists.

## THE QUESTION OF NECESSITY

The four attributes, elongate nose, jowls, contoured hairline, and box chin, occur persistently in caricatures of President Nixon and not in caricatures of others. The features reflect real properties of his face. These observations suggest that the attributes make a genuine contribution to recognition. But a more careful test is in order. In logical terms, to what extent are these attributes necessary for a portrait caricature to be recognized as the former President, and to what extent are they sufficient for a portrait caricature to be so recognized? The first half of this question is the concern just now.

An interesting observation, but not an answer to the question, is that among the professional caricatures examined, having most of the four properties mentioned above is a necessary and sufficient condition for a portrait caricature to be an effort (however successful) at caricaturing President Nixon. This is simply a rephrasing of the fact that all the samples of Nixon caricatures do have most of these properties and no samples of non-Nixon caricatures have most of them. But fundamentally this is a statement about the behavior of the artists. In spite of their habits, perhaps fewer of these attributes would do.

Then what is the effect of eliminating one or all of the four "key" properties from various "good" caricatures of the President? Figure 11 is a sample. There, 11a represents a tracing of the original caricature (Figure 8a). Figure 11b copies the original except that it has been redrawn to alter all four attributes. Further 11c, d, e, and f copy the original except that, respectively, jowls, hairline, box chin, and elongate nose have been redrawn. Clearly the modifying of all four in 11b utterly destroys its recognizability. For a single attribute, absence of jowls in 4c perhaps most degrades the resemblance, and the hairline in 4d the least impairs it. In all cases, there is a marked detriment. Similar manipulations of other caricatures bear out these observations.

Simple absence of one or more of these four properties is not the degrading factor. Recall the success of Figure 10. It is not the invisibility of the key properties, but their replacement by counter-properties that degrades the resemblance by providing inappropriate clues. But some other properties logically just as distinctive (e.g., the eyebrows) may be completely misrepresented with little if any effect on identification.

What is the conclusion about the necessity of these four properties? One might say casually that they—and perhaps others—are "rather necessary" or "mostly necessary." The equivocation is essential. A cartoon may indicate an attribute, contra-indicate it (i.e., indicate something incompatible with it) or give no information about it. If each of the four features is necessary in any sense, the sense is not that each must necessarily be present. Rather, no feature must be contra-indicated.

Of course, even this is too strong. Contra-indication of one or two attributes may leave a substantial resemblance



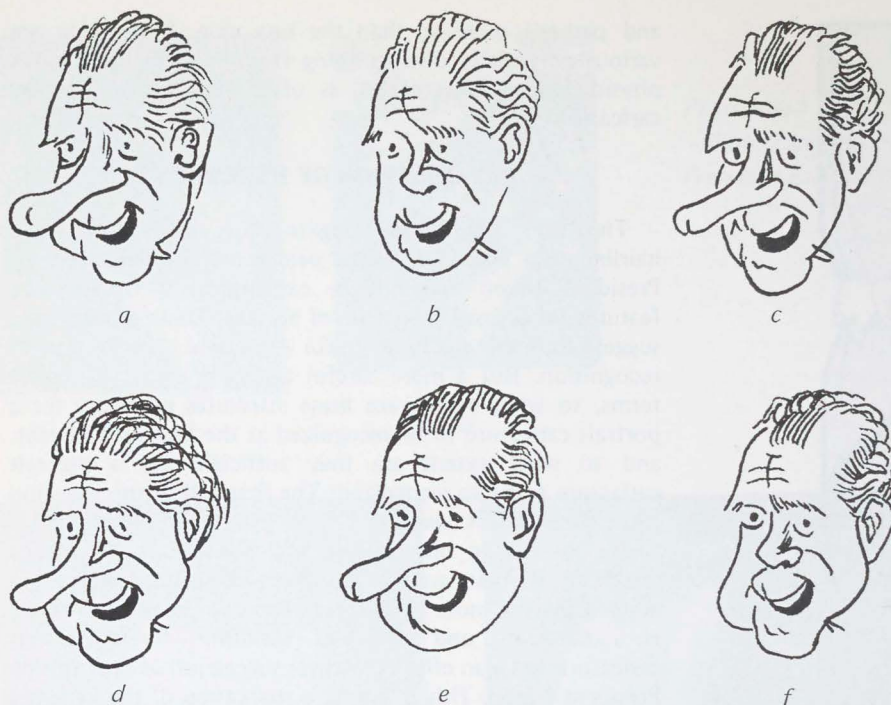


Figure 11  
—Caricature 8a with modified features

and permit recognition. The mechanisms of recognition operate with a certain tolerance for and awareness of contra-indication. The four attributes are “rather necessary” in the sense that contra-indication of any one of them degrades resemblance (and presumably recognition) much more than simple absence, and contra-indication of many of them destroys resemblance and recognition.

The tracings that yielded conclusions about “rather necessary” conditions also point to a definitely unnecessary condition: the exact shape of the caricature. The tracing process inevitably introduces minor metric deviations from the proportions of the original caricature. But the traced caricature remains recognizable, as Figure 11a illustrates. Yet such minor distortion can be significant; the effect on photographs is quite different. Figure 12 displays tracings of

photographs 9c and 9d. The resemblance to the President is slight indeed. Two more considerations complete the point: tracings of large photographs are readily recognizable, and even a freehand copy of a caricature is generally quite recognizable. Then as far as recognition is concerned, the caricature is much less sensitive to minor random metric distortion than the true photograph or presumably the true face. Exact metric proportion is not a critical aspect of a caricature.

This finding should not be surprising. Exaggeration is the central technical device of caricature. The caricaturist pushes the distinguishing trends of a subject's proportions toward extremes. If recognition depends on or is enhanced by these overstated trends, then minor metric variations should not alter the overstatement nor therefore reduce recognition.



Figure 12  
—Tracings of Figures 9c and 9d



## THE QUESTION OF SUFFICIENCY

The exploration of necessary conditions leaves unsettled the matter of sufficient conditions. Are the four attributes stressed above sufficient for a caricature to be recognizable as the President? The point of course would be to list attributes at once necessary and sufficient. For sufficiency alone, all one need do is select a recognizable caricature and to announce that duplicates of this are sufficient. This tells us nothing. Strictly speaking, the bid for both necessity and sufficiency is already lost, since the attributes under discussion are only "rather necessary" in the elaborate sense discussed earlier. However, perhaps at least there is a concept of "rather sufficient" to match.

But the game really is lost. Neither the four key properties, nor these together with various ancillary features mentioned earlier, are sufficient or even approach sufficiency. A convincing demonstration of this is an effort to caricature according to the recipe of these properties. Failure is remarkably easy. In the course of this study, I have learned to make recognizable caricatures of Nixon with fair reliability (Figure 13) but also have learned how easy it is to miss. Figure 14 exhibits a deliberate miss. The evidence is there: jowls, hairline, nose, box chin, and more. But the visage remains unrecognizable. In this case, reasons are not at all elusive. The line of the profile is too concave and the entire head too squat. Thus there are properties "rather necessary" to a caricature of the President not among those already discussed.

Such failures are not the exclusive province of the amateur. There are a number of quite inadequate professional attempts. This emerged in a striking way after much of the analysis reported here had been completed. Searches through periodicals uncovered caricatures which formerly would not have been collected. A deliberate check of their features revealed that they were efforts at caricaturing the President, efforts which had formerly prompted no recognition. A

careful look at the context (captions, White House in the background, etc.) confirmed these judgments. This remarkable circumstance demonstrates once again that the four attributes fall well short of sufficiency. On the positive side, it stresses again how persistent these attributes are, occurring as they do in both successful *and* unsuccessful professional efforts.

Why do these properties fall so far short of sufficiency, and what chances are there for improvement? An examination of less effective caricatures reveals on the one hand definite directions for refinement, and on the other some extreme difficulties. First, the descriptive predicates used are after all rather vague; they allow too much room for variation. For example, jowls which descend too far but bulge little seem to detract. One course therefore is to narrow definitions of the present properties. Second, there are further "rather necessary" conditions inviting specification, as illustrated above. Some caricatures suffer from a head too squat, or a profile too concave or convex. In general, it is often easy to point to a particular aspect of an inadequate caricature and suggest a specific improvement. A tracing of the caricature, with the aspect then appropriately modified, is more effective. But just as often the failing is an enigma. No approaches for improvement occur, or those that do are ineffective when tried.

A more subtle barrier to refining this approach is that the shape predicates used here are framed in words. Words are singularly inadequate for conveying shape information. One would prefer some sort of notation for shape, a notation in terms of which such conditions as "long nose" or "jowls" could be defined in a narrower and more precise sense. But Goodman (1968) gives reason to doubt that such a notation is possible. His analysis stresses that the infinitesimal variation possible in pictures is incompatible with certain formal requirements for a notation. Perhaps for this purpose, something short of a notation in his sense would do. Certainly, a truly elegant theory of caricature recognition (or

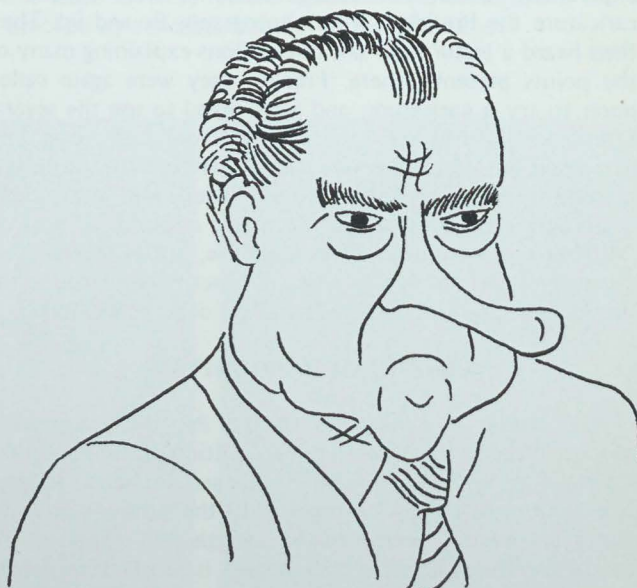


Figure 13 —Caricatures by the author





Figure 14 —A deliberate miss

of recognition in general) would seem to require some language more appropriate than English.

Although the properties discussed offer no certain formula for recognizable caricatures, most professional caricaturists are persistently successful in their renderings of the President. Each artist has developed his own recipe, his own "sufficient" but not "necessary" approach to caricaturing the President. There is a great variation from artist to artist, but the cartoons by the same artist are very much alike; Figure 15 illustrates. It is not difficult to learn to draw caricatures of the President in the manner of the various artists discussed here. Much harder, even with the help of a list of important properties, is to invent a suitable technique of one's own.

In the light of these remarks, the relevance of the four properties to learning to caricature might be questioned. But recall that these properties were found to be "rather necessary"; omitting them assures failure. Neither do beginners usually include them from the first. In a casual experiment, about ten college students were invited to caricature the President from photographs 9c and 9d. They then heard a lecture and saw illustrations explaining many of the points presented here. Finally, they were again called upon to try a caricature, and were urged to use the several properties that had been stressed in the course of the lecture. The result was not, of course, a set of perfect caricatures. But in almost every case the student included in the second important properties he had formerly omitted. Almost all initial efforts were quite unrecognizable, but in several cases the second attempt began to bear distinct resemblance to the President. Figures 16 (before and after) offer an example.

### A MODEL OF RECOGNITION

The study of caricatures of the President suggests a number of generalizations. The recognition of a caricature as representing a particular subject appears to depend in large part upon a few "key" properties of the subject's physiognomy, properties presented in exaggerated form in the caricature. Recognition as that subject is blocked if a few of these key properties are contra-indicated. Some properties weigh more heavily than others in this respect. If not so

Figure 15a —by Zsep



Figure 15b —by Zsep

Figure 15c —by Zsep



Figure 15d —by Oliphant

Figure 15e —by Oliphant





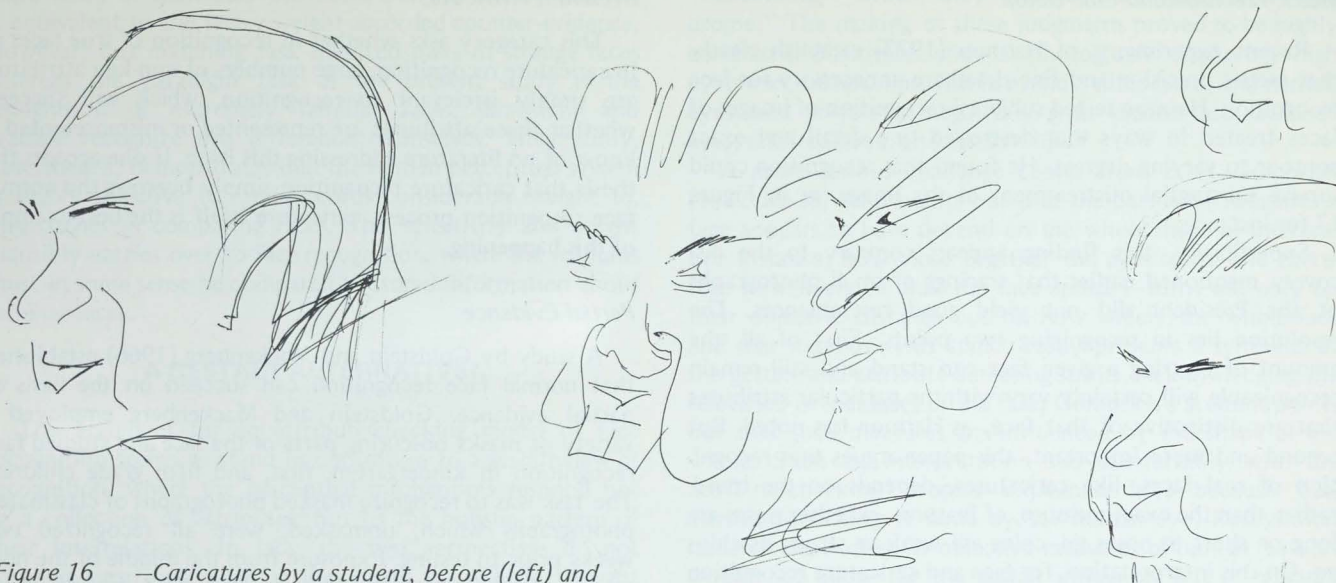


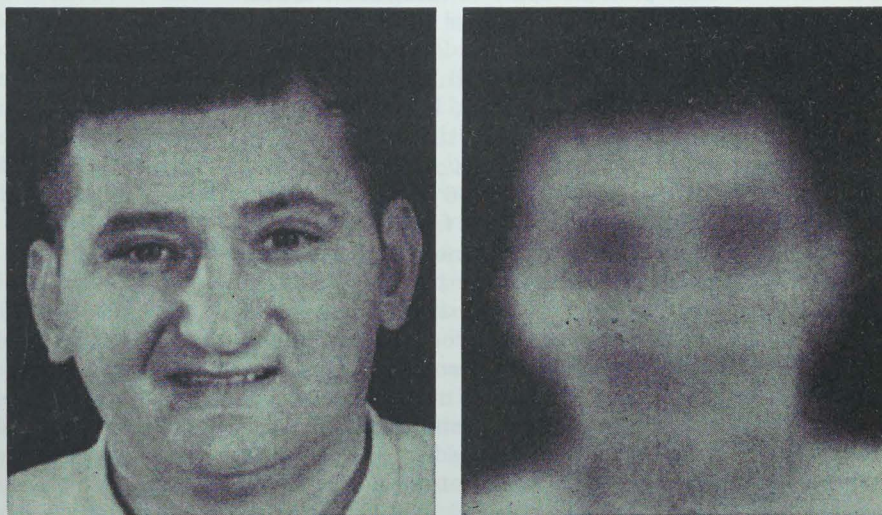
Figure 16 —Caricatures by a student, before (left) and after (right) a lecture on caricatures of the President

blocked, recognition can often take place in spite of the pictured spatial form's divergence from the shape of the subject's face, in spite of the omission of numerous details, in spite of the inclusion of false detail, in spite of concealment of several key properties (as opposed to contra-indication of them), and in spite of the inclusion of properties inconsistent with the viewpoint.

These considerations are reminiscent of identifying an item through a logical conjunction of conditions. Several positive findings may suffice to discriminate that item from other items. But one negative finding suffices to disprove that identification. The same logic appears to underlie the caricature recognition process, a process however which is cautious enough of circumstantial evidence or counter-evidence not to reject an hypothesis on the basis of just one negative finding.

This leaves two questions: whether the same general model of pattern recognition applies to face, as well as to caricature, identification; and further whether the properties caricature and face recognition depend upon are the same. Most broadly, face recognition like caricature recognition can be viewed as a process of checking for certain "key" attributes. To put flesh on that skeleton requires saying something about what kind of attributes. The situation with caricature suggests that in normal face recognition also: (1) precise metric information and fine detail about the face is irrelevant; (2) the key attributes are relatively few; (3) the disposition of non-key attributes, whether presented, concealed, or contra-indicated, is irrelevant to recognition; (4) recognition may take place on the basis of very partial evidence; (5) recognition will be blocked by contra-indication of key attributes.

Figure 17 —The effect of blurring on recognition; pictures blurred as on the right were recognized 85% of the time





Recent experiments of Harmon (1973) establish clearly that metric precision and fine detail are unnecessary for face recognition. Harmon tested subjects' recognition of images of faces treated in ways that destroyed fine detail and exact contour to varying degrees. He found that recognition could survive substantial mistreatment of the image, as in Figure 17 for instance.

Superficially, this finding appears contrary to the discovery mentioned earlier that tracings of small photographs of the President did not yield good resemblances. The resolution lies in recognizing two points. First of all, the amount of blurring a given face can stand and still remain recognizable will certainly vary with the particular attributes that are distinctive of that face, as Harmon has noted. But second and more important, this paper argues that recognition of real faces, like caricatures, depends on the trend, rather than the exact measure, of features—whether noses are long or short as noses go, chins are weak or strong as chins go. On this interpretation, for face and caricature recognition alike, accuracy *per se* would have no value; but inaccuracy to the degree of changing trends would block recognition. Indeed the traced features of the President in Figure 12 do not deliver particularly well three of the four properties isolated: jowls, box chin, and elongated nose.

#### *Few Key Attributes*

This issue presupposes that recognition depends on various measures, accurate or crude, of the face, measures such as nose length, nose angle, eye placement, eyebrow thickness. Obviously one could list an enormous number of dimensions which varied across individuals and logically could be used to differentiate them. But the analysis of caricatures suggests that, there at least, relatively few dimensions suffice. The four attributes identified earlier might break down into ten or so dimensions—the nose might involve length, thickness, and upward curl, for instance. Although the attributes proved insufficient for recognition, their obviously important role suggests they reflect ten or so out of 20 or 30 crucial dimensions, not ten buried among 100. Does the same principle apply to recognition of real faces; are key dimensions for a particular face relatively few in number, say 20 or 30?

The question has not been directly studied, but indirect evidence suggests an affirmative answer. Harmon (1973) in another study found that 21 dimensions sufficed to sort very effectively a population of 256 portraits of white unbearded males without glasses from 20 to 50 years old. Some examples of the dimensions are hair from full to bald, forehead receding—vertical—bulging, nose short—medium—long. Indeed subjects' estimates of the ten measures most prominent or differentiating for a particular photograph served quite reliably to single it out from the population, despite the contamination of frequent errors in estimating. Without speaking directly to the process of reflexive recognition of individuals, the findings demonstrate that relatively few attributes suffice to single an individual out of a large population, and also that such attributes can be perceptually judged.

#### *Irrelevant Attributes*

This category asks whether in recognition of true faces as in caricature recognition, large numbers of non-key attributes are simply irrelevant to recognition, which will succeed whether those attributes are represented or misrepresented. I know of no literature addressing this issue. If one accepts the thesis that caricature recognition simply borrows the normal face recognition process, caricature itself is the best example of this happening.

#### *Partial Evidence*

A study by Goldstein and Mackenberg (1966) established that normal face recognition can succeed on the basis of partial evidence. Goldstein and Mackenberg employed a variety of masks obscuring parts of the face and studied face recognition in kindergarten, first, and fifth grade children. The task was to recognize masked photographs of classmates, photographs which, unmasked, were all recognized two weeks prior to testing. Exposure from the middle of the nose up permitted 95% recognition by the fifth graders. Even exposure from the eyebrows up allowed fifth graders to recognize 70% of the photographs. The stress laid earlier on the hair and the hairline as a cue for recognition receives some support here. Exposure below the center of the nose yielded only about 45% recognition, as did exposure of a horizontal bar-shaped region including the eyes and the bridge of the nose. In summary, it would appear that the face from the eyebrows up offers a great deal of information for recognition; both the muzzle area and the face from the eyebrows to the bridge of nose offer markedly less information and about the same amount, *in isolation*. Recognition evidence from the nose is difficult to assess here, as almost all the masks partly obscured it.

#### *Counter-Evidence*

Some encouragement for the role of counter-evidence in perception of faces comes from a study by Bradshaw and Wallace (1971). They utilized stimulus materials assembled with an Indentikit—a collection of transparent overlays providing a variety of noses, eyes, and other facial features for the compilation of complete faces; the kit is normally used in criminal identification work. Subjects were presented with pairs of faces, the two of each pair sometimes being identical, or sometimes differing by varying numbers of features. Subjects were to report as quickly as possible whether the faces were identical or not. Bradshaw and Wallace found that responses were more rapid the greater the number of differing features. This supports a serial feature-checking analysis of the matching task at the expense of a parallel "gestalt" analysis, where processing time would not decrease with an increase in differing features. In particular, the data best fit the hypothesis that the process was "sequential, self-terminating, without replacement"—meaning that the process was one of sequentially testing for matching features, that it terminated upon finding a discrepancy, and that features once tested were never tested again for that example.

These results are compatible with the view of face recognition proposed here; the serial finding underscores the



importance of individual attributes and the self-termination is equivalent to the heavy weight accorded counter-evidence. However, this matching task involved pairs of strange faces whereas the paradigm task of the present study is the recognition of extremely familiar faces. Bradshaw and Wallace recognize this difference themselves. Their study, nevertheless, demonstrates that the human perceptual system is highly sensitive to, and accords considerable weight to, mismatches in comparing faces. This sensitivity and weight plausibly carries over to face recognition, where the stimulus must in some sense be compared to stored information about familiar faces.

### A GESTALT ALTERNATIVE?

The argument for an attribute-checking model of face recognition seems to stand in opposition to a gestalt view of recognition, where the perceptual mechanisms respond not to a collection of attributes, but to the holistic pattern of their interrelations. In fact, the two perspectives do not compete nearly as much as they seem to. A little thought reveals that the attribute-checking model allows perfectly well for a gestalt interpretation.

First of all, no specific restrictions have been placed on what may count as a key attribute. True, the four properties stressed in the example, jowls, nose, hairline, and box chin, are spatially localized in certain parts of the head and might be called individual features. But this accident of the present analysis does not disallow properties with a more gestalt flavor, properties such as the ratios of distances between the eyes and from eye to mouth, or approximate positions of features in the oval of the head, or the general shape of the head dimensionalized in some manner. Indeed, the contour of the whole seemed to be part of the problem with the "deliberate miss" in Figure 14.

On this interpretation, the attributes, however gestalt-like, still describe the physical shape of the face. But perhaps faces might be encoded in memory and recognized in holistic terms not directly descriptive of shape, in terms of personality for instance. One person might have a spiteful but lazy face, another a visage cloyingly friendly, and so forth. That faces can be encoded reliably in such terms has been demonstrated (Secord 1958; Secord and Muthard 1955; Shoemaker, South, and Lowe 1973). Observers are generally asked to classify the faces presented in terms of a given vocabulary or along dimensions such as sincere-insincere. The classifications are often "objective" within the culture, that is, much the same from judge to judge. However, there is no evidence of correlation between attributed personality and a depicted person's actual personality (Hochberg 1964:105-110).

Such a means of encoding faces may not be especially effective. Yin (1970), in a study where observers tried to describe faces in writing and later match faces to descriptions, found that description of personality did not work well. In any case, far from being contrary to an attribute checking process, readings of personality appear to depend on just the sorts of facial attributes under discussion. For example, Secord and Muthard, in a study of judgments of women's faces, found a frequent clustering of three personality attributions, "conceited," "likes men's attention," and

"demanding," which they termed the "gold-digger syndrome." The making of these judgments proved to be highly correlated positively with a photograph displaying high eyebrows, bowed lips, visible eyelids, tilted head, and narrow eyes, and correlated negatively with square face, widened eyes, untilted head, and straight lips.

A more serious challenge comes from E. H. Gombrich (1972:26-28) who points out that the particular measures a face appears to have depend on the whole shape of the face. For instance, how close together the eyes seem—and therefore how lively or dull the face appears—turns not only on their objective distance but on how widely the whole face and hair extends. This stance really presents a synthesis of the gestalt and attribute-detecting spirits. Acknowledging the relevance of measures of the face, Gombrich's account points out that such measures are influenced by the shape of the whole. Such an interpretation sits comfortably with the attribute-checking process explained here because that attribute-checking is done by the human eye. Recognition research depending on objective measures of human features would not allow for the gestalt influence. But in research such as Harmon's or Secord's, or for instance in the use of an Identikit, the human eye judges the relevant dimensions and gestalt influences come into play automatically.

In summary, no genuine conflict obtains between the gestalt viewpoint and the present description of recognition as a process of checking certain physical attributes of the face. Indeed, the gestalt perspective enriches the concept of how such attributes checking works. This is not to say that differences never emerge between attribute-checking and gestalt theories of recognition, but at least such differences make little trouble for the present argument.

### RESEMBLANCE AND RECOGNITION

The available evidence encourages the position that face and caricature recognition are similar processes, depending on the presence of some among a few key attributes, and on the absence of contra-indications of key attributes. The natural step is to conclude that face recognition employs just those same properties that the caricaturist chooses to emphasize; he selects these in order to borrow the normal recognition process.

An alternative interpretation is that caricatures are conventionalized symbols established by the practice of caricaturists within the culture. Indeed, this occasionally happens. Gombrich (1972:12-13) has cited a case where Hjalmar Schacht, Hitler's financial wizard, gradually became represented solely by a high stiff collar. In general, though, a convention for every person does not allow for recognition in-caricature of individuals one has never before seen caricatured, a common event.

A weaker but more plausible version of the convention theory is that observers have learned—at a reflexive automatic level—what information caricatures generally provide and what they leave out. Normal face recognition would use many more properties than caricatures are careful about. For a naive viewer, those "extra" properties not captured in caricatures would act as counter-evidence, blocking recognition. This suggests an experiment. Would naive viewers, familiar with picturing in general but unfamiliar with



caricatures, fail or succeed in identifying familiar faces from caricatures? Such an experiment has not been done. Even so, my bet is that extended adaptation would not be required. Economy of means in psychological functioning argues that the extra information provided by accurate depictions over caricatures is simply extraneous to the recognition process.

The trouble with this tack is that it seems to imply a discrete, categorical perception of the world. Can it be true that out of the richness of visual information offered the eye we draw only a few trends—long noses versus short, weak chins versus strong. Do we see simply by pigeon-holing? Surely any such stand contradicts our everyday experience with the fineness and subtlety of visual discrimination. Indeed, we know a good deal more about a face than a caricature would offer. For one thing, we do not mistake caricatures for accurate conventional portraits; we can readily point out the exaggerations. Even given a conventional portrait, if we are asked (without the model present) "what do you think of this resemblance," we can sometimes point out subtle divergences—the hair too curly, the forehead a little high, and so forth. From this standpoint, a trend-oriented categorical recognition process seems implausible.

The solution lies in realizing that recognition is one thing and resemblance something else again. Nuances of resemblance are at issue when one already knows the identity of the depicted face, by being told or by recognizing it. Recognition involves a rapid reflexive "look-up" system for identifying faces. Streamlined for function, the system operates with relatively few categorizations which taken together differentiate one person from another quickly and effectively, and without requiring extremely precise scanning of the stimulus. When recognition is achieved, one may then find one has available considerable further information about the face, even information contrary to the stimulus.

Accordingly, we may reflexively recognize a caricature of the President with straight hair, no bags under the eyes, and curved eyebrows, even though we know his hair curls a bit, his eyebrows peak, and his eyes have bags. This is part of our knowledge, but not part of that knowledge used by the look-up system. Likewise, we may discover an old friend on the street, only to realize on second glance that it is someone else; the results of the reflexive look-up are checked against the further knowledge made available by the look-up.

In this context, the paradox of caricature recognition disappears. Though relative to our full perceptual capacities, caricatures are grossly inaccurate in depicting the shapes of their subjects, the look-up subsystem exercises much more generous standards. The caricaturist chooses his exaggeration not to achieve a convincing resemblance, but to trigger the look-up system, perhaps to trigger it even more effectively than the real face. He has the freedom to do this, and to pursue aims such as humor and interpretation of the personality at the same time, exactly because there is so little the look-up system really cares about.



PRESIDENT GERALD R. FORD

## Ford Gives Nightmares To Political Cartoonists

*The writer is a political cartoonist for the Springfield (Mass.) Daily News.*

**By JAMES TRELEASE**

*Newhouse News Service*

Springfield, Mass. — Political cartoonists are going to have trouble with President Ford.

There may be something he as President can do to curb inflation, but there is nothing he can do to curb the cartoonists' growing wrath — short of having his face altered.

He is what we call a "nobody." That is, there is nothing distinguishing about his face. If he robbed a bank the teller would be hard-pressed to come up with a description. Outstanding ears? Nose? Hair? Clothes? Nothing!

### A 'Nightmare'

By comparison with our three previous Presidents, Mr. Ford is a cartoonist's nightmare. If only he had JFK's hair and pinstripe suits, Johnson's ears and cowboy boots, Mr. Nixon's nose and sagging jowls.

For the next six months, the President's every move will

be closely studied by the Soviets, General Motors, the AFL-CIO, congressmen, governors and mayors.

But the most detailed scrutiny will be by the nation's cartoonists, in search of a prop — a Truman homburg, an FDR cigarette holder, an LBJ beagle, a JFK cowlick, a squint, a scowl — anything.

### Fast Aging

There are those who contend that the presidency is such a burden that a President ages five times faster in the Oval Office. But the fastest aging is imposed by the nation's cartoonists, adding a wrinkle here, a crow's foot there, bending a shoulder and jowling a chin—all in search of a caricature.

My guess is that Mr. Ford's balding forehead will loom larger and larger, his eyes will grow baggier, the nose shorter and the upper lip longer and longer.

His smiling face already has proved to be more recognizable than his serious expression. It may, in fact, become his broad toothy trademark. But not until we cartoonists do a lot of work at our work.

*On August 24 Associate Editor Larry Gross brought the following news story from the Philadelphia Bulletin (8/23/74) to my attention. Because of its obvious relation to the preceding paper on caricature, I am taking the liberty of adding it as an extra illustration to the paper by Perkins.—SW*



## NOTE

<sup>1</sup>This research was conducted at Project Zero, of the Harvard Graduate School of Education, operating under National Science Foundation Grant GB-31064 and National Institute of Education Grant G-003-0169. The opinions expressed here do not necessarily reflect the position or policy of the National Institute of Education, and no official endorsement should be inferred.

I thank Howard Gardner and Nelson Goodman for their perceptive comments on an earlier version; Paul Szep, political cartoonist for the *Boston Globe*, for an enlightening interview on the ins and outs of his art; Graham Roupas for several useful conversations; and John Kennedy, who first drew my attention to the problems of caricature.

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## FIGURE CREDITS

- Figure 1 — from caricatures by Levine in *Pens and Needles* (Boston: Gambit, 1969); photograph of Samuel Becket from *Time* (7/26/71).
- Figure 2 — from caricatures reprinted in "The Cartoonist's Armory," E. H. Gombrich, *South Atlantic Quarterly* (spring 1973).
- Figure 3 — from a caricature by James House, Jr., in the *New Yorker*, reprinted in *Caricature of Today*, G. Holme, Ed. (London: The Studio Ltd., 1928).
- Figure 4 — drawings by the author.
- Figure 5 — from caricatures by Fitzpatrick and photograph from "The Cartoonist's Armory," E. H. Gombrich, *South Atlantic Quarterly* (spring 1973).
- Figure 6 — cartoon by Elder in *Inside Mad*, William Gaines (New York: Ballentine Books, 1964).
- Figure 7 — from a caricature by Conrad in the *Los Angeles Times*, reprinted in *Time* (11/9/70).
- Figure 8a — from a caricature by Haynie in the *Louisville Courier-Journal*, reprinted in the *New York Times* (11/11/70).
- Figure 8b — from a caricature by Szep in the *Boston Globe* (2/3/71).
- Figures 8c, d — from caricatures by Feiffer (1970 and 1969, respectively).
- Figure 8e — from a caricature by Oliphant in the *Denver Post*, reprinted in *Time* (12/21/70).
- Figure 8f — from a caricature in the *Toronto Globe and Mail*, reprinted in *Time* (11/2/70).
- Figure 8g — from a caricature by Drucker, *Time* cover (10/26/70).
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- Figure 8j — from a caricature by Drucker in *Time* (6/1/70).
- Figure 8k — from a caricature by Szep in the *Boston Globe* (7/29/71).
- Figure 8l — from a caricature by Herblock in the *Washington Post*, reprinted in *Time* (4/13/70).
- Figures 9a-f — photographs in *Time* (a, 11/?; b, 2/16/70; c, d, 1/18/71; e, 5/25/70; f, 11/23/70).
- Figure 10 — from a caricature by Haynie in the *Louisville Courier-Journal*, reprinted in *Time* (6/1/70).
- Figures 11a-f — tracings of Figure 8a with modifications by the author.
- Figure 12 — tracing of Figures 9c and 9d by the author.
- Figure 13 — drawings by the author.
- Figure 14 — drawings by the author.
- Figures 15a-c — from caricatures by Szep in the *Boston Globe* (a, 2/3/71; b, 7/29/71; c 1/29/71).
- Figures 15d, e — from caricatures by Oliphant in the *Boston Globe* (2/14/71 and 2/21/71, respectively).



Figure 16 — “before and after” drawings by a member of lecture audience.

Figure 17 — from “The Recognition of Faces,” Leon D. Harmon, *Scientific American* (Nov. 1973, pp. 70-82).

## **HANDBOOK for PROXEMIC RESEARCH**

by EDWARD T. HALL

Includes computer programs, illustrations about the placement of cameras and observers, and an extensive bibliography. It is available to members at \$3.00 per copy and to non-members and institutions at \$5.00 per copy. Bookstores, teachers and others wishing to place bulk orders should write to Sol Worth, editor of *Studies*, for special instructions. All others wishing to obtain copies should write directly to SAVICOM.



## TOWARD A RESEARCHABLE FILM LANGUAGE<sup>1</sup>

STEVE FELD  
CARROLL WILLIAMS

In the course of reading and talking about the numerous publications concerning anthropology film, a constant problem has been apparent to us. This is the tendency to confuse various filmic styles and techniques with an anthropological methodology of research film. In order to shift gears considerably and move away from this "cookbook" level of discussion, we have written a paper whose character is principally epistemological and conceptual, rather than methodological and stylistic. The concern of this paper is to facilitate a system of thinking by positing a particular interrelationship of ideas. It is not a radical or visionary exegesis, but a discussion which proceeds from the point at which we now find ourselves, utilizing what "knowns" already exist.

With this in mind, a few short caveats are offered: This is a position paper, an exposition of thinking in progress. It is neither a scholarly review of particular accomplishments nor an attempt to define or delimit a field of work. Hence we have excluded the usual scholarly references. Further, because we are synthesizing considerably and writing to a broad readership, sections of the paper will appear suggestive but substantially lacking to readers of certain orientations. Much background material and detail has been omitted; we encourage correspondence in the pages of this journal regarding such issues that our readers think invite fuller discussion.

\* \* \*

This paper is essentially a discussion of three filmic paradigms: the locked-off camera (LOC), conventional film language (CFL), and researchable film observation (RFO). By three filmic paradigms we mean three distinct process-to-product systems which take in conceptual organization (before filming and editing), image collecting and ordering (editing), and filmic interpretation. The starting point of the paper is the LOC paradigm, currently fashionable as a social science research film methodology.

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*Steve Feld and Carroll Williams are currently researching the epistemology of generating and analyzing social science film, and preparing to shoot extended samples of interaction for a sociolinguistics multiple analysis project. Steve is writing a thesis on filming naturally occurring speech and social interaction; Carroll is director of the Anthropology Film Center in Santa Fe, where he regularly teaches courses in social science film.*

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Our first argument is that a positive association between LOC filming and the generation of reliable research footage is unprincipled. We will show that the LOC paradigm, conceived as a set of working instructions for research filming, is founded on dubious assumptions about the film perception-translation-communication<sup>2</sup> system, human observational process and observable realities, and scientific process generally. In addition, we are concerned that questionable ethics are involved.

In arguing the weaknesses of the LOC paradigm we do not propose that it be substituted by conventional film language. We believe that CFL is artificial and has little to offer the researching filmer.

An alternate paradigm, beyond the event-chopping artificiality of CFL and the naivete of LOC, is discussed. The RFO approach is evaluated as it relates to the other two in terms of the central criterion raised in this paper, that of "maximized researchability."

The thrust of our thesis is that generating researchable film depends on a sophisticated research problem, on maximizing the seeing/hearing potentials of the film technology observation system, and on the translation-communication skills of the researching filmer. Therefore, RFO is not a static process but a creative one, relying on intuitive as well as improvisational skills.

### LOCKED-OFF CAMERA AND CONVENTIONAL FILM LANGUAGE

The concern of this section is a description and a comparison of the LOC and the CFL paradigms. For purposes of graphic comparison, we will use a typical social science filming situation, the psychological interview.

Physically, the LOC apparatus consists of an immobile camera or cameras, fastened in one position to a tripod so that it/they will not tilt or pan (i.e., move vertically or horizontally). The lens is set at a single focal length for a single angle and makes no optical movements ("zooms").

The two essential aspects of this methodology are: (a) the camera is hidden, be it behind a curtain, one-way mirror, or special shooting booth with a peep-hole for the lens. While the subjects may or may not be informed of their being filmed, the camera is obscured from their view; much like the TV "candid camera," it is invisible by its location. And (b) the camera does not have an operator who is introducing human choice or selection into the filming situation beyond selecting the angle, focal length, camera height, f-stop, and sound taking positions. In other words, no new qualifiers are being introduced by the filmer; in fact, the start/stop function of the camera may even be programmed by an intervalometer. The LOC product is an essentially secret record made through time with a constant frame being held by a hidden, non-humanly operated camera.

Human choice is, of course, minimally involved. Frame, angle, and focal length are consciously selected by the researcher in coordination with his needs for a specific data level for his after-the-event film examination. In some scientific work this means an extremely microscopic frame area. In social science filming (and particularly the case of the psychological interview), we are, however, generally speaking of extreme wide angle coverage, showing full figures



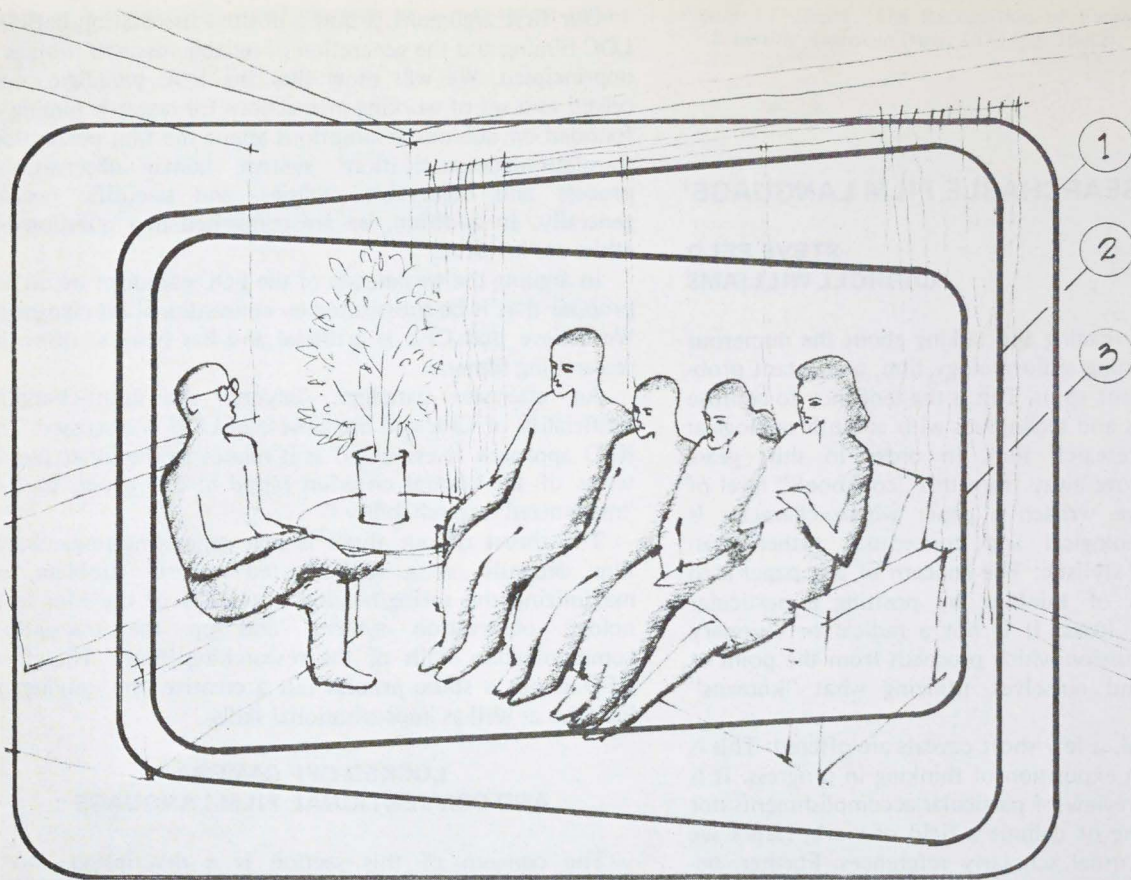


Figure 1

and contexts for all of the participants. See Figure 1 for some typical angles of inclusiveness in such framing.

At this point we shall turn to the assumptions that underly the usage of the locked-off camera. (1) First, it is assumed that the human observational system is inadequate for some chosen observational tasks; that it can't get "all the data all the time." Human memory and sensory inputs are thought to be overloaded by the amount of significant data that exists in a situation; thus, another recording system is imperative. (2) In order to create laboratory-like objective recording, film must be used. Film is thought to be a non-biased recording device capable of adequately imaging "reality" when, and only when, it is conceived and produced not as an "art form" but as a research tool that can perform para-human tasks. (3) Film is also thought in this paradigm to be essential because research requires total data across a total time base. All behavior is assumed to be signal—there is no noise. Therefore, the only way to get the total signal, while at the same time eliminating all human filtering is to film with no compression or expansion of the time base: a one-to-one record.

To further clarify the nature of the LOC paradigm, a comparison with conventional film language will be helpful. First, what do we mean by "conventional film language"? By "conventional" we are referring to the theatrical mode of filmic translation that is definable in terms of the filmmaker's ability to "shoot to cut" (edit) and the audience's

competence to "read" (interpret) the sequence of images. In other words, the acceptable mode of temporal and spatial condensation and ordering of an event, or message about an event, such that, when projected, it will be comprehended easily. By "film language" we will make a limited analogy. Essentially, we are referring to the fact that the formal structuring of filmed units can be described roughly in a way similar to that of the syntactic component of a language. Film images are collected in order to be concatenated in a meaningful way. Two processes are involved: the conjoining of units and the embedding of lower order units within higher order units. The interplay of these factors is what creates recursivity in the structure of film. For instance, a sequence opens with an establishing shot (ES), moves to a medium shot (MS), then to a closeup (CU), to a reverse point of view closeup (CU-R), then back to a medium shot (MS), returning to a fuller establishing shot (ES). Within a skeletal ES to MS to CU to MS to ES format there are infinite possibilities of lower order insertions. Within the segment MS-CU-MS there is a smaller set of possibilities, using extreme closeups (ECU), reverse point of view closeups (CU-R), and cutaways or reaction shots (CW). The point is that there is an already established "film language" which allows the filmmaker, through translation, to break down and reconstruct aspects of an event to construct a communication about the whole event.

With the use of synchronous sound, the time component





Figure 2

of the event may be kept intact while the spatial orientation and point of view is changed or alternated by intercutting two or more camera angles. The collecting of the images and the editing process are governed by rules and conventions of acceptability within genres and codes. Only so much variation in the concatenating of shots can take place before the viewer decides that he is watching some sort of avant-garde film where the filmmaker is "saying something" in an unconventional manner. Such judgments make up a viewer's

film interpretation competence. Similarly, the filmmaker's competence involves knowing how to "shoot to cut," i.e., to collect the images so that their montage will "read" to the viewer as he intends it to and that his idea will be communicated.

To compare this paradigm to the LOC approach described earlier, here is a storyboard illustrating how CFL would "cover" the same psychological interview that the LOC records with the single angle frame (see Figure 2).



In the storyboard we have an eight-shot pattern which gives an idea of how CFL breaks down and then reconstructs the natural flow of the action using various focal lengths, angles, points of view, and spatial orientations. The sequence begins with a wide establishing shot (ES), moves in for a side angle medium frame (MS), to a close up (CU), switches angles and "mirrors" the closeup with its reverse (CU-R), pulls back and reverses angle for another medium frame (MS), goes to the reaction shot cutaway (CW), then to another type of medium shot (MS), and finally back to the establishing shot orientation marker (ES).

A typical CFL approach to interview material is found here in the embedded MS to CU to CU-R to MS-R pattern (numbers 2, 3, 4, and 5 of Figure 2). This is the "ping-pong" effect where camera A gives a medium shot from the side angle, combining profile and full faces. Camera B then intercuts a cross shot CU of the profiled speaker. The reverse angle CU is then ping-ponged using either composition. Then camera B pulls back for the reverse medium shot. The ping-pong closeups within the MS angles can be repeated *ad infinitum*, although in long sequences reaction shots are usually added for various purposes.

It is important to note that we are not only describing a system for shooting to cut hard-matched action shots, i.e., a sequence filmed by two cameras for intercutting the angles. In fact, the MS to CU to CU-R to MS-R sequence and all of its variants can be filmed in a single continuous take, with the moves being made totally by the walking, panning, and zooming of one cameraman. In other words, we are not equating CFL with cameras on tripods. In fact, much of what nowadays is inappropriately labelled as "*cinéma-vérité*" is no more than theatrical CFL without the hard cuts. Many so-called "non-conventional" cameramen are obeying the same "shoot to cut" rules as the two camera storyboard team, even when shooting long uninterrupted takes and moving about freely with lightweight crystal sync handheld equipment.

While many have come to label any piece of grainy, poorly exposed, handheld, shaky-frame, first-take piece of "live" news footage as *cinéma-vérité*, one can see that we are talking of the same filmic structuring that governs daily TV soap operas. The moves, the angles, and the rhythms are equally predictable in either case and, upon close notice, show little deviation from the rules cited above.

Finally, we should note that we have made very general characterizations. Although we have approached film's syntactic structure using linguistic jargon, this is not the place to expound a theory of ciné-semiotics, if such a thing exists. The fact that we are anthropology filmmakers forces us to say that we have deliberately not dealt with cultural differences in film structuring. While we believe this to be an essential question, it is beyond the scope of this preliminary statement. What we have described as CFL, then, is no more than European-American CFL; we do not suggest that there is a pan-human predisposition to structure and organize film sequencing in the same way.

Before continuing with a discussion of film paradigms, other factors regarding the relation of film to research needs and potentials must be pointed out. It is only after these factors have been discussed that we can critically evaluate the utility of the LOC and CFL approaches to film research.

The aim of this section is to discuss research using film, and the researchability of film footage. Basically we will argue that the filming observer must be the human observer who knows and understands the differences and similarities of the filmic and human perception systems. Moreover, maximizing the researchability of footage is dependent upon imagining an event in a way that you look at it, so that you can look at it on film (over and over) and hence do research with it.

First, what do we mean by "research with film"? We mean using film in some way to solve a problem. In this process *film is neither a research method nor a technique—but an epistemology*; it is a design for how to think about and hence create the working conditions for exploring the particular problem involved.

Anything that one collects on film can be researched. In large measure, however, recent examples of social science "research film" appear to be attempts to mimic hard science through linear cause-effect thinking. The researcher/scientist thinks he knows what the film will show because he doesn't believe that the filming process has anything to do with creating the conditions through which he will deal with a chosen problem. Research then becomes a planned closed circuit, oblivious to the levels of information the filmer and filming situation are or are not adding, and much less aware of what film's potential role might be. Film is thus seen as a research recording tool which makes a record of something you already know, and already know how to study. It is no more than a black box whose product is available for research.

This is far different from our conception of researchable film. For us, researchable film means maximizing the research potentials of a problem, in terms of both its "knowns" and "unknowns" by using the film observation/translation process as a creative input related to the research design. For a film to be researchable one must be able to look at it; being able to look at it means being able to see in it what was seen in the event itself by the researcher. By researchability, we mean observation as seen through the camera, primed by how the skilled observer would see the event without the camera.

The first set of skills in this process involve indepth training in the research area. The ability to generate sophisticated research is the result of a long period of orientation, awareness, sensitivity, and sharpened intuitions in the chosen discipline.

The second set of skills requires the acquisition of justified self-confidence in handling motion picture technology. Only at this point can one integrate the capabilities of film with the needs of research design. Learning film translation skills explicitly means learning CFL as a baseline competence system, and LOC as an alternative to it. In order to film the way you want, you must know what kind of film you don't want.

The skill family that links these first two involves perception, specifically, the different workings of the eye-seeing and the camera-seeing systems. What pulls it all together for maximizing researchability is the filmer's understanding of



how to use film-seeing to translate what the human seeing system is responding to in the observation process.

The eye sees with one focal length, optically similar to a 25mm lens on a 16mm cine camera. The camera lens, on the other hand, can exist in a variety of focal lengths, either fixed ("prime" lenses) or variable ("zoom" lenses). The eye resolves data at a higher level than any camera lens system and has a single point of sharp focus. Simultaneously the eye is always receiving soft focus inputs. The camera lens images an entire frame in sharp focus, whatever the lens system. The area of peripheral data that can be taken in by the camera is always less than the peripheral input of the eye, although the camera's resolution of the area is much higher.

The eye's ratio of sharp to soft focus is a product of the shifting signal-to-noise sorting process in the brain. The eye is coupled to a variable focal length brain, while the camera has no autonomous brain attachment. Four examples can clarify the differences: (1) The brain allows the eye to shift to wide angle viewing, lowering sharp focus, so that an increased level of coding of all input can occur. (2) Conversely, the brain allows the eyes to shift to sharp focus on another (possibly high level) signal, reducing the level of every other input. Two other possibilities are illustrated by an interaction triad: (3) When person A shifts from sharp focus in the area of person B to sharp focus in the area of person C and then back to sharp focus in the area of person B, often (depending on the spatial situation of the triad) person A still has input from the peripheral soft focus vision of person B. Or (4), persons A and B are interacting and conducting appropriate eye contact, but person A is really perceiving and interpreting person C. All four of these situations (and obviously many more) are beyond the capabilities of any lens system hooked into a brainless camera.

In actual experience, there are choices of point of focus, intensity of focus, rate of focus shifts, and attention paid to soft focus. On the screen, choice is far more limited. Soft focus peripheral vision cannot be produced by an optical camera system; screen focus is all sharp, usually the result of the cameraman preadjusting for hyperfocal distance. In film, the frame is present, the movements you see are not your own, and the lack of frame movement is also uncontrollable. The lens system must adjust for framing; the eye adjusts only to create a sensing system pathway.

The eye has an incredible ability to move in and out of space very rapidly. Initially, the eye's search pattern establishes context, marking the parameters of the space it is in. Further search clarifies this immediate instant marking system. Then a more semi-randomized pattern sets in, with the eye triggering on the signal to noise flow in the event. As a result of this process, the search settles into rhythmic patterns. This does not amount to a stringing together of the different "holds" and "moves" the eyes make; rather, it is a rapid sorting process.

The camera lens system cannot replicate the search pattern of the eye or reproduce *in extenso* the exact signal-to-noise ratio the eyes triggered on. And the camera lens cannot search at the rate the eye searches, shifting soft to sharp focus ratios instantly. This is why it is possible to sit in a chair and observe an action from one place, but impossible to shoot a film of the same observation from the same single sitting position. The camera must move flexibly in order to

maintain the framing that includes the information that the eye is triggering on.

Up to this point we have spoken as if the image were the entire film. It should be clear that everything said about collecting visual information applies equally to auditory information. Microphones and our ears exhibit differences of the same order as camera lenses and our eyes. This is why it is imperative that the soundman understand the relation between acoustic energy and space. Otherwise, it is impossible to record sound with both the spatial and the psychological dimensionality that matches the image.

A final aspect of these sensing systems remarks concerns scale and the process of after-the-fact viewing. Viewing a piece of 16mm film on the screen is different than viewing it on a Moviola picture head. (Think of the experience of seeing the same film in a theatre and then on TV; the difference is not just one of resolution.) Both the relation of the size of the filmer to the size of the subjects, and the height of the angle to the size of the shots, involves framing the image so that the distance of the film watcher to the viewing surface can be interpreted appropriately.

We have shown that the differences between the human eye and the camera lens system critically affect the way one can see an event with and without the camera. Moreover, the experience of watching the event on the screen is different from either that of observing the event with the naked eye or observing it through the viewfinder. We have obviously left out numerous often-made trait list differences between film and the eye; e.g., the latitude of film's sensitivity to light, shadow, and color as compared with the eye, and the inability of film to handle high contrast ratios, low light levels, and so forth. We conclude that an awareness of the limitations and potentials of film in relation to the naked eye are crucial skills for the research filmer.

We know that *film cannot replicate what we see with our eyes*; film is not real. Yet it is capable of recording what some of our sensory systems trigger on in the observational process. Researchability, then, means thorough usage of the existing human sensing-measuring systems, conscious awareness of the ongoing sensing process, and the ability to translate this in the way film is able to see. The researchable film, as an image of what was seen in the event, is not a collection of *a priori* knowns, but is deliberately instrumental in the discovery process of revealing significant unknowns.

At this point we will turn to a third film paradigm, what we call researchable film observation. We believe that RFO is a non-black box way to use film in the research process, a way to use film to see. In the next section we will outline why RFO is a more principled research paradigm than CFL or LOC.

## TOWARD RESEARCHABLE FILM OBSERVATION

In order to explicate RFO, we will first turn to an evaluation of the LOC and CFL approaches. Our discussion is framed in terms of the notion of researchability previously presented. Our principal remarks are directed to the comparison of the LOC and RFO paradigms, in that LOC is explicitly conceptualized as the research alternative to CFL.

The first level for reviewing LOC filming concerns the fallacies of its underlying assumptions. One assumption is the



inadequacy of the human observational apparatus. This is methodologically hopeless. Despite the degree to which one considers our sensing systems as limited, they are the best and only measuring tools we have. One can use film in a way that allows the footage to reflect our own measuring systems, rather than operate on the pretense, as LOC does, that film is independent of them.

The human perception system, with its selectivities and biases, is far superior to any attempt to eliminate it through brainless instruments. What and how we see is more important than what and how we don't see. When you opt for LOC, you opt for a way that you cannot possibly see. Hence, the LOC reduces rather than enhances the importance of human observational skills. Starting with the inadequacy of the sensing systems, rather than with their potentials, is giving up before you begin.

A second assumption is the idea that film is a non-biased recording device, capable of adequately imaging reality for research purposes. This is equally ludicrous. By its very light-optical-chemical-mechanical-acoustical-electrical-electronic nature, film has its own peculiar limitations of selectivities and biases. But again, it is the human process that is crucial. Bias (stripped of its usual negative connotations) results from what the filmmaker does with the technology.

Cameras do not "tell the truth." With a lens system that makes an image optically reduced in size and that projects it onto a material with a limited sensitivity to light, shadow, and color at a chosen and fixed frame rate per second, the reality of film is only a function of the physiology of the eye. Remembering that film transport systems (both camera and projector) are collecting/displaying still image samples of the event, there is thus no data collected/displayed during transport (holes).

A third assumption is that the full frame is necessary in order to get total data on the film; all events are signal and there is no noise, and the full frame eliminates human filters. Again, these notions are unfounded. Total data is not definable by a framing system or pattern in any *a priori* sense; it is only a function of the research problem at hand. The idea that the widest frame equals the most data is based on the idea that the wide frame is the closest approximation of human peripheral vision. This, too, is naive. There may be instances where a wide frame is the right one for the data being filmed, yet in terms of significance, the unquestioned assumption of the utility of locking-off the wide frame tends to minimize rather than maximize data. This is because of the optical resolution in the frame, the inability of the eye to resolve both the central and peripheral in sharp focus simultaneously, and the fact that we do not have single freeze-frame brains. Blocking out the actual experiential quality of event perception is not a way to maximize the data level of film for research.

The approach to behavior as "all signal, no noise" is an oversimplification. All behaviors may have significance imputed or attributed to them, and it is obviously important to understand the patterns in which behaviors co-occur (X is happening while Y is happening while Z is happening). But it is untrue that everything that happens is always significant. Significance is social; it does not derive from the *a posteriori* categories of the researcher as he attempts to explain what is in the film. Meaning is the result of cultural and social as-

sumptions, conventions, and strategies that human beings bring with them into interactional settings.

Clearly, insignificant information may be imaged in the film frame. In addition, information outside of the frame may be contributing noise to the event itself. By their nature, cameras image less noise and microphones collect more noise than the interactants themselves actually experience. Film cannot show where people's heads are at when they enter a situation. But it can respond to the immediate signal-to-noise stream that the interactants create. A filmic approach that seeks to be researchable starts from the human observational base, understanding the signal-to-noise flow in the event, and translating this to a high signal, low noise film.

Whatever the signal-to-noise ratio of the actual event, LOC filming cannot give an "all signal, no noise" picture of what is happening. A non-moving, non-responding camera cannot shift with the constantly shifting signal-to-noise ratio of the event being filmed. Only the flexible camera, operated by the observer whose intuitions and response patterns are locking-in to the signal-to-noise ratio of the event itself can produce a researchable film.

A final aspect of this last assumption involves the desirability (assuming the possibility) of eliminating human filters. This appears absurd. All experience is filtered in some way; the idea of filtering as a negative bias is naive here. The camera itself is a filter; it interacts with the human observational filtering of the event. Filters can be used to advantage in research. This is why it is essential that the researcher, who has been trained in the observation of his subject, is also the filmer. The idea that filters—cognitive or technological—can be eliminated is the idea that it is desirable to generate footage with no point of view. To the contrary, we believe that research using any footage is a function of filtering through the observational training and sophistication of the filmer.

We have indicated that the underlying assumptions of the LOC approach are unjustified. In addition, we wish to point out that the issue of "objectivity" has been falsely construed here. When compared to the arbitrariness of CFL, LOC may appear a more realistic and more objective approach to film for research. Yet, when one considers that the baseline of the LOC paradigm is the attempt to eliminate human perception, human creativity, human understanding, and human filtering from the data gathering process, we are left with the fact that LOC shooting hardly heightens objectivity. Rather, LOC is a reflection of the idea that the camera can be a robot and perform independently of human volition.

Moreover, LOC is less objective, in that it actually increases the possibility of lost data. In the realm of knowns, this includes fine-grain motion level cues and the general resolution of micro-data. In the realm of unknowns, numerous meta-communicational information can be lost.

Although LOC fashions itself as scientific filming, its mechanical working instruction approach to methodology has little in common with science. Science is not an accumulation of meter readings and formulae, for methodology depends heavily upon chance, creativity, and guesswork, as well as the sharpened intuitions of the researcher. Thus, in reducing the potential of film to a non-seeing, non-translation black box approach, the only scientific reliability of LOC might be in filming a wax museum!



We believe, moreover, that there are ethical as well as epistemological objections to LOC filming. Invoking science as a justification for stealing footage is antithetical to a humane approach to research. Attempts to justify LOC filming based on the idea that the camera's presence is disruptive are also untenable. Whatever the methodology, every researcher must deal with rapport problems that arise; cameras are not a special exception. We do not believe that the camera's presence ruins data; on the contrary, the skilled film researcher should be able to catalyze the event as it is being filmed. Filming involves human contact and human sensitivities in the process of interaction. Part of the research filmer's skills involve his ability to maintain rapport while the camera is in his hands. Hiding the camera is a denial of the need for an appropriate relationship between those who film and those who are filmed. If the "live" filming process alters behavior significantly—and we don't believe it does—we would prefer to deal directly with possible behavior alteration as a film research problem, rather than to resort to hidden cameras.

One might object that the preceding discussion is loaded; that there are instances where those being filmed are informed that they will be secretly observed and recorded. We do not see this as a more successful way to get unbiased or unacted footage. Peep-holes inspire no kind of confidence at all, whether or not the subjects are informed that they are on camera.

It is clear that LOC is neither a seeing film language nor a principled methodology (much less epistemology) for doing research with film. Hence we do not see it as a viable alternative to CFL. At the same time, we would not argue that CFL presents an alternative to LOC.

As noted, CFL is based on principles of artificial spatial and temporal condensation which inhibit researchability. The selectivity of CFL is derived only minimally from the structure of the event itself; for the most part, its structure comes from the traditional "shoot to cut" or narrative and causal rules of our culture which insure angular, temporal, and matched action continuity.

Even when CFL is framed within a *cinéma-vérité* shooting style involving first takes of non-staged actions, the constant zooming, emphasis on the verbal, and restructuring of the event for storyline reportage and statement-making mitigates against the research use of the footage. What is absent in *cinéma-vérité* filming is an explicit comprehension and translation of the event as internally structured, and the presence of the researcher-cameraman, whose unique skills result in a unique imaging of the event. Thus we propose that beyond the naivete of LOC and the arbitrary restructuring of CFL lies another approach—researchable film observation.

Researchable film observation is the generation of footage that shows the filmer's through-the-camera experience of the event. RFO shows how a researcher within a specific research context chose to see an event as it happened. The crucial argument here is that what we *do* see, not what we never see, is what should be on the film in order to maximize its researchability.

For us, RFO is a new film "language." It begins with two axioms: the structured integrity of entire events and the epistemological bases of the human observational process. Hence, RFO has no need to artificially present images either

through the non-seeing of LOC or the reconstructed rhythms of CFL. Filmically, this may result in long uninterrupted takes of the ongoing flow of interaction, angle and focal length changes justified by the triggering pattern of human response and intuition in relation to the structure of the event, and handheld crystal sync shooting for optimum flexibility and optimum interaction between the filmer and his subjects. This simplification of technological procedures likens RFO to *cinéma-direct*. It differs in that the person behind the camera is not making a film-statement but is a researcher with a specific research problem<sup>3</sup> in mind.

The new film language of RFO means reducing the distinction between footage and finished film. The product of RFO shooting is a record of human experience and interaction in a particular cultural and research context. Some might insist that this is "mere" footage because it lacks titles, credits, background music, storyline, and so forth. Our thinking is that such criteria have nothing to do with whether the product is a presentable film communication about how someone chooses to see something. When filmmakers and filmviewers become competent in looking at how film—and filmmakers—can see the structured integrity of events, there will be no difference between footage and films; a non-theatrical film language will then emerge, bringing the acts of filming, observing, and participating together into a unified activity.

RFO has nothing to do with "pretty pictures" (even when one is filming a beautiful event) or "making movies" to illustrate verbal concepts. It has nothing to do with making visual books or teaching devices, although the latter may be a secondary usage. It has to do with research. Research means questions, problems, thinking designs, discovery patterns, creative and intuitive probing. With film, research means exploring the seeing process, sharpening filmic observation through sharpened human observation.

Researchable film observation is a reduction of the event-to-film translation process such that the film moves closer to (cognitively) the actual event itself. In doing so, it is the integrity of the event, its wholeness, and its own structure (not the film's restructuring) that is communicated. It is such a perception of the event that makes it researchable.

Much of the potential of RFO is based on comprehending film as a translation process; only then can one appreciate the importance of a reduction of translation steps from the initially perceived world of events (without the camera) to the recoded world organized on film. RFO is not an explication of an event or the event itself, but a translation of the event. This goes back to the distinction that must be made between phenomena and the units of pattern that are used in both their description and explication. An explicit assumption of RFO is thus that human sensing is the only justifiable starting point for film translation. The premises are: there is no such thing as "raw data"; all retrievable data are non-neutral translations, descriptions, or memories of what once happened in time and space. Meaning in the event is first experienced and understood as direct feeling. As a directly experienced event is filmed, the filmer is continually adding and re-combining impressions so that in the next instant, new aspects of further experiencing can be collected in the process of filming.

Thus, RFO makes three distinct contributions to the re-



duction of the translation process: (1) More of the initial intuitive meaning of the event observation is present in the film. (2) The human/film observation process opens itself up to more possible clues, intuitions, and circumstances—a flexibility based on what is alive in the world of directly experienced meaning in action. (3) Biases can now be seen more clearly, as more of the epistemic bases of the selection and collection process can be directly grasped. In sum, RFO is expressive of the fundamentally adaptive and self-correcting nature of human processing.

We emphasize that we are not talking about a film shooting style that exists independently of the events to be filmed. It is relatively easy to copy a shooting style without knowing the motivation for the choices made. Yet, this does not make the product researchable. The camera and cameraman can be moving extensively or little at all. The takes may be short or long shot sequences. In some cases, the frame may remain constant for a long time; in others, it may shift frequently. The filmer must know how to see the event in order to show, with film, how the event can be seen. The exact nature of the shooting strategy is in large part a function of the context—both social and scientific—and the content flow of the event.

There is no one way to do it and there are no rigid discovery procedures. The skills include improvisation, luck, intuition, excellent reflexes, and an acute understanding of researchability, methodology, and epistemology. Researchable film observation is a new film language, but its purpose is not to create new film language clichés. Rather, it aims to expand the research potential of film through a new understanding of the relation of human observational sensing to film observational sensing.

We see RFO as a humanistic and creative endeavor which explicitly recognizes that human filtering is essential. RFO is a record of human contacts. Its purpose is to maximize researchability so that there is in no way an attempt to condemn the product to archives or to a limited audience of specialists.

### CONCLUSION

As filmmakers and audience participants we have generated and watched competent and successful CFL, and have

observed several varieties of CFL produced by colleagues. Both our personal work and our observations lead us to believe that neither current CFL nor trends in stylistic refinement will lead to researchable film.

In addition, we think, more firmly than ever, that LOC is not a researchable alternative. The epistemological grounds upon which we have criticized LOC are essentially those upon which the critique of all behavioral scientism rest; both derive from an ideology desirous of separating scientific activity from human experience. The aim is objective detachment. A basic feature of the RFO paradigm, by opposition, is the desire to re-center analysis in experience, promoting a continuity of the existential and objective. The scientific LOC indifference to the conditions of knowing are thus transcended in RFO.

We see RFO as an alternative because it is not a program of "how to do it" but a way of thinking about the variables to be dealt with in order to do research with film. The most crucial input to this new language system is the kind of seeing that the multi-disciplined trained observer can do. He knows how to collect images on film to make it researchable, and is trained to do it. RFO is a way of looking with film that does not conform to conventions imposed from without the research context but responds to structure and experience from within it. As such, it is both an essential input to research thinking, and a truly exciting new kind of observation-participation, embracing the communicational and meta-communicational potentials of human interaction.

### NOTES

<sup>1</sup>We wish to thank John Collier, Jr., Ardis Gaither, Jim McDonald, Buck Schieffelin, and Marge Zabor for detailed critiques of an earlier draft.

<sup>2</sup>By "translation" we mean the putting-into-code of messages; when we speak of film as a translation medium we are referring to the use of culturally organized sets of methods for structuring images.

<sup>3</sup>Our emphasis on the importance of a research problem is not an insistence that filming be programmed. We recognize the value of digressive filming within the general framework of a specific research problem.



## ART AS A STRUCTURAL SYSTEM: A STUDY OF HOPI POTTERY DESIGNS<sup>1</sup>

LAURA J. GREENBERG

### WORKING HYPOTHESES: THE RESEARCHER

It is Arnheim's (1966) working hypothesis that art reflects not one but two processes of abstraction, namely: (1) the abstraction entailed in visual perception which requires that one order and classify in order to perceive, and (2) the abstraction entailed in devising any visual representations ("realistic" or otherwise). Thus:

There is no direct transformation of experience into form, but rather a search for equivalents [Arnheim 1966:266].

Also, perhaps, in the realm of "working hypothesis" is the Sapir-Whorf Hypothesis, which speculates on the nature of the relationship between language and thought. Although the specific formulations of this hypothesis vary (Whorf 1940, 1941; Sapir 1929:209), there is a general connection posited between a language's lexation and grammatical structure, and the content of thought. In other words, one's linguistic categories and discriminations presumably influence what one will in fact think, and vice versa.

This paper ultimately derives from my interest in the relationship between these two working hypotheses. Although one evolved in the discipline of linguistics and the other in the context of the psychology of art, they seemed to contain possible congruences. In particular, I was interested in the possible implications of each for the other. It seemed that if Whorf were correct about language affecting the way people classify and order reality, and if Arnheim were right about perception necessarily entailing classification and ordering of "visual" reality, then there ought to be the equivalent of a visual Whorf hypothesis. That is, if perception entails active classification and ordering, and if classifications (lexicon) and rules of ordering (as evidenced in grammatical structure) vary from culture to culture, then one would expect visual perceptions to vary cross-culturally in some patterned way as well. Further, it would be logical to expect

that visual discriminations and categories would influence (and be influenced by) art and other "expressive" visual systems (e.g., architectural systems) or systems of spatial terminology, and by language. Secondly, the methodology of linguistics, which so elegantly arrives at system by the ordered and "scientific" study of variation, seemed to have the potential for elucidating these visual systems.

I devised a specific project which attempted to examine and/or verify the above hypothesized connections, choosing the Hopi as a case study, and basing my methodology on linguistic methodology (with some necessary modifications). My choice of the Hopi, specifically Hopi pottery designs, had been motivated by two considerations: (1) that the art system or corpus be relatively abstract or non-representative (thus minimizing semantic meaning as a consideration and maximizing "visual" considerations), and (2) that the people have a relatively well-integrated, coherent, and self-contained philosophy and social structure. As a logical first step in constructing the total design system, I proposed isolating what I called "visual phonemes" in Hopi pottery designs (a term derived from the "new archeologists").

Art is, no doubt, a "language"; however, I realized that the linguistic analogy is a difficult one to translate into visual terms. For one thing, language is, by necessity, a more conventionalized system than art. And for another, whereas the given in linguistics is that humans are physiologically capable of producing only a finite number of mono-syllabic sounds which can be taken as the basic components of any language, such obvious and discrete units are not inherent in the visual realm. And yet, I thought that these and other obstacles could be circumvented by the careful construction of a series of test drawings (based on patterned variations of actual Hopi designs), which could then be used to determine "significant variation" and thus to isolate visual phonemes.

Aside from certain pragmatic considerations, such as having no Hopi contacts when I arrived in Arizona, two factors ultimately caused me to abandon my search for visual phonemes and to reconsider my theoretical model. The first was that it became disconcertingly and progressively more apparent, the more I read and the more I saw of Hopi designs, that my model (which was based on the primacy of units or elements) was antithetical to the nature of Hopi art and to Hopi culture as well (which stresses the primacy of the total). This is, incidentally, an important point, and one which will be further developed in the body of this paper.

The second mitigating factor evolved as I abandoned my quest for visual phonemes, and set about examining the pots in the Museum of Northern Arizona in an effort to study actual variation in pottery designs. As I studied the designs I photographed them as a way of recording them, and in addition, I often drew them. In drawing them, a certain logic or conceptual order began to emerge in what had previously appeared to be fairly chaotic designs. In order to reproduce a design, it is necessary to actively perceive it, i.e., to either discern or create spatial relationships and order in the design, such that it can be recreated. (Reproducing from memory alone would require an even more exacting perception). Thus, it was not surprising that the designs became clearer as I drew them. What was more surprising was that the order in most cases was actually quite simple; it had eluded me so entirely before I was forced to search it out, only because it

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followed different tendencies than those I was used to. For example, although I would have been aware of the symmetry of a bilaterally symmetric design at first glance, I was at first totally oblivious of designs which possessed other sorts of symmetries, such as rotational symmetry. What was most important was that as I drew I began to discern certain structural similarities between designs which had previously seemed to have not a single thing in common. The fact that these previously confusing designs could all be made comprehensible by the *same* ordering principles suggested that these principles were not totally arbitrary, but perhaps represented a valid structure. All of which suggested the use of a structural model.

Structural analysis seemed an appropriate solution to my problems if for no other reason than because structural linguistics, which Lévi-Strauss (1967:32) credits as the inspiration for his own structuralist approach, entailed a similar shift from analysis of terms to analysis of relationships between terms. This shift, plus the shift in emphasis from conscious phenomena to unconscious infrastructure, the discovery of general laws, and the search for system (Lévi-Strauss 1967:31) seemed relevant to the patterns I was discovering in Hopi designs.

In addition, that aspect of Lévi-Strauss' thinking which surfaced in *The Savage Mind* (1966) seemed potentially compatible with part (and only part)<sup>2</sup> of Arnheim's visual model; there is no direct transformation of experience into form, but rather a search for equivalents. Taken together, they suggest an interesting framework.

It would seem that the tendency to order and structure would be a basic cognitive process which is used by man to apprehend his universe, and that art could be thought of as an external form of this internal process. As such, it would seem useful to analyze an art system in terms of structure. In particular, "the search for equivalents" might be structural, i.e., there might be structural symbolism. This seemed especially likely given the susceptibility of structural relationships to visual or "schematic" representation.

In *The Savage Mind* (1966), Lévi-Strauss examines the organization of totemic systems, and classifications of the biological world. These are significant, not in what each category includes, but rather in terms of the total system (and the types of discriminations which are thereby made visible). And similarly, in *The Elementary Structures of Kinship* (1969), he again expresses interest not so much in the individual kinship categories *per se*, but rather in the total systems which are thereby elucidated, and (most importantly) in the implied structure of those systems.

In analyzing Hopi designs, I have attempted a structural analysis—the visual corollary of a structural linguistic analysis. How are a specific set of Hopi designs organized, what is their visual structure, what organizing principles are evident, and what sorts of discriminations do these organizing principles imply? Secondly, how do these organizing principles correlate with those of other Hopi sub-systems, e.g., the Hopi cosmological system or the Hopi linguistic system? And lastly, how valid is this approach: i.e., what questions (anthropological or otherwise) does it address, what kind of answers does it provide, and what further questions are in turn generated by those answers?

## HISTORICAL AND MATERIAL CONTEXTS: THE HOPI<sup>3</sup>

### *Brief History of Pottery-Making in the Area<sup>4</sup>*

The Hopi are a Pueblo group living in what is now Arizona. Pottery-making has been practiced in the area for the past 15 centuries, and as early as A.D. 600 pottery was being produced in a variety of colors by people alleged to be ancestors of the Hopi (Bartlett 1936:1). However, although occupation of the sites seems to have been nearly continuous, the history of the area (like the history of any area) seems to have been somewhat erratic. One result has been a series of distinct pottery types of varying color, shape, and design, which archeologists have been able to distinguish and to sequence. In its most basic form, the historical sequence of pottery types has been summarized by Bunzel (1929:81) as follows:

- I. Black on white period. Entirely geometric ornament.
- II. Late prehistoric period. A gradual development of colored wares and animal ornament, reaching its highest development at Sityatki village.
- III. Historic period. A gradual return to white wares and geometric ornament.
- IV. Contemporary. A recent revival of II.

The pottery that I have analyzed comes exclusively from the last of these periods. Much of the pottery was produced after the above classification was in print, some as late as 1970. However, many of the designs have been adapted from earlier designs. This is in part inherent in the nature of Hopi pottery design, which reflects a series of historical intrusions, interruptions, and fortuitous influences.

For example: The advent of the Spanish in the seventeenth century is thought to have resulted in a degeneration of Hopi pottery; the founding of the First Mesa town of Hano by a group of migrating Tewa in the eighteenth century is thought to have revived the industry; and Zuni patterns are thought to have been incorporated into Hopi pottery as a result of the nineteenth century drought which caused the Hopi to seek refuge in Zuni territory.

Even archeology has not been without its effect. In the late nineteenth century, the archeologist J. Walter Fewkes started excavating a site named Sityatki, and unearthed some spectacular pottery. The wife of one of the archeological fieldworkers, Nampeyo, became interested in the pottery sherds; she first began copying the patterns, and later adapted them to create her own designs. She has been followed by later generations of Nampeyos who have followed the tradition. (The pot shown in Figure 10 is, incidentally, a Nampeyo pot).

Nor does Nampeyo's "Sityatki Revival" represent the last of the fortuitous influences. The tourist trade in the twentieth century affected the kinds of pottery produced, and no doubt the present resurgence of interest in Native American cultures is currently having a similar effect. All of which is described in this section in order to show that, although the Hopi and their ancestors have been producing painted pottery for the last several centuries, the design system has not by any means remained constant nor has it



developed smoothly. But for all that the influences were fortuitous, the important point in this context is that their effects do not seem to have been totally random. Rather, they all seem to have been incorporated in selectively Hopi ways.

### *Pottery Technology*

Despite the complexity of the pottery patterns, the technology which the Hopi employ to produce pottery is relatively simple (which is not to say easy). Traditional pottery is still made by women, using neither wheel nor kiln. Using the coil method, the potters progressively add rounds of clay to a base, smoothing each piece into the preceding layer. The walls of the vessel are later thinned and evened with a gourd scraper. After drying, undecorated utility wares are fired directly, while decorated wares may first be slipped with several thin layers of one of the other clays. Finally, the designs are applied with brushes. (It is only this last process with which this paper will be concerned.)

### *Pottery Shapes and Designs: A Broad Typology*

Hopi pottery is made in a variety of forms: low, shallow, corn-meal bowls; slightly higher, broad-lipped stew bowls; narrow-necked water jugs; and such additional items as ladles, tiles, and canteens. Further, the shapes of the vessels are relevant to a discussion of the designs which are found on them. As one would expect, certain types of designs are more frequently associated with one type of vessel than another, since the design fields vary with the shape of the pot.

There have been many attempts at classification of Pueblo pots by shape and design. Most of these typologies are archeological typologies whose avowed purpose is to differentiate pots, usually by approximate date and area. By contrast, my intention here is to show what Hopi pots, or rather their designs, have in common. The purpose of this typology is to give the reader a general idea of the design solutions which the Hopi have employed.

I am following Bunzel's general prescription that designs are essentially organized around the "roadline" (1929:13), and am basing my categories on the placement of designs in relation to the "roadline" of the pot or of an equivalent line. The "roadline," which Bunzel translated from the Zuni word *omane* (road), is simply the line that encircles the neck of those pots which have necks and circumscribes the interior of those pots which are too shallow to have necks (e.g., bowls). Although Bunzel systematized possible design arrangements, these were too limited for my purposes as she dealt with only two types of pots: the water jug, and the shallow bowl. I did, however, try to follow her general parameters of variation in the formation of the typology which follows, i.e., amount and part of the field filled, number and type of band groupings, and number and type of repetitions.

### *General Design Typology:*

1. *Pottery with bounded panel designs.* Bounded in this case means that the design field is specifically defined by,

and generally contained within, encircling lines. These lines are the "roadline" and secondary lines.

A. *Pottery with basically one main circumferential band.* The circumferential band is a common feature of Hopi pottery. It either occurs on the exterior circumference of a vessel or along the interior rim (and around the border in the case of tiles). I refer to further divisions of this band either as reflecting "vertical," "horizontal," or "oblique" divisions panels, following Bunzel (1929:13-48). In some pots, there is an additional and smaller horizontal band around the neck.

1. *Designs with one main horizontal band which is vertically sub-divided.* The vertical divisions produce individual design panels. These vary from two to eight in number (and perhaps even more). They are of various arrangements:

(a) *One panel repeated several times.* This is one of the simplest and most common arrangements. The panels are often further sub-divided along a diagonal.

(b) *Alternating panels (two or more).* Rather than merely repeating the same design pattern, two or more design patterns are alternated. Thus reading around the pot or tile one would have one panel with design A, then one with design B, then design A, then B, etc. Or one could have ABCABC, etc. And once again, the panels are often sub-divided along a diagonal.

(c) *More complex alternating panels.* These pots are basically of the same type as the ones above, but the panels which repeat are more elaborately sub-divided into horizontal, vertical, and oblique sub-panels.

(d) *Alternating fixed and progressive panels.* A fixed panel refers to one which is repeated exactly, and a progressive panel is one which varies slightly each time it appears. The variation can result from color being used differently. This is fairly uncommon.

(e) *Non-repeating or irregularly-repeating panels.* With only one or two possible exceptions, I have not seen pots of this type, but I included this as a residual category.

2. *Designs with one horizontal band with no explicit divisions.*

(a) *Continuous patterns.* These are patterns which are composed of a repeating pattern which forms a single connected unit. A scroll or meander would be a good example.

(b) *Dis-continuous patterns.* These are patterns which are composed of discrete elements but which are so arranged that each pattern leads into the next.

B. *Pottery with circular interior areas which are panelled.*

1. *Designs with two or more main panels, which may or may not be sub-divided.* The major division is generally made with a line which is not a



diameter, and so the panels defined are almost never equal. The panels can either be treated as bounded fields (i.e., sub-divided), or treated as semi-bounded fields.

2. *Designs with more than two main panels, arranged rotationally.* In designs with more than two main panels, the arrangement is often rotational. In such designs panels are created by the intersection of several lines, none of which is a diameter of the circular area. The panels produced are equal in area, and generally identical as well.

3. *Designs with center or near-center radically divided panels.* I came across only one pot of this type, which was a canteen, executed in such a way as to suggest an animal face.

II. *Pottery with semi-bounded, non-panel designs.* These are designs which are bounded only by one line, the "roadline," and no bottom restricting line. Or, in the case of interior designs, these are non-panel designs emerging from the "roadline." By the term "semi-bounded," I definitely mean to imply that it is the encircling line which is the basis of the design's organization. Designs of this type vary considerably, however:

A. *Pottery with regular, repetitive designs originating from the roadline.* These are generally exterior circumferential designs, and are often quite similar to the designs in I.A.2., except that they are bounded on only one side.

B. *Pottery with irregular, non-repetitive designs originating from the "roadline."* These can be either exterior or interior designs, and are practically all fairly birdlike, with obvious wings and body forms which are themselves composed of smaller panel sections. In such cases too, there is often at least part of the "roadline" which has no protruding design. Many Sityatki derived pots are of this form.

III. *Pottery with unbounded, central designs.* This category applies to designs which, though they may be on a pot which is circumscribed by a "roadline," are not attached to it and do not emanate from it. If there is a "roadline," it is somewhat extraneous to the rest of the design.

A. *Pottery with one central, free-floating design figure, generally a conventionalized representational figure.* These designs are usually standard bird or kachina figures, and occupy the central area of an interior design space. In the case of an exterior design these are usually repeated twice, although only one figure can be seen from any viewpoint.

B. *Pottery with repetitive or periodic design patterns, generally organized from the center.* Occasionally interior designs are created by organizing periodic band designs around the center of the vessel (as opposed to organizing them from the circumference). Designs of this type can be quite elaborate. In the few cases where non-bounded designs are exterior designs, they generally consist of small isolated design groups occurring two or more times around the exterior of a shallow bowl for which most of the design interest is in the interior pattern.

### *Symbolism: Dominant or Incidental*

One of the premises of a structural study is that the relationships between elements are ultimately more revealing than the elements themselves. Since I had proposed to study Hopi pottery designs as an independent, or at least autonomous, system (not dependent on other systems for meaning), I felt compelled to consider the extent to which Hopi designs employ conventional symbolism or symbolic elements (such that the semantic meaning of elements could be a mitigating factor in the relationship between elements). By the term *conventional symbolism*, I mean nothing more than what Bunzel calls "the [fixed] association between designs and . . . ideas" (1929:70), or what could be called a conventionalized and conscious association between a visual form and meaning; i.e., a symbol's iconic content, or agreed-upon semantic meaning.

Whereas the literature reflected nearly universal agreement as to the beauty of Hopi pottery, and only minor discrepancies as to the nature of its manufacture; on the matter of whether the designs carry meaning there seemed to be bitter disagreement, verging on ideological warfare. The views ranged from those who implied that Hopi art is totally governed by symbolism to the extent that aesthetics or "sensuous pleasure in beauty of form and color" is quite secondary (Hough 1919:268), to those who intimated that the very idea that Hopi pottery designs are symbolic was foisted upon the buying public by unscrupulous traders (Sikorski 1968:20). In the middle were those who suggested that truly symbolic design elements are used only on ceremonial objects, but that the forms (and not the meaning) may also be carried over into a purely decorative context as an alternative to creating new elements (Hubert 1937:2).

One of the earliest contributors to this controversy was the aforementioned Fewkes (1898, 1910), who traced Hopi bird, butterfly, and feather symbolism from ancient to recent times, in the art and in a ceremonial and religious context, and imputed a connection between the two. As it happens, many contemporary pots do seem to carry designs which are easily recognizable as conventionalized bird forms. In addition, many pots which do not have avian figures do seem to have avian forms. These might not be recognizable as such but for their clear resemblances to earlier and more explicit avian forms. One can find such derived forms in contemporary pots (see, for example, Figures 2 and 18).

For the sake of argument, I accepted as fact that certain avian and feather symbolism did exist, at least at one time in the past, and further that these avian or feather elements have been carried over into modern designs, in form if not in content. And so the question of whether pottery designs were originally symbolic became non-problematic. What became more problematic was whether designs and design elements still carry symbolic meaning (primarily of a religious or sacred nature) and, if so, to what extent it dictates the placement of elements in any design.

To answer this last set of questions, I turned to Ruth Bunzel's (1929) study of Pueblo pottery. In reference to the Zuni, and with the two exceptions of the "road" or "roadline" and a specific "prayer-stick" design (1929:69-70), she discusses the matter of symbolism as follows:



[the names which refer to designs] are not pattern names, since they are so loosely applied that there is no definite association between any name and a particular form. The same name is applied to elements having nothing in common from a stylistic point of view, and conversely, the same element may be differently designated in different contexts. *Nor are the designs symbols in any sense of the word.* We are justified in using the word symbol only where the associations between the design and the object or idea suggested is fixed and recognized [1929:69; italics my own].

The above was written in reference to the Zuni; as for the Hopi, she suggests that "the associations between designs and objects or ideas is even more tenuous than at Zuni" (1929:70). On another occasion she states outright that "[religious] symbolism plays no role in decoration" among the Hopi (1929:52). In addition, she offers the following comment with specific reference to Fewkes:

There is no reason to assume that the meanings now attached to Sityatki designs are those originally associated with them, nor is any such claim made by the persons who use them . . . . The modern Hopi sees rainbows and mountains where the archaeologist sees birds and serpents. One can take one's choice [Bunzel 1929:71].

Thus, not only does it seem that symbolism was not a factor in Hopi pottery designs at the time Bunzel did her fieldwork; there is even some doubt as to whether it ever was a factor (cf. Bunzel 1929:69-71). This conclusion justified discounting the possibility that Hopi pottery designs are regulated by what would be primarily "non-visual" constraints, i.e., constraints dictated by religious or other meanings. Such constraints would have either diminished the value of a "visual" structural analysis of the corpus (since non-visual constraints would have been operative), or have made it considerably more complicated.

In fact, not only did the literature not diminish the case for a visual structural analysis of Hopi art; it seemed, if anything, to strengthen the case for pursuing a line of analysis which would concentrate on relationships between elements rather than on elements themselves. For while certain forms had been taken over or adapted from other pueblo groups (e.g., the Zuni) and from at least one defunct site (Sityatki), and possibly even from a ceremonial context as suggested by Hubert (1937:2), the linguistic terms which refer to these elements or configurations remained ambiguous and non-specific. It was reported, for example, that a form could be given one name in one context, and a different name in a different context, and still a third name in the first context after a lapse of time (cf. Bunzel 1929:53-54). This inexactitude in naming elements, as well as the fact that they seem to be taken over rather than invented, could be thought to indicate that the elements are not themselves important as entities. Rather, spatial relationships between elements and generating placement of elements may be more important.

This seems quite possible given the precise terminology for describing spatial concepts:

There is a notable paucity of terms of a purely descriptive character, such as square, circle, triangle, and the like, although the language is not lacking in precise terminology for spatial concepts [Bunzel 1929:54].

It seems still more possible in light of the fact that the Hopi language has a preference for verbs as opposed to our

favoring nouns, and thus seems to turn our propositions about things into propositions about events (Whorf 1950:70). Interestingly enough (and perhaps as a fitting allegory for anthropology), Bunzel drew entirely different conclusions from the inconsistent design terminology but precise spatial terminology. She suggested that the lack of a consistent linguistic terminology for design elements indicates that art is not the object of rational thought among the Pueblo Indians (Bunzel 1929:54); whereas, on the basis of the same information, I suggest the possibility that it is rational, but that the rationale used is based more on process and relationships than on elements or things. It was with that possibility in mind that I started my structural analysis.

## A STRUCTURAL ANALYSIS OF HOPI POTTERY DESIGNS

### *Operationalizing Lévi-Strauss*

It may be the general consensus that Lévi-Strauss' ultimate insights are more inspiring than his specific methodology (cf. Hayes and Hayes 1970). Whereas the former are almost indiscriminately applicable, the latter is often exceedingly difficult to apply to any given situation, in part because it is so disturbingly elusive (particularly in his earlier work), and in part because it is so specific. Thus in an effort to operationalize structuralism, I turned to the most concrete and the most relevant strictures I could find—the four basic operations of structural linguistics, as reported by Lévi-Strauss in *Structural Anthropology* (1967):

First, structural linguistics shifts from the study of *conscious* linguistic phenomena to study of their *unconscious* infrastructure; second, it does not treat *terms* as independent entities, taking instead as its basis of analysis the *relations* between terms; third, it introduces the concept of *system* . . . ; finally, structural linguistics aims at discovering *general laws*, either by induction [or by logical deduction] [Lévi-Strauss 1967:31].

Although the translation of structural linguistic principles into a visual equivalent was not as automatic as one might have hoped, it did at least represent a general strategy. However, there were certain basic problems. Clearly a prerequisite for a decent "structural analysis" of a given design corpus is a general (etic) descriptive system. Just as clearly, such a descriptive system can ultimately be constructed only on the basis of several individual design systems (such as Hopi pottery designs). Further, the existing terminology which I had at my disposal consisted mainly of design terms, e.g., symmetry, balance, rhythm, etc., as well as a few Gestalt relationships like figure-and-ground which had been incorporated into the standard design framework. With the terms, one inherits (unsolicited) an implicit design framework—an entire visual context which is often inapplicable to Hopi designs and sometimes deceptive as well. At times design qualities or characteristics are individually relevant to the Hopi material, but do not relate to each other in the ways that the traditional context implies. Other design concepts are relevant to the Hopi material only because of their conspicuous inapplicability.

And so I was left with essentially two options. I could (theoretically) invent an entirely new system of design terms with which to analyze Hopi art, or I could use the old design terms with the advance warning that I would be abandoning





Figure 1



Figure 4



Figure 2



Figure 5

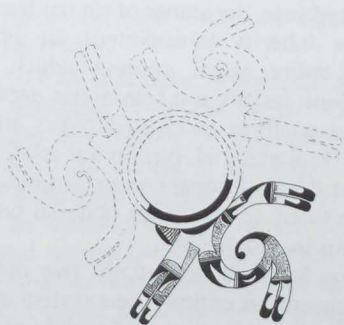


Figure 3

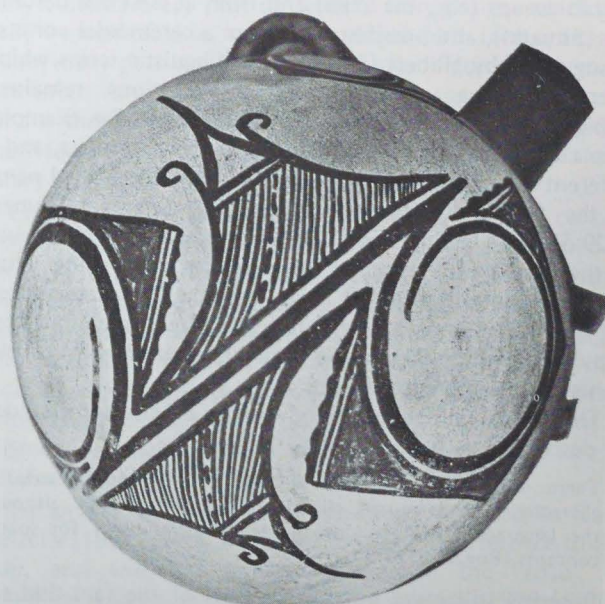


Figure 6





Figure 7

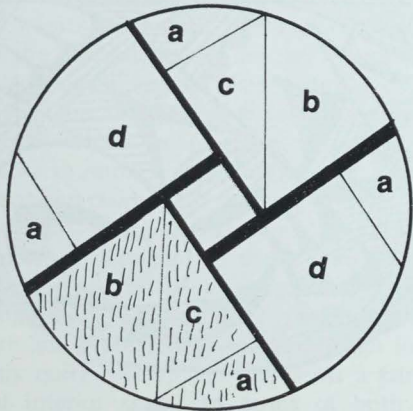


Figure 8

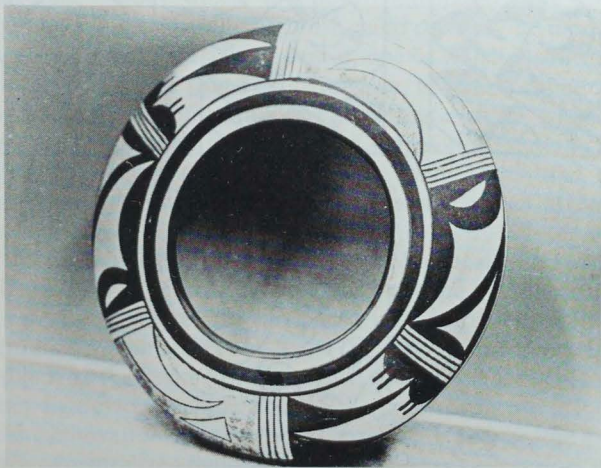


Figure 9



Figure 10

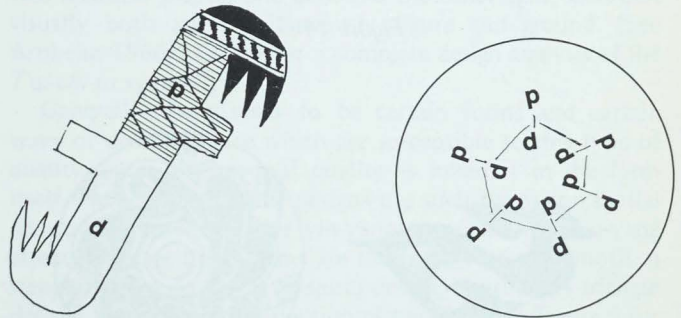


Figure 11



Figure 12





Figure 13

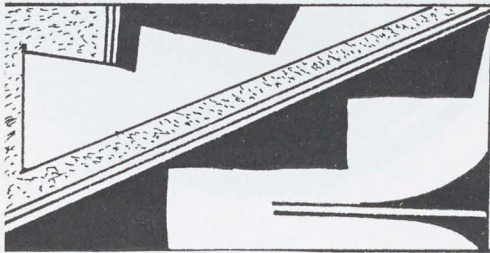


Figure 14



Figure 15



Figure 16



Figure 18



Figure 19



Figure 17

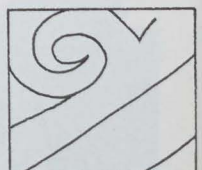
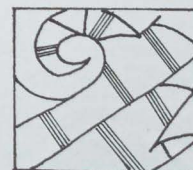


Figure 20

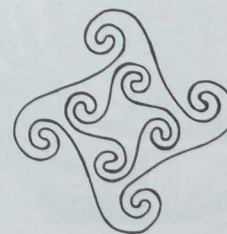


Figure 21



their traditional contexts. I chose the latter alternative, thus taking the bricoleur's way out rather than the scientist's (as that analogy is used in the first chapter of *The Savage Mind* [1966] to distinguish alternative ways of creating order).

What I have done then is to delineate a series of principles which seem to have generated the designs, or according to which elaboration occurs. When taken together, they create some idea of a design system. The principles are neither linear nor typologically equivalent; rather, they all interrelate. In that sense, they are arbitrarily ordered; and for that reason, I have not numbered them. In that sense also, what follows is *a* and not *the* structural analysis of Hopi pottery designs.

### *Structural Principles*

**PRINCIPLE:** *Designs are formed in such a way that there is equality of figure and ground (to the point of there being no figure and ground).*

In our standard design framework, the term *figure* normally connotes a dominant image or shape applied to a background. And *background* (or simply *ground*) normally connotes that area or space remaining after the main figure or figures have been applied. Occasionally in this framework one hears of "negative elements," in which case one normally assumes that the unpainted areas are the figures in that they are the simpler, more dominant shapes, or the shapes which convey meaning. But this implies the same relationship; it is merely the roles which are reversed. Thus the framework seems inevitably to imply a design situation in which there is dominant shape and residual (or subservient) area.

In Hopi designs, however, the painted areas often seem no more simple or dominant in shape than the unpainted areas. In that sense, the figure and ground often seem of equivalent importance, almost to the point of there being no distinct figure and ground. The interior design in Figure 1 illustrates this quite nicely, and represents a fairly typical treatment of interior space. In terms of both the total composition and the individual panels, the painted and unpainted areas are of equal visual importance.

Another treatment of design space, as suggested earlier, is the exterior semi-bounded design (i.e., bounded only by the "roadline," from which the design emanates). The semi-bounded design shown in Figure 2 could certainly be thought of as three discrete "avian" figures, one of which is shown in the diagram below (Figure 3). However, in terms of the total composition, the unpainted areas assume a shape which is very similar to some of the painted shapes (for example, the scroll, as well as the enclosed areas at the rim), and the figural areas merge into a repeating pattern which assumes prominence.

All of which is not to imply that there are no central "figures" on Hopi pottery. Although not the most common design form, there are designs which are composed of centralized figures (in the sense of figural representations applied to the center of a design field). These are generally avian figures or kachina figures (the latter probably being a recent innovation for the tourist market). However, the existence of centralized figures or figural representations does not negate the figure/ground relations described above. The modern Hopi pot shown in Figure 4 represents an interesting

design solution in this respect; for although it is composed of two central bird figures, the unpainted area is far from being background in the conventional sense. The two inner shapes, the heart shape and the concave triangular shape, emerge as figures in their own right.

And for those central, figural designs which do not employ the unusual design solution described above, the figure/ground equality is generally maintained on a lower level. That is, the central "figures" are usually composed of smaller panels which embody ambiguous figure and ground relations. This is also often the case for those designs which are not composed of a central figure (e.g., the two pots referred to earlier, Figures 1 and 2).

**SUB-PRINCIPLE:** *The smallest panels are often divided in such a way as to yield elements susceptible to a yin-yang spatial organization.* What I will reluctantly call a generalized yin-yang model, for lack of a better term, is a more specific and literal form of equal figure and ground than that detailed in the previous principle. In the original Chinese *T'ai-chi-tu* symbol (popularly known as the yin-yang symbol or still more colloquially as the "yin-yang"), the field is divided into two identical shapes, one dark and the other light, such that visually both are simultaneously figure and ground. (See Arnheim 1966:222-244 for a complete design analysis of the *T'ai-chi-tu* symbol.)

Generally there seem to be certain forms and certain ways of dividing space which are susceptible to this type of duality, since the reversal quality is inherent in the form itself. Many Hopi pottery designs use such forms and spatial divisions to produce near yin-yang or generalized yin-yang effects. Among these forms are the feather or wing motif, a stepped design, a scroll or spiral design, continuous triangle designs, and the oblique division of the field (see Figure 5 for examples).

**PRINCIPLE:** *Designs are often generated by rotation.*

The yin-yang relationship described above can be thought of as having a particular figure/ground relationship. But it has other defining characteristics as well. In particular, the original *T'ai-chi-tu* symbol is rotationally symmetric or is at least a variant of a rotationally symmetric design.

As the name would imply, rotational symmetry is a form of symmetry in which parts of the design recur as a result of being rotated around a central axis. (For an excellent explanation of rotational and other symmetries, all of which are described and analyzed in terms of the type of operations according to which repetitions occur, see Shepard 1956:267-276.)<sup>5</sup>

The pattern on the canteen shown in Figure 6 is an example of a pattern which appears deceptively complex until one looks at it as a relatively simple rotational design with two equivalent parts in rotational opposition to each other along a central axis. Such bifold rotational designs are fairly common in Hopi pottery. Any line cutting through the center of the field would result in two identical design halves, although clearly the explicit line provides the most obvious division.

Conceptually similar, although more complex than the canteen design, is the design shown on the pot in Figure 7. The same rotational operation is used or implied, only in this



case there is a fourfold field, with explicit divisions. In addition, the four quadrants have each been further subdivided, such that diagonal quadrants are identical (see schematic drawing, Figure 8). Again, once one perceives the order, the design appears simpler. The rotational symmetry is evidenced in the fact that any line cutting through the center of the field would result in two identical halves.

A common design organization in Hopi pottery is a bounded panel design (with one "horizontal" band which often is sub-divided into repeating "vertical" panels). This format is used both along exterior sides and interior rims. Although the exact number of panels seems to vary considerably, the repetitions seem invariably to occur by rotation or to result in a rotational design. This is evidenced in the relative orientation of the panels, and in their order; i.e., the panels repeat sequentially in a  $360^\circ$  path. The bowl shown in Figure 9 has a six panel design of this type (consisting of three panels, each of which repeats).

Another common design treatment is exemplified by the pot shown in Figure 10. This is a fairly characteristic Nampeyo pot (cf. pp. 00-00). In this case, there is no explicit division into parts which are rotationally symmetric, but the total is, nevertheless implicitly generated by rotation. In fact, it seems to be generated by two separate series of rotations; i.e., one could think of this design as consisting of one rotational opposition  $P_d$  which is itself rotated around the center of the pot, thus producing a  $P_d P_d P_d$  pattern (see Figure 11).

The reason I earlier detached the rotational principle from the term *rotational symmetry* is that the phenomenon of rotation can occur without necessarily producing a design which is rotationally symmetric. That is, parts of a design may be in rotational relationship to each other, but those parts may not be identical to each other. Thus, while a given design may not be rotationally symmetric, it may appear less chaotic and more comprehensible when looked at with rotation in mind. The design on the pot shown in Figure 12 represents a case in point. The design consists of two distinct "horizontal" or circumferential bands. The upper band consists of two similar panels (although only part of one panel is shown in the photograph), while the lower band is filled by a series of panels which, taken together, form a continuous design similar to the  $P_d P_d$  design in the previous pot. While not rotationally symmetric (because the two oblique halves are not identical), the panel (drawn in Figure 13) makes more sense if seen as largely influenced by rotation, as the spiral patterns are in a  $180^\circ$  rotational relationship along the axis indicated. Similarly each of the sub-panels filling the lower band exhibits bifold rotational symmetry along the axis indicated (or, for that matter, along any axis going through the center of the sub-panel).

I could give several other examples of this kind; I will limit myself to just two. The design panel drawn below (Figure 14) is one of many versions of a Zuni-derived panel which is used on both interior and exterior band designs. This design, incidentally, is the "prayer-stick" design mentioned earlier. Although it may appear less obvious (because we are probably not accustomed to considering painted and unpainted areas as equivalent), rotation can be seen to be operative in this case as well. That is, the light (unpainted) "step" figure and the dark (painted) "step" figure are in

rotational opposition along an oblique dividing axis. The analysis of this design in this way is made more plausible by the fact that the explicit oblique division of panels into two identical parts is common.

Another version of this same phenomenon can be seen in the drawing below (Figure 15) which represents a central avian figure copied from the interior of a shallow bowl. If looked at solely in terms of the painted areas, the design does not seem to be even marginally rotational. However, the unpainted swirls which are "negatively" defined by the darkened areas can be seen to be in rotational opposition. (While I would not maintain that this was consciously rendered in this way, I would suggest that this is at least an unconscious factor in the aesthetic appeal of this design.) This design, incidentally, is probably derived from a Zuni design as there are similar designs to which it bears some resemblance (cf. Sides 1966, Pl. 17).

Rotation is also sometimes operative in the smallest details and sub-panels. Thus, for example, although the design on the modern pot shown in Figure 1 is not (on the total level) a rotational design, at least one of the panels can be seen to be rotationally generated. I am referring to the crescent panel at the top, which seems to have been treated rotationally even though the shape of the field mitigated against a strict rotational design.

**PRINCIPLE:** *Designs are generated by repetition of elements or by formation of identical elements, and are periodic.*

In all of the previously mentioned rotational designs, rotation is the cognitive operation by which repetition occurs. By contrast, bilateral symmetry entails reflection as a way of achieving repetition, and is also used (e.g., Figure 4), but not to the same extent.

The periodicity of the design results from the order and type of repetition. For example, circumferential bands (either exterior or interior to the pot) are composed of panels which repeat in a variety of ways. The panels of these bands can be arranged in a simple repeating pattern (AAA...) or in an alternating pattern of some sort ABABAB..., or ABCABC..., or in some cases in an alternating fixed and variable pattern (AB'AB''AB'''). Non-bounded designs such as the one shown in Figure 10 also exhibit varying types of periodicity, depending on the number and type of rotations.

**PRINCIPLE:** *Designs are generated relative to the conceptual center of the field, although this center is not generally made explicit.*

In part this is a necessary result of rotation, and in part rotation is itself subsumed by this quality of conceptual center. Any rotational design is produced by rotating certain forms or elements around a center, or by dividing the field in such a way as to produce rotationally related areas. In either case, rotational designs are generated relative to the center of the field.

In previous sections I have made reference to "horizontal" bands, often with "vertical" divisions, although these terms have not always been gravitationally correct; in this respect I have been following Bunzel's interpretive terminology (1929:16, 18). If such bands were simply horizontal (concep-



tually), they would be generated by sheer repetition of elements or panels along a straight line; that particular design operation has been termed *translation* by Shepard (1956:269). On a cylindrical surface, such as the outside of a water jug or bowl, such an operation would result in a circular or circumferential pattern (in the same way that maintaining a straight linear path on earth would eventually define a circular path). However, if the band designs were not so much "horizontal" as conceptually circular or circumferential, then they would be conceptually governed by rotation around a central point. Thus the same concrete designs could have been conceptually produced in two distinctly different ways. I suggest that the central point or circumferential interpretation is the more probable one, although I do not think that the two are necessarily mutually exclusive. That is, thinking of the designs as being conceptually generated relative to the center of the field does not necessarily eliminate the possibility of the bands being conceptually "horizontal" as well. My reasons for suggesting a central orientation follow.

First, in many cases there is a similarity between interior designs which are *clearly* circular in conception, and exterior, "horizontal" or circumferential patterns. For example, the Nampeyo pot shown in Figure 10 has an exterior design which is very similar to an interior design on another Nampeyo pot. I do not have a photograph of this second pot, but the design, which exhibits a definite circular orientation, is shown in schematic form in the diagram below (Figure 16). Thus both would seem to be circular in conception. (Note, incidentally, that the painted spiralling feather patterns are almost identical to the unpainted spiral forms surrounding them, although having an opposite directional orientation.)

Similarly, exterior designs of the type shown on the pot in the foreground in Figure 17 are conceptually similar to interior designs of the type shown in Figure 18. Both are semi-bounded avian designs, emanating from the "roadline." Only in one case the design is an exterior design and in the other an interior design. The conceptual equivalences in other respects suggest that both are conceptually contained in a circular field defined by the "roadline."

Placement of the "roadline" is the most constant and the first operation in Pueblo pottery design (Bunzel 1929:13, 28), and as such seems to represent an initial circumferential definition of the field. Most "roadlines" have a small gap or token non-enclosure, a Zuni practice which the Hopi have adopted. Although the meaning of this conventionalized gap has occasioned considerable dispute (cf. Chapman 1951), the explanation given by Bunzel is that the "roadline" is identified with the life of the potter, and should therefore not be finished. Finishing the "roadline" is symbolically equated with ending the potter's life (Bunzel 1929:69), and thus entails completing a circle or a full cycle.

Many designs can be seen to emanate from the "roadline," often spiralling in toward the center of the design (see, for example, the design just mentioned, viz., Figure 18). This central orientation is somewhat apparent in the design product. In addition, the indication of movement inward toward the center has at least been mentioned, if not fully and elaborately documented, in the literature. Thompson (1945:550) reports that designs move in a circle and toward the center in a circular and centripetal movement. Ortiz

(1972:143) reports that in sand painting, one of the most sacred acts performed in the society, the outer boundaries are first set, and then the painter works inward toward the center of the field.

Lastly, evidence for the central orientation of designs is suggested by the common use of bifold, fourfold, and other rotational symmetries, as well as rotationally-derived panel designs. All of these are either a result of, or imply, rotation around a center or central point.

Thus the center of the field is vital as an organizational or implied force or locus, rather than as an objective or explicit form or point. In Western art, by contrast, the center of the composition is generally filled, although it may not exert any particular force on the rest of the composition.

**PRINCIPLE:** *The elements in Hopi pottery designs often seem to be generated by division of the field; i.e., elaboration of design occurs through division into elements, rather than by the cumulative addition of elements.*

Although my first inclination in studying Hopi pottery had been to (1) isolate elements, and (2) then determine how they were combined, this procedure was discarded because following it seemed to make the designs more rather than less confusing. It seemed that the elements were often derived from the designs rather than vice versa; that is, the elements seemed, in many cases, "emergent" rather than basic.

For example, the design on the modern pot shown in Figure 19 (which is a four-panel design) appears to be a rather chaotic design, which maintains its chaotic appearance so long as one tries to conceptualize it by pulling out elements one by one (particularly since one runs into immediate figure/ground problems in even trying to decide what the elements are). However, if one conceives of the design as generated by progressive divisions or setting of boundaries with the filling in of details (thus creating elements as the last step), it becomes more visually comprehensible. The schematic diagram below (Figure 20) represents one possible reconstruction of one of the panels. Unfortunately I did not witness the actual painting of the design diagrammed in Figure 20, nor was I able to interview the potter, so my reconstruction is admittedly speculative. More important than the specific sequence of the divisions, however, is the idea of progressive divisions and emergent elements. And for this general idea there is additional evidence, both material and textual.

First, the visible intersections and overlappings of lines on the pots themselves can provide some information as to sequence by which the designs were created; and secondly, what descriptions there were of the decorating process seemed supportive. For example:

The area to be decorated is usually bordered or circumscribed by several parallel lines or bands. Then the area is divided into two or more units and next the larger design elements are applied. Areas which are to become solid masses of color are first outlined and then filled in. Thus the design progresses from the larger, simpler masses and lines to the more intricate details. One unit of the design is not completed until the next unit is started. The units are considered in their relation to each other and are developed alternately [Hubert 1937:9].

I do not mean to imply, by any of the above, that elements do not exist in Hopi pottery designs. Nor do I mean



to denigrate attempts to isolate and name motifs, although Bunzel did meet with somewhat limited success in that particular endeavor (1929:53-54, 70, 118-119). Rather, I am suggesting that the procedure of isolating and classifying design "elements" *per se* without considering how these were themselves derived, is of dubious utility in the context of Hopi pottery.

As it happens, that very procedure has been followed in at least one case of which I am aware. In a study of Hopi pottery exhibited at a 1959 Museum of Northern Arizona craft show, Sikorski (1968) has isolated, and classified Hopi elements. The study includes a page of over one hundred diagrammed "design elements" arranged in six categories, e.g., "triangle," "curved elements," and "irregular elements" (1968:18). Not only do several of the elements seem to have been arbitrarily assigned to one category as opposed to another; the rationale for isolating and defining certain configurations (many of which are irregular) as entities or elements is neither self-evident nor explained. In total, this classification and isolation of "elements" does not seem to clarify anything. However, this very lack of clarification may be, itself, revealing.

PRINCIPLE: *Lines are more nearly devices for defining boundaries, areas or movement, than themselves elements or entities.*

The phenomenon of generation of elements by division and later filling in of areas is apparent on other than totally bounded panel designs of the type shown earlier (Figure 19). In part, this is the case because so many of the unbounded designs are composed of panels at the lowest levels (e.g., the pots shown in Figures 2 and 4). However, it is also often evident on those pots whose designs are not composed of panels or sub-panels at the lowest level. The Nampeyo pot (Figure 10) is such a pot; rather than being produced by the cumulative addition of given elements, the design seems more nearly to have been generated by lines which reflect paths of motion (thus creating areas which are filled in or elaborated with hatchure). All of which could be stated in the form of the above principle.

PRINCIPLE: *The design field is not uniformly elaborated, nor is balance literal.*

This is a negatively significant principle. It is probably related to equality of figure and ground, and is in that sense stating the antithesis of the principle or phenomenon which has been termed *horror vacui* or aversion to unfilled space in reference to art styles such as that of the Northwest Coast or Maori art. Since non-painted space seems to have value (cf. pages 00-00), there would seem to be no need to achieve balance through uniform filling of the field.

PRINCIPLE: *Color does not seem to be employed to distinguish between dominant and subsidiary elements or areas, although it is used differentially for lines versus areas.*

Again, this is a negative principle, and again it is stated to contrast Hopi designs with other two- or three-color design systems (such as the Northwest Coast system which uses what have been designated primary, secondary, and tertiary color systems [Holm 1965:29-32]). Unfortunately, none of my photographs or drawings are in color, so it is difficult if

not impossible for the reader to determine the colors in the pots illustrated here. All of the pots shown here are painted in dark brown or black, and most use in addition, a dark red or reddish brown pigment. (Also common, though not shown here, are pots with a red slip with dark applied designs, or with a more yellowed slip.) With one or two exceptions, none of which are shown here, the lines seem always to be applied in the dark black-brown pigment, with the reddish pigment applied only to fill in areas. The largest painted areas, in particular, seemed to have been filled in with red, so as to avoid too black a design.

### *Structural System*

Having delineated several inter-related structural principles in what I have called "bricoleur's terms," I would like to pull these together into a more integrated and explicitly defined system especially since many of the principles, when taken together, suggest additional or emergent aspects of the Hopi pottery design system.

*Rotation versus bilaterality*, as used here, are not merely terms for describing relationships between elements once a design is produced; rather they describe the forces or operations by which the designs are produced. Moreover, the use of each seems to imply certain concomitant relationships. In particular, the general tendency to favor rotational over bilateral symmetry has the following implications: (1) it tends to produce a dynamic rather than a static design; (2) it implies a design situation in which only one element is repeated, whereas bilateral symmetry often requires two different forms of the same element (equivalent to a right-hand and a left-hand form); and (3) it suggests the importance of a conceptual center (often non-explicit) which is the one constant point in the 360° rotation of a central axis, or is alternatively the intersection point of all central axes. Further, all of the above implications are reinforced by other individual design principles or characteristics, as these have been delineated earlier.

Thus, for example, the dynamic rather than static quality of the design system is reinforced by figure/ground reversals and equivalences (particularly those which follow a generalized yin-yang model), by the oblique division of panels (which suggests rotation), by the use of obliquely placed lines to define areas which are in rotational opposition to each other, by the use of tapering shapes and areas (which suggest transition), and by the use of spirals and other directional elements rather than more static and stable rectangular elements. All of the above tend to imply transition or movement and are in that sense dynamic visual devices or arrangements. In addition, the general dynamic aspect of the design system is specifically cyclical and periodic. This cyclicity and periodicity are emergent both from rotations (as are implied in the Nampeyo design shown in Figure 10 and diagrammed in Figure 11), and from sequential repetitions of the type which occur in the ABABAB or ABCABC type of bounded panel designs (cf. Figure 9).

The single rotated form versus the mirror-image forms (i.e., left-hand and right-hand forms) similarly relate back to the total system, particularly to figure/ground reversals. Both bilateral and rotational symmetry could be considered as



visual representations of duality; yet the types of duality represented would differ. In the rotational case, since the forms are identical (at least in terms of shape), the opposition is totally based on position or relative location. In the bilateral case, by contrast, which uses mirror-image forms, the opposition is based on opposite forms or entities. One might think of rotational symmetry as *x* and complement of *x* (at least in a yin-yang model), and of bilateral symmetry as *x* and anti-*x*. The yin-yang form, as described earlier, is that specific form of bifold rotational symmetry which uses forms of identical shape but different color. As employed in Hopi pottery designs, the yin-yang model produces a situation in which one form is explicit (i.e., painted), whereas the other is implicit (i.e., itself unpainted but defined by the surrounding painted areas) (cf. Figure 5). The resulting duality exhibits complementary opposition. The interior Nampeyo design drawn in Figure 16 is interesting in this respect in that, at the total level, the pattern exhibits a duality of the complementary, implicit versus explicit variety. The painted and unpainted areas are each other's complements in terms of shape, although the orientation and implied directional movement are diametrically opposed. Complementary duality of this sort is related both to figure/ground equivalences and to the use of rotational symmetry.

Another characteristic of the total design system which is emergent from the several individual design principles, when these are considered together, is the importance of the total design as a total design. That is, the designs seem to be generated from the highest level downward, rather than being built up from a series of discrete elements. The distinction which I am trying to make here is analogous to the difference between a logical system which is based on deduction and one which is based on induction. In part, the importance of the total is evidenced in (or resultant from) the generation of designs relative to the conceptual center of the field. But more importantly, it is evidenced in the progressive divisions of the field such that *elements* are seemingly the conceptually last phase in the generation of the pattern rather than the reverse, i.e., the generation of pattern by the cumulative addition of elements.

The above point is important, if for no other reason than that it runs counter to the "natural" assumption that elements are of prime importance, with operations being defined in terms of elements, and being significant only as they specify the ways in which elements are to be combined. Such an assumption could follow quite automatically from an attempt to translate or adapt linguistic methodology directly to the visual realm. In the Hopi case, it would seem that *operations* have primacy. Moreover, operations seem to be performed relative to the total. Thus, for example, in the course of this structural analysis, it often seemed more accurate to suggest that a field was divided in order to produce *x* number of panels rather than to say that a particular panel was repeated *x* number of times (e.g., Figure 9), or to suggest that a field was divided in such a way as to produce four quadrants in rotational opposition to each other, rather than to say that a section was repeated four times (e.g., Figures 7 and 8).

Finally, the Hopi design system seems to be composed of different levels of design, all working in similar ways, rather

than being based on dominant and subservient (or filler) elements. This is due to the importance of the total design and its central orientation, the emergent aspect of elements, and the primacy of operations over elements. Thus, for example, the total design may be composed of several panels, which are in turn composed of sub-panels, which are further divided and filled, etc.

## STRUCTURAL SIMILARITIES IN OTHER SYSTEMS: WORLD VIEW

The premises of this study, it should be recalled, are twofold: (1) that designs can be analyzed as a structural system, i.e., that certain generating or structuring principles can be inferred by induction, and (2) that the structure of designs should logically be related to the structure or structuring of other Hopi cultural systems. Thus, having attempted a "structural analysis" of Hopi pottery designs and having arrived at a particular visual structural system, an obvious second step would be to see if, or rather how, these visual structures correlate with the structure of other systems. For example, does the way in which the designs are organized have anything in common with the way the Hopi cosmos is conceptually organized (or structured)? Or, more realistically, what do the two systems have in common? Although any number of Hopi systems and sub-systems could have been analyzed for purposes of comparison, the "world view" or structuring of world seemed the most basic, and therefore the most obvious system to present in the brief space allotted here.

### *"Linguistic" Structuring of Reality*

The choice of world view was a particularly obvious one since it was largely on the basis of Whorf's studies of Hopi linguistics (1936, 1938, 1940, 1941) that he formulated his noted hypothesis, and since I am considering "world view" or cosmological organization broadly enough to incorporate Whorf's lexical and grammatical structuring of reality, i.e.:

A world view provides a people with a structure of reality; it defines, classifies, and orders the "really real" in the universe, in their world, and in their society. In Clifford Geertz's phrase (1957), a world view "embodies man's most general conceptions of order" [Ortiz 1972:136].

According to Whorf (1950:68), the metaphysics underlying our own language entails the imposition on the universe of two grand cosmic forms: time and space. The former is kinetic, one-dimensional, and subject to a threefold division, i.e., past, present, and future; the latter is static, three-dimensional, and consists of infinite space.

By contrast, time and space, as such, are simply not Hopi concepts. That is, time as an objectified concept is not translatable into Hopi, either in terms of specific words, expressions, grammatical forms or constructions; nor do the tenses past, present, and future have Hopi equivalents (Whorf 1950:67). And yet, as Whorf points out, without these distinctions "the Hopi postulates equally account for all phenomena and their interrelations" (1950:67). The question is, how? The answer is that the Hopi also impose upon the universe two grand cosmic forms: these are not



time and space, but rather manifested and unmanifested (or manifesting). These could also be thought of as objective and subjective:

The objective or manifested comprises all that is or has been accessible to the senses, the historical physical universe, in fact, with no attempt to distinguish between present and past, but excluding everything that we call future, BUT NOT MERELY THIS; it includes indistinguishably all that we call mental—everything that appears or exists in the mind . . . and by an implication and extension . . . in the very heart of the Cosmos itself [Whorf 1950:68-69].

Whorf makes the observation that we<sup>6</sup> carry spatial concepts (almost obsessively) into our speech and thought through the use of spatial metaphors of all sorts, and by “objectifying—imaginatively spatializing qualities and potentials that are quite non-spatial (so far as any spatially-perceptive senses can tell us)” (1941:83). By contrast, the Hopi language evidences a total avoidance of such metaphors and extensions of spatial concepts to non-spatial matters (1941:83). Whorf’s explanation for this phenomenon is that major Hopi grammatical patterns do not provide analogies for imaginary space, and that the Hopi have other linguistic devices, in particular verb forms, which serve the same expressive purpose (Whorf 1941:83).

Rather than suggest that the Hopi do not carry spatial concepts into their language and thought, as Whorf does (1941:83), I suggest that one could as validly say that the Hopi carry “non-spatial” concepts into their spatial thought. That is, that the same structuring principles come through in verbal *and* visual thought and expression.

For example, it seems that sequence, repetition, duration, and intensity in the Hopi language are all relevant considerations in Hopi designs and express characteristics which were seen to generate the designs.

The more one learns about Hopi linguistic forms, the more apparent the parallels between linguistic forms (particularly verb forms) and the structure of the design system become. For example, in a quite detailed paper, Whorf (1936) deals specifically with two of the nine aspects of Hopi verbs; the segmentative and the punctual. In that paper he presents the following series of concrete examples to demonstrate the change from a punctual aspect (manifested about a point) to a segmentative aspect (a series of repeated interconnected segments of one large phenomenon), by the consistent reduplication of the root and addition of a suffix (Whorf 1936:52):

<i>ha’ri</i> it is bent in a rounded angle	<i>hari’rita</i> it lies in a meandering line, making successive rounded angles (applied for instance to meander patterns in decoration)
<i>ho’ci</i> it forms a sharp acute angle	<i>hoci’cita</i> it is zigzag
<i>pa’ci</i> it is notched	<i>paci’cita</i> it is serrated
<i>ši’va</i> it is gullied out	<i>piva’vata</i> it extends in successive gullies and gulches (said of ground)
<i>ca’mi</i> it is slashed inward from the edge	<i>cami’mita</i> it is fringed, it is slashed into a fringe along the edge

What is significant in terms of this paper is neither the specific linguistic mechanism used (although it relies on a reduplication which is interesting), nor the specific Hopi

words, but rather both that the specific connotations of the above words (punctual and segmentative) seem eminently suited to describing many Hopi designs, and that the implied cognitive distinctions which are apparently necessary in choosing the proper aspect of a verb also seem relevant to Hopi designs. Moreover, the particular set of words cited above is not unusual in terms of the particular discriminations which it requires.

The Hopi language is equipped to deal with (and requires discriminations dealing with) vibratory phenomena, forces, repetitions, type of sequences, duration, etc. Similarly, the design system seems to be based on repetition, to be generated by central forces and by rotational forces and movements, and to vary according to number and type of sequences. In addition, the Hopi language exhibits marked tendencies to use verbs rather than nouns (Whorf 1950), to transform our propositions about things into propositions about events, and not to “objectify” or think in terms of entities (Whorf 1941:79). I cannot over-emphasize that processual descriptions based on operational distinctions of the above type seem more readily applicable to a description of Hopi pottery designs than a terminological system based on classifications of elements or “entities.” It is relatively easy to determine sequence, repetition, and intensity of designs (which areas are highly developed and which are not); it is not always possible to determine which parts of a design are object (figure) and which are ground. It is also interesting to note that, as a specific alternative to “objectifying” things (thus creating “entities” of such “things” as days and hours) and creating imaginary plurals on these “entities,” the Hopi language relies instead on cyclicity and patterns of repetition (Whorf 1941:78). Their designs also seem to be based on cyclicity, and patterns of repetition, to the point of reflecting patterns of change without having discrete “elements” (e.g., Figure 10). As for the two grand cosmic forms which Whorf (1950:68) has delineated—manifested and unmanifested—it seems more than coincidental that there is not a figure (object) on a (residual) ground in Hopi pottery designs, so much as an explicit or painted form and an implicit or unpainted form, each of which seems significant (cf., in particular, Figure 16). Could this not be seen as a visual representation or rather a structural reduplication of “the Hopi philosophy of the universe in respect to its grand dualism of objective and subjective” (Whorf 1950:70)? I suggest that, if not created with this similarity in mind, the designs which employ this device are unconsciously appealing, or correct, or “aesthetic” *because* of this structural similarity.

### *Cosmological Structuring and Reality*

While the preceding Whorfian analysis presented a way of “structuring reality,” and could in that sense be considered a “world view,” it was so abstracted as to be more of a meta-world view. I would therefore like to use this section to briefly present a more specific, or at least more concrete version of the Hopi world view, particularly the Hopi cosmology, which could perhaps be thought of as a created rather than a mediated reality. Toward this end, I will rely heavily on overview articles by Ortiz (1972) and by Thompson (1945).



Ortiz (1972) concedes that it is both possible and productive to talk of a general Pueblo world view, i.e., those aspects of world view which are universal to all the Pueblo people (1972:142). The first generalization which he proposes for all the pueblos is that:

they all set careful limits to the boundaries of their world and order everything within it. These boundaries are not the same, but, more important, the principles of setting boundaries are . . . [Ortiz 1972:142].

The idea of setting boundaries at all, and further, the idea of setting them as an initial operation in the process of ordering, is once again paralleled in the Hopi design system. Their pottery designs seem, in many cases, both processually (cf. Bunzel 1929 and Hubert 1937:9) and conceptually (cf. the Structural Analysis section of this paper) to be generated by the successive setting of boundaries. I might add, as an aside, that Hopi architectural terminology also deals with boundaries of spaces rather than with spaces as entities (e.g., rooms, hallways, etc.); thus hollow spaces are not named as objects but are rather located or described by relative location (cf. Whorf 1953).

The boundaries of the cosmos are specifically set by the Hopis according to four cardinal directions and three cosmic levels. In addition:

All the Pueblos also have a well-elaborated conception and symbolization of the middle or center of the cosmos, represented by a *sipapu*, an earth navel, or the entire village. Usually there are many different centers because sacred space can be recreated again and again without ever exhausting its reality . . . . Among the Pueblos, the center is the point of intersection of the six directions, with a seventh being the center itself. If only four directions are given symbolic elaboration, the center will be the fifth direction [Ortiz 1972:142].

The importance of a conceptual center as a generating force, and indeed as the intersection point of several directions, again seems structurally congruent with the conceptual importance of the center as a generating force in the design system. In that system, the center is the intersection of all central axes, or the constant point in the rotation of any one axis. Similarly, the relative definition of sacred space seems to be structurally duplicated in the individual design panels and sub-panels which are organized (rotationally or otherwise) relative to their own respective centers.

Much of what I have discussed previously is corroborated by Thompson (1944, 1945), such as: the tendency to conceptualize phenomena in terms of growth cycles, repetitive and vibratory movement patterns and serial metamorphoses, the tendency to conceptualize Hopi history as an unfolding of sequences or phases, and the dynamic view of the cosmos (1945:542). The nature of Hopi duality, particularly as that duality differs from our own, is also discussed:

the Hopi concept of the balanced, correlative interdependence of the manifold aspects of reality excludes an arbitrary over-all dual division, such as that which structures our own thinking and forms the basis for our traditional ethical concept of the competing forces of good and evil. Duality in the Hopi world view exists only insofar as it represents two correlates in a reciprocally balanced universal scheme, and each correlate is conceived as an indispensable part of the whole, neither one being essentially subordinate to the other [Thompson and Joseph 1944:44].

At the risk of belaboring a point, I suggest that the type of duality described above is structurally duplicated in the yin-yang type of (complementary) duality which is based on equal figure and ground and on rotational symmetry, rather than in the (antithetical) duality of bilateral symmetry.

Once again, the importance of the total, and of periodicities and cycles, suggests apparent structural parallels with the design system. In particular I suggest that such designs as the pottery design shown in Figure 10 (and schematically diagrammed in Figure 11) represent a visual structural replication of the way reality is conceived, again probably unconsciously. I further suggest that structural parallels are to be found and are significant in other systems, e.g., Hopi ethics or Hopi religion, but shall not deal with these at this time. The world view has already been discussed in sufficient detail to at least indicate the plausibility of the structural analysis of pottery designs given earlier in the Structural Analysis section and to suggest that that structural system relates to other "non-visual" structures and structurings.

## CONCLUSIONS

In an effort to elucidate the elusive nature of structure, Lévi-Strauss (1960:52) made reference to a hypothetical jig-saw puzzle generated by a hypothetical mechanical saw, the movements of which were regularly modified by a hypothetical cam shaft. The structure of the puzzle does not exist, he suggests, "at the empirical level" (which would, I presume, be essentially a description of the proxemic relationships between parts of the assembled puzzle); rather, it lies in the mathematical formula which expresses the shape of the cams and their speed of rotation.

With the frank acknowledgment that I will in the process probably be subverting the intended meaning of Lévi-Strauss' analogy, I would like to extend it. I suggest that the above formulation "of the empirical level" could be thought of as structure (noun form), whereas the mathematical formula would, by contrast, represent structure (verb form). The former refers to product; the latter refers to process. Similarly, I suggest that designs could be thought of in terms of design (noun form) or in terms of design (verb form).

This paper represents an attempt to deal with design (verb form), with design as process, with design as a created system which follows certain principles of elaboration which may well conform to the principles followed in other cultural systems. In that context, my main conclusion is that I have begun, and that that beginning is worth continuing. In that sense, the questions I have answered, however tentatively or speculatively, are less interesting than the further questions which those tentative answers suggest. Accordingly, my conclusions will deal both with what has actually been done in this study, and with what further studies or approaches could or should, as a result, be attempted.

### *What Has Been Done in This Study*

Very simply, I have attempted both to delineate the structure of a particular design system, and to compare that structure with the structuring principles followed in other systems in that culture. In particular, I have dealt with



linguistic structuring of reality, since much of Whorf's work was with the Hopi language, and since I was initially interested in a visual equivalent of the Whorf Hypothesis. The tentative conclusion on this particular relationship is that the same structuring principles do seem to be operative in both systems, and in other systems as well (cf. Thompson 1945; Ortiz 1972). A further conclusion, which will be elaborated below, is that such structural similarities are revealing.

In terms of the specific structural analysis of Hopi pottery designs, certain tentative conclusions are more intrinsically interesting than others. In particular, I am thinking of my tentative conclusions as to: (1) the importance of operations rather than entities as a conceptual clue to the organization of the designs, and (2) the likelihood of designs being generated "downward" by successive divisions rather than "upward" by the cumulative addition of elements. Both of these are interesting if for no other reason than that it often seems to be assumed that the reverse is the case, i.e., that elements are of prime importance, and that designs are formed by the progressive addition of elements. The point here is that the reverse *may* be the case in some art systems, but that it *needn't necessarily* be the case. The seeming lack of figure and ground in the traditional sense is also an interesting principle in this respect; i.e., it is possible not to have traditional (dominant) figures and (residual) ground, as such.

In that sense, my specific analysis of Hopi pottery designs as a structural system serves to expand and explore the realm of logical possibilities of design, so that actual ways of organizing designs can be placed in the context of possible ways of organizing designs. Such an examination of *logical possibilities* (particularly as these are phrased in terms of structural possibilities) is essential if one is ever to be able to discuss the *logical probabilities* of designs or design motifs occurring in disparate cultural groups, or if one is to draw cross-cultural comparisons. I suggest that if a cross-cultural grid or etic scale is at all possible, it will ultimately be a structural grid. To the extent that this paper deals with a process approach to art, and attempts to examine structural possibilities and cognitive implications of possibilities, it contributes towards the eventual establishment of such a grid. To the extent that it also seems to make Hopi pottery designs more visually and conceptually comprehensible, it also makes a contribution.

In addition to feeding back into the art context from which it derived, I think this study has a minor, though real, potential for being recycled into the structural framework from which it derived. That is, I think that any information on "visual" cognition and structuring is of obvious relevance to structural theory in general. For example, the distinction between the dualities entailed in rotational versus bilateral symmetry seems to suggest that "binary oppositions" may be of more than one type (e.g., antithetical oppositions and complementary oppositions) and would probably be worth investigating further.

The above are what I consider to be the strengths of this study. However, the study itself suffers from a certain symmetry and balance: every strength is matched by a weakness. Generally the weaknesses seem to follow from the tentativeness of the study. In particular, I see three weak-

nesses, none of which are irremediable. (The remedies will be discussed in the next section.)

First, this study would have been infinitely stronger if I had been able to interview potters, and to observe the designs being painted. Instead, I had to rely on written material, and answers to other people's queries (e.g., Bunzel 1929), which did not always correspond to what I would have liked to ask.

Second, the structural analysis of the design system was phrased in such a way as to be more subjective than objective. The analysis was certainly made more plausible by the existence of numerous structural similarities in other systems. However, these similarities present a compelling rather than a conclusive case for the analysis. Thus, although one could argue that the analysis was to some degree confirmed by the structural similarities in other systems, such an argument would be undeniably circular, i.e., preliminary research on the Hopi no doubt influenced the analysis of their pottery. (However, if the argument is circular, it is no more circular than the relationship which is being investigated.) All of which is not to say that an analysis such as was given in the Structural Analysis section must necessarily remain either tentative or unverifiable. Rather, it can be used to generate predictions which would themselves be testable. At least one such set of predictions will be discussed in the next section.

Third, this study suffered from the lack of an adequate terminology with which to describe a design system concretely and precisely, and with which to state empirically verifiable propositions. Having chosen the "bricoleur's out" to describe the structural system, I made no progress in the specific invention of a genuinely "scientific" terminological system. However, the general parameters which such a terminology should follow did become clearer.

### *What's Being Done as a Result of This Study*

I am currently following two quite distinct lines of investigation, each of which follows from the framework and conclusions of this paper. The first entails making specific experimental predictions on the basis of the Hopi study, and devising a feasible way of testing them. The second entails studying an entirely different art system occurring in a structurally dissimilar though equally cohesive society, in an effort to broaden my framework and test its general applicability and explanatory value. Both will be briefly described below.

Although the specific structural analysis presented in this study is of unverified psychological validity, it can be used to generate predictions which are directly verifiable. Toward this end, I returned to and modified my original idea of test drawings. As conceived of originally, the test drawings would have entailed taking a standard design motif, varying it randomly, and using those variations to determine which types of variation are significant and which are not. Whereas this seems to work well for linguists, and is methodologically flawless, it is quite unwieldy when operationalized for designs because the variation is hard to control. The test drawing technique was eventually modified such that it was not to be used to elicit information randomly, but rather to test specific predictions.



The experimental procedure is as follows: The subject is given a drawing of a simple design and asked to examine it so that he can subsequently reproduce it from memory. He would then attempt to draw it himself, and would be given the opportunity to make verbal corrections and to indicate possible deficiencies and vagueness in his drawing (thus allowing him to compensate for lack of drawing ability and providing a measure of his certainty as to what was correct and what was hazy in his visual memory). Lastly, he would be asked to describe the original design verbally. The drawing process would be filmed, thus providing a permanent record of the sequence in which the design was reproduced.<sup>7</sup>

The theory behind such a procedure is as follows: First, it is assumed that in order to reproduce the design, the subject would be forced to actively organize it and classify it in a systematic way. The correctly rendered aspects of the design would provide some indication as to which aspects of the design were actively classified and in what ways, just as the mistakes would presumably indicate which aspects of the design were not particularly relevant to the viewer's ordering system. Similarly, it is thought that the sequence in which the design is reproduced is indicative of the relative importance of the various ordering principles. The use of verbal description would provide a way of testing the relationship between linguistic categories and visual discriminations: presumably those aspects of the design which are noted verbally would be correctly rendered in the subject's drawing.

In order to obtain significant results in the above experiment, the test drawings would have to be created with specific ordering principles and variables in mind. For example, see the test drawing below (Figure 21). It is a relatively simple and highly regular design if perceived as a rotational design composed of an inner and outer line arranged in directional opposition to each other. If one were more accustomed to bilateral symmetry, and tended to classify in terms of entities rather than lines, it would probably be considerably more difficult to perceive correctly.

Using such a test drawing, and on the basis of both the structural analysis of Hopi pottery designs and Whorf's work on linguistics, I would make several predictions. Specifically, I would predict that if the above test drawing were given to a large group of Hopis and a large group of Anglo-Americans, the following patterns would emerge statistically: that the Hopis would be more consistently accurate in rendering the rotational repetitions and the specific directions would be more often correctly reproduced, that the Hopis would be more likely to notice that all of the swirls (including the inner ones) are virtually identical in size, and that they would be more likely to reproduce the design by first drawing a continuous outer and then a continuous inner line (rather than by several choppy lines used to block out a shape). I would also predict that the Hopis would be more likely to verbally describe the design in terms of lines and motion, and that the Anglos would be more likely to describe it in terms of entities.

The second line of investigation which follows indirectly from the structural analysis of Hopi pottery designs is an analogous though greatly modified structural study of Northwest Coast Indian art. In part, that particular system interested me because it is structurally opposed to the Hopi

system in so many ways: Northwest Coast designs are predominantly bilateral (to the point of split representation), balance is quite literal (e.g., literally an eye for an eye and a tooth for a tooth), the field is almost entirely filled in many cases, and "elements" seem to be extremely important. The organization of Northwest Coast societies seems correspondingly opposed to the Hopi organization as well, but it does not seem worthwhile to develop those comparisons at this time.

In the particular study of Northwest Coast art which I am working on at present,<sup>8</sup> I have changed my approach in the following ways. First, I am considering operations which are more directly Lévi-Straussian, i.e., (1) the operation of visual intersections, and (2) the operation of inversion. The former operation is visually equivalent to mediation as that is used in myth, and seems to be a reverse and complementary operation to visual opposition. It is used as a way of combining both elements (to produce a formline system) and total figures, and is the specific mechanism by which numerous visual puns are formed. The operation of inversion is used on the meaning level such that humans and crest animals are shown in symbolically inverted circumstances (e.g., a crest animal which occurs on a headdress worn by a chief might itself be wearing a similar headdress consisting of a human figure). Again, the operation is similar to one which occurs in myth. Secondly, I am working on the meaning level more directly, since much of Northwest Coast art is crest art, or is at least directly representational. (The premise in this case is that such an art system is used as much to indicate relationships between crest groups as to merely differentiate them.) What follows directly from the Hopi study, in this case, is the use of a process model which is directed at operations rather than at configurations.

Thus the final conclusion to this paper is a premise: that design can be studied in terms of process, and in terms of system, and that such studies both answer and generate structural, "visual," and cognitive questions.

## NOTES

<sup>1</sup> This study is a revised version of a senior honors thesis submitted to Harvard University in 1971. The original study was financed by a National Science Foundation research grant obtained through the Harvard Anthropology Department, and was largely carried out using the resources of the Museum of Northern Arizona's Research Center. This manuscript was prepared while I was on a fellowship program at the Smithsonian Institution in Washington, D.C. I would therefore like to acknowledge the support of all of the above institutions. In addition, I would like to thank those people who assisted me at the Museum of Northern Arizona for their help, Dr. Jeremy Sabloff who was my thesis advisor at Harvard for his encouragement, and Professor Sol Worth of the Annenberg School of Communications for his generous assistance and constructive comments both on this manuscript and on a related verification project conducted at the Summer Institute of Visual Communications in Santa Fe, New Mexico, during the summer of 1972.

<sup>2</sup> I am admittedly interpreting both Arnheim's and Lévi-Strauss' work selectively, and in that sense make no pretense of accurately representing either of their frameworks. In addition, having discussed the work of Whorf with Arnheim on one occasion, I know for a fact that despite all the possible congruences which I see, he is aware of irreconcilable differences (personal communication 1971). For a discussion of some of these differences (cf. Worth 1974:276-279).

<sup>3</sup> I am using *Hopi* (in reference both to pottery and its makers) to indicate both the Hopi and the Hopi-Tewa, and descendants of the group of Tewas who migrated to the First Mesa town of Hano some



300 years ago. Although they still maintain a certain cultural autonomy, the pottery tradition is, for the purpose of this analysis, essentially the same as the Hopi. Some of the pots illustrated in this article, are Hopi-Tewa.

<sup>4</sup> I have generally not cited specific sources for this and the preceding two technical sections, because the information is such a conglomeration of so many sources, most of which are listed in the bibliography.

<sup>5</sup> In particular, Shepard (1956:269) defines band patterns in terms of operations by which the repetition occurs, e.g.: translation (forward movement without change in orientation), reflection (folding along an axis so as to produce a mirror-image), bifold rotation (a 180° rotation of a single axis), as well as various combinations of the above. These seem to be predominantly conceptual or cognitive operations, rather than actual physical operations. Symmetries of total patterns could thus conceivably be classified in more than one way, depending upon what one defined as the 'element' which is subjected to the operation. In this study, I have concentrated both on the operation of rotation (180° or otherwise) and on the division or creation of fields which imply rotation, although the resulting symmetry (if there is one) could often be classified as 'radial' just as easily as 'rotational.'

<sup>6</sup> The terms *we* and *our*, as used to refer to citations of Whorf (1941), specifically refer to the group which Whorf has labeled "Standard Average European." This category includes English, French, German, and other European languages, the assumption being that all such languages use the same basic distinctions (Whorf 1941:78) in the grammatical constructions and categories discussed, and differentiated from the Hopi language. In other citations from Whorf, the same referent is probably applicable, but it is not specified explicitly.

<sup>7</sup> This experimental procedure, including the use of film to record the drawing process, was devised and tested in preliminary fashion during the summer of 1972, at the Summer Institute in Visual Anthropology, held in Sante Fe, New Mexico.

<sup>8</sup> This study forms the basis of a doctoral dissertation for the University of British Columbia.

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## FIGURE CREDITS

Most of the pottery shown in the illustrations is from the collection of the Museum of Northern Arizona in Flagstaff. These pots are labeled by the abbreviation MNA in the following list and are followed by their catalogue numbers. All other pottery, listed as "modern (1970)" in the following list, appeared at the Craft Exhibit at the Museum of Northern Arizona during the summer of 1970. All photographs and drawings are by the author. Figures 5 and 21 are schematic drawings.

- Figure 1 — modern bowl, MNA Craft Exhibit (1970).  
Figures 2, 3 — MNA cat. #2208/E1503.  
Figure 4 — modern bowl, MNA Craft Exhibit (1970).  
Figure 5 — schematic drawing by the author.  
Figure 6 — MNA cat. #225/1015.  
Figures 7, 8 — MNA cat. #1015/E556.  
Figure 9 — MNA cat. #1014/E515.  
Figures 10, 11 — MNA cat. #774/E2630.  
Figures 12, 13 — MNA cat. #918/E458.  
Figure 14 — exterior panel from MNA cat. #255/1013.  
Figure 15 — interior design from MNA cat. #1015/E521.  
Figure 16 — interior design from MNA cat. #1026/E615.  
Figure 17 — modern bowl, MNA Craft Exhibit (1970).  
Figure 18 — MNA cat. #782/E157.  
Figure 19, 20 — modern bowls, MNA Craft Exhibit (1970).  
Figure 21 — schematic drawing by the author.



## THE SITUATION AND TENDENCIES OF THE CINEMA IN AFRICA

### PART I\*

JEAN ROUCH

translated by STEVE FELD

The cinema began to take hold in Africa from the first years that followed its invention. In South Africa, for example, as early as 1896, cinema was introduced by a vaudeville magician who had stolen a "theatregraph" from the Alhambra Palace in London. And today, the word "bioscope," used from the turn of the century by "Warwick bioscope" projectors, is still the usual word for cinema in South Africa.

In West Africa, the first attempts at cinema projections date from 1905, the year that travelling cinemas projected the first animation strips in Dakar and surrounding areas. At the same time pioneers and explorers began to use the camera, and the French cinémathèque has several catalogs of George Méliès referring to the first films made in Africa.

Since this pioneering period, the cinema has developed considerably, but one must nevertheless note, along with Georges Sadoul, that Sub-Saharan Africa not only remains one of the most under-developed areas of the world in terms of films shown,<sup>1</sup> but moreover the most backward continent in the area of film production. While Asia, South America, and Indonesia have long been making films, Sub-Saharan Africa has not yet produced a single feature length film.

In the words of Georges Sadoul, "Sixty-five years after the invention of the cinema, in 1960, there is not to my knowledge a single true feature length African film production—acted, photographed, written, conceived, edited, etc., by Africans and in an African language. Thus two hundred million people are shut out from the most evolved form of the most modern of the arts. I am convinced that before the close of the 1960s this scandal will be but a bad souvenir of the past."<sup>2</sup>

It thus appears particularly opportune today, at a time when African cinema is being born, to take account of current productions in Africa, the possibilities of new productions and distribution, and to analyze the current tendencies in the new African cinema.

The plan of our study will be the following: (1) an account of commercial, educational, and documentary films made in Africa up to today; (2) an analysis of the importance of these types of film from filmic, cultural, and social

viewpoints; (3) an analysis of new tendencies and the conditions for the development of a true African cinema.

As to reference documents: It is important to note here the considerable difficulties of documentation in the field of African cinema. I apologize for many errors and omissions that are inevitable in this type of study; but I think that above all this report is a foundation, which after the necessary corrections and rectifications will give researchers access to information for their studies.

I have gathered these data by using: the classic literature—unfortunately very slight—on African cinema (Georges Sadoul, Leprophon, Thévenot); a review of the first and only international conference on "Cinema in Sub-Saharan Africa," organized in Brussels during the World Fair in July 1958; different UNESCO reports (in particular the report of January 1961, concerning the development of information media in under-developed countries), different articles on African cinema published in the journal *Présence Africaine*, and the special issue of *La Vie Africaine* on African cinema (June 1961). I have also made as much use as possible of reports of information services prepared by African republics in response to a questionnaire circulated by the Comité du Film Ethnographique of the Musée de l'Homme in Paris. Finally, I will make much reference to my own experience as a filmmaker and observer during the course of several trips to West Africa since 1941.

### ACCOUNT OF AFRICAN FILMS TO PRESENT

In this rapid survey we will only distinguish two categories of film: (a) commercial and documentary films, and (b) educational films. In fact, it is not possible to establish very neat boundaries between commercial, documentary, scripted, and ethnographic films; these genres have frequently been mixed since the beginning of African film. On the other hand, educational films can be neatly placed to the side, as their appearance has been recent, and their aim and manner of technical production has been completely different.

#### *Commercial and Documentary Films*

The first films shot in Africa by foreign directors (and with rare exceptions, all of the films analyzed in this account are, unfortunately, of this type) were boldly exotic. One sees here a logical continuation from colonialist literature, which also, until the last few years, was aimed toward this sense of removal and bewilderment.

We know very little about the first Méliès documentaries or the films made by Pathé before 1925, but what their catalog titles indicate is the capricious foreignness of savagery and cannibalism; showing the African as a peculiar animal whose behavior is rather laughable, when not classed at the very limits of pathology.

The first World War allowed Europeans to discover another aspect of the African: the courage and good humor of the Senegalese sharpshooter favored the creation of the stereotype of the complacent childish Black, the "Uncle Tom."\*\*\*

It is peculiar to note parallel images of the Black stereotype: In the United States, until the second World War the Black American was reserved for film roles of the smiling

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*This is the second in a series of translations of the major writings of Jean Rouch, translated by Steve Feld, which will appear in the first five issues of Studies. An introduction by Feld to the entire series of articles appears in Vol. 1 No. 1.*

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domestic, just as at the same time in African cinema the Black African was either the incomprehensible savage or the devoted servant, never lacking in a sense of humor.

The first noteworthy film about Black Africa is undoubtedly Léon Poirier's *La Croisière Noire*, made during the first automobile crossing of Africa, from north to south, by Citroën tractors (October 1924-June 1925). The basic subject of this film is auto adventure, but parallel to this real epic some representative aspects of populations encountered during the trip are shown. The travellers were undoubtedly in a hurry, but it is obvious that they took some time to choose and look at their subjects. The documents have aged, but remain as inestimable archival data, both in terms of the discovery of Africa and the evolution of African cultures. Without doubting the sincerity and good will of the filmmakers, two orientations are clearly apparent; the incomprehension of a world just glimpsed, and having stopped to look closer, the barbary of what is discovered there (platter-lipped women, circumcision rites, aspects of the daily life of pygmies, etc.). Although they are rendered as objectively as possible, these images remain frozen, if not ironic documents, quite far from the human warmth of the films made previously or at the same time by Robert Flaherty (*Nanook of the North*, *Moana*).

The same feeling was present in all of the written or filmed reports of expeditions of the period; the West discovered the rest of the world with a lens little different in viewpoint from the pen of Marco Polo.

Unfortunately, the situation degenerated, and in succeeding films Africa was but a continent of barbarism and inhumanity. Clearly, Africa was not the only continent subjected to this treatment: Asia, South America, Greenland, and generally all colonized countries were recalled on the screen from meager images of wild dances, guitar players, or primitive hunts. Titles like *Among the Cannibals*, *Among the People Eaters*, and *Bali, Island of Naked Breasts* sufficiently evoke the spirit, or rather the lack of spirit, of the period.

Raymond Barkan, in a particularly well documented study—"Vers un cinéma universel" (*Cinéma 61*)—describes several typical scenarios:

An ivory hunter (frequently accompanied by the widow of an explorer) abandoned by his porters, captured by a ferocious and vociferous tribe, is saved at the last minute by the bullets of an emergency squad. Or: In the debilitating climate of the tropics, a white man (generally a plantation owner) and a white woman, in the midst of dreadful love-life complications, are aggravated by an indigenous rebellion, or occasionally by an earthquake or floods. Or: In India, the polo addicted officers of His Majesty's Britain, gain fame at the head of their Sepoys against revolting bands. Or: In the Sahara, foreign legionnaires or Arab troopers (their captain joined the Army in a fit of the blues) victoriously battle against a group of pillagers. These explorers universally dream of civilization penetrating the Dark Continent, vehemently attacking the powers of sorcerers, and blazing the trail for missionaries who would convert the natives to Christianity and doctors who would immunize them against sleeping sickness.

"We are writing with a minimum of humor and dramatization" observes Barkan justly.

As a completely new means of expression, the cinema neither had the spare time nor the desire to read the works of Lévy-Bruhl and Frazier. Working at the level of newstand adventure novels, the racism of these films was more stupid than deliberate. If cinema sacrificed itself to all of the commonplace colonialist ideas, it was equally for purposes of commercial conformism as for political

conformism . . . In truth, the Hindus, Africans, Indians, and Arabs were of little more consequence than the lions, tigers, orangutans, cobras, and scorpions among whom they accomplished their missions in the jungle, the tropical forest, or the desert.

And Barkan concludes: "Whatever antipathy comes from this cavalier treatment inflicted on our colored brothers, there is no proof that it added to the racialism upheaving mankind."

From this period, dominated in France by the colonial exposition of 1931, we are reminded of *Trader Horn*, where one of the chief attractions was an African being devoured alive by a crocodile (and from the statement of the filmmakers it was never really clear whether the sequence was faked or accidental) and above all of *Bozambo* (also known as *Sanders of the River*), a sound film with music, starring the Black American singer, Paul Robeson. I will dwell upon this latter film at length for two reasons: *Bozambo* was one of the first quality sound films made in Africa, and, chiefly, *Bozambo* was quite an appreciable success in France and is still a considerable success in Africa.

On the musical level it is interesting to note that thanks to Paul Robeson's extraordinary voice, a low quality pseudo-African music was successfully imposed on both European and African listeners. For example, I've heard young Africans sing the canoer's tune, *ayoko*; this is a very rare example of musical falsification simultaneously abused by foreigners and natives alike.

The African success of this film is even more peculiar, because there has never been a film which so elevates the glories of colonialism. Based on a novel by Edgar Wallace, the film is the story of a British colonial administrator, Sanders (nicknamed "Sandy the strong") who with his African servant, Bozambo, arrives at a river area in his administrative district to put down traditional authority and maintain colonial order. For the most part, the film takes place in Nigeria; for the needs of certain action some exteriors were also shot in the Congo among Wagenia fishermen, and in animal reserves in Kenya. These authentic settings served as the basis for the studio sets in Hollywood, where the rest of the film was shot.

One can see, equally on the visual, auditory, and ideological levels, that this is one of the most faked films that has ever been made, and yet, the film continues to enjoy quite a success in Africa. Some African friends with whom I've discussed this problem have perhaps given me the key to understanding this success: for the first time in film, a Black plays a leading role, and even if it is as a puppet of a British colonial administrator, it is nevertheless sufficient to create considerable sympathy among African audiences.

*Bozambo* opened the way for an African fantasy cinema, and the hero that followed was not Black but the white Tarzan of the familiar unending film series. The raceless ape-man and his fantastic adventures against men and beasts became a pastime whose prodigious success touched upon the entire world.

In order to finish with films of this tradition made between the two wars, we will just note two very interesting films by Léon Poirier: *Cain*, made in Madagascar, and *L'Homme du Niger*, made with Henry Baur in the interior Ségou region of the Niger delta. Despite the defects of these two films, the directors deserve credit for not faking



anything. For the first time, cameras were set in place and shot natural surroundings and real people. In reviewing these films today it is strange to discover, because of the time since an earlier viewing, a sort of inversion in the pictures: the environment being the principal object of interest, to the detriment of the actors, who are transformed into secondary accessories.

On the other hand, the first true documentary films began to appear at this time. Previously, Marc Allégret, accompanying André Gide in the Congo, brought back the naïve but pretty pictures of *Voyage au Congo* (1928), where most frequently aesthetics took precedence over ethnographic and social documentation. If the film had been the cinematic mirror of Gide's classic book bearing the same title—a violent testimony against the excesses of colonialism—it would certainly have oriented those to follow in the 1930s, thus playing for Africa a comparable role to that played for Asia by Pudovkin's *Storm over Asia* (1928) or, above all, for America by Eisenstein's *Thunder over Mexico*.

But it would be necessary to await the images of the Ivory Coast rescued by Vautier (*Afrique 50*) in order for the number one problem of Africa in the twentieth century—its relation with the White world—to be evoked with sincerity, if not impartiality.

In the area of documentary film, the experience of the period between the two wars was already very conclusive. Marcel Mauss, uncontested master of the French school of ethnology, had already professed in his lectures an interest in adding still photography, cinema, and sound recording to traditional ethnographic research. And it is interesting to note that it was infinitely easier then to depart on an exploration with a 35mm camera and Edison cylinder recorder than it is today to pull together a simple expedition to the Sahara. But in fact, if for most present day leaders in French ethnology—Leroi-Gourhan, Lévi-Strauss, Bastide—this teaching of Marcel Mauss remains theoretical, a few pioneers made the first African ethnographic films during the Dakar-Djibouti expedition, which went from the Atlantic to the Indian Ocean, under the leadership of Griaule, Schaeffner, and Leiris. The first attempts were made particularly among the Dogon of the Bandiagara cliffs, and in 1938, Marcel Griaule, during a second mission, made two model 35mm sound ethnographic films.

*Au Pays Dogon* is a short fifteen-minute film illustrating aspects of the daily life, material culture, and religion of the Dogon. And *Sous les Masques Noirs* shows funeral ceremonies of a village in the cliffs, and documents the construction, role, and use of large masks, which through ritual dances permit the soul of the deceased to be returned to the dwelling of its ancestors in the next world.

At about the same time, in 1936, Jean d'Esme shot *La Grande Caravane* (35mm, sound) in Eastern Niger; it retraces the voyage of a salt caravan from Agadès to Bilma, where the salt mines are found. Unfortunately, despite the passionate images, the author could not escape the manner of the early sound documentaries, namely, the use of a gossipy and exasperating narration, and tedious music in the style of the *Persian March*.

It is the same defect which marred a short and completely forgotten film, *Coulibaly à l'Aventure*, made in 1936, in Guinea, by G. H. Blanchon. This was the first African

sociological film, and its subject is one of the most important phenomena found in West Africa—the migration of young people from the savannah to the cities of the coast. The adventures of Coulibaly, leaving upper Guinea in order to earn the dowry for his fiancée working as a docker in Conakry, and then as a miner in Sigiri, could have been an extremely valuable document, if it wasn't spoiled by the propagandist narration (in the "benefits of our civilization" style).

Outside of the scene in French Colonial Africa, and some spectacular type pseudo-documentaries which I have already said too much about, I would only mention a single valuable ethnographic film, *Pêcheurs Wagénia*, shot by Surbeck, at Stanley Pool, upstream from Stanleyville in Belgian Congo.

One had to wait until after the war to finally see the development of the African cinema, both in the realm of fiction film as well as that of documentary film.<sup>3</sup>

Finally, one other aspect of filming between the wars should be noted. It is probable that Africa was the subject for several German filmmakers who were travelling all over the world in the 1930s, making the large series of UFA and Tobias films that included Walter Ruttmann's *Melody of the World* (1929). Unfortunately, all of our research in this area has been in vain, and only documents dealing with South America and the Far East are in the cinémathèque of the Musée de l'Homme.

The second World War indirectly favored the development of "cinema on the move" ("cinéma au long cours," following the excellent phrase of Jean Thévenot), because during this period Army film units used portable materials rather than the more perfected 35mm cameras, which were heavy, cumbersome, and could not leave the studio. It was at this time that 16mm, previously only an amateur format, gained its first stronghold.

Most professional filmmakers, at that time, were reticent about 16mm (and many still are today). Yet the first color 35mm enlargements made from 16mm films about aircraft carriers and flying fortresses in operation had drawn the attention of some filmmakers, as well as some young researchers (like myself) impassioned with the cinema and the wonderful possibilities of the 16mm medium.

These divergent options created in France two opposing currents, which have a tendency to unite today—35mm professional film, and 16mm exploration and research film.<sup>4</sup>

It was in France chiefly, just after the war, that the new movement had its birth. French youth, leaving the occupation, the liberation movement, the armed forces, or the underground, were desirous of a means of escapism, a feeling that has been accurately portrayed, though through a romantic veil, in Jacques Becker's *Rendez-vous de Juillet*. The Musée de l'Homme effectively became a magnet of attraction for all youth seeking adventure and discovery. Around ethnologists like Marcel Griaule, André Leroi-Gourhan, Reverend Leenhardt, and Theodore Monod, and great travellers like Paul-Émile Victor or Bertrand Flornoy, there developed a spontaneous grouping of young, well disposed people ready to go off to Greenland, the Antarctic, Borneo, Tierra del Fuego, New Guinea, or Africa. Noël Ballif, a young organizer out of the underground, put together a short Musée de l'Homme mission, the 1946 Ogooué-Congo expedition, which was the first collaboration of ethnologists



and filmmakers and which remains a model of this genre. During this mission the first quality sound recordings in Africa were made; in addition, they allowed for making film sound tracks that would not have to fake exotic music. The three 35mm black-and-white films made during this trip—*Danses Congolaises*, *Au Pays des Pygmées*, and *Pirogues sur l'Ogooué*—remain the first high quality images and sounds of Sub-Saharan Africa, and they constitute first rate documents on traditional Congo dances, the daily life of the Ba-Binga pygmies, and canoe transportation from the Lastourville falls to Lambaréné, on the Ogooué river.<sup>5</sup>

Concurrently, a young French filmmaker, François Villiers, shot two very different films in Equatorial Africa: *Autour de Brazzaville* and *Amitié Noire*. The first told the story of how the Middle Congo rallied behind Free France during the war, and the second, narrated by Jean Cocteau, was a poetic essay on the cultures of Chad. It is necessary to say that these films are not of great interest, but nevertheless constitute one element of the renewal of African cinema.

The films of Villiers and the Ogooué-Congo mission were shot in 35mm, in the same way that conventional commercial productions were made; they required the use of heavy equipment and reliance on a camera crew. This was due to the influence of the Institut des Hautes Études Cinématographiques (IDHEC), which advocated the use of 35mm materials and technical crews for the production of all films, even those shot in the most remote areas. Yet at the same time this institute was also interested in the experiments by young groups of travellers and researchers who were voluntarily oriented toward 16mm.

For example, at the same time as the Ogooué-Congo mission, the author of this report, with two comrades, Ponty and Sauvy, descended the Niger river by canoe, and made 16mm black-and-white films during the trip. I must note that we had chosen 16mm as a last resort, because commercial cinema producers were not interested in our project. If the results were disappointing (in particular, we used a very fast negative film, and we didn't have the money to deal with problems of heat and humidity), a document on hippopotamus hunting by harpoon on the Niger river was nevertheless completed. From these pieces, *Actualités Françaises* made a 35mm blowup (the first black-and-white blowup to be made in France) and edited a ten-minute film entitled *Au Pays des Mages Noirs*.

From this point on there was a split in African cinema between two options: 35mm films with commercial and technical guarantees, and 16mm films for eventual blowup or use in lectures.<sup>6</sup>

Here we must note a single exception to the general rule of 16mm's evolution (i.e., shooting in 16mm and then enlarging to 35mm). This is the case of Albert Mahuzier, who began by making 35mm films on hunting in Chad for *Actualités Françaises*, and later created a sort of family enterprise of world travel (including a trip across Africa with his wife and nine children) and directed 16mm films for lectures. These films have been an enormous popular success in France and Belgium, but concern Africa only in a secondary manner, as the principal subject was the life of the Mahuzier family in the course of their expeditions.

After 1948 films made in Africa multiplied; it is not

possible to mention them all; I will nevertheless try to group them by types, illustrated by a few titles.

The first post-war African fiction film seems to be *Paysans Noirs* (titled *Famoro, le Tyran* in Africa) by Georges Rénier; the film was shot and produced by the same crew that made the Ogooué-Congo films. Despite the naïvete of the scenario (Voltaic countrymen are terrorized by a Black despot and it is only the intervention of the colonial administration that brings them happiness and prosperity) this film represents an important stage in the development of African cinema. For here, alongside the story, a real Africa—its countrysides, its peoples, and above all its dialogues—appeared for the first time. After *Paysans Noirs*, all African films shot on studio sets appeared singularly null. For example, *Le Char des Dieux*, a film made at about the same time in Cameroon by Alfred Chaumel, and then edited using footage from all over Africa, was outdated before it reached the screen.

Another noteworthy pre-1950 effort was Thorold Dickenson's *Le Sorcier Noir* (*The Black Witch Doctor*). This film was shot in a studio near London and was deliberately non-documentary, both in terms of framework and characters. Nevertheless, it was the first treatment of the problem of the confrontation of White and African civilization.

Also before 1950, 16mm developed further due to the new possibilities of color film and printing 16mm sound composite copies. Thus, I myself made three films in 1948: *Les Magiciens du Wanzerbé*, *Circoncision*, and *Initiation à la Danse des Possédés*. These films, like those I made preceding them, were attempts to illustrate systematic ethnographic studies in the loop of Niger. However, in the course of projections limited to professional film people, I realized that with a portable 16mm camera an ethnographer-filmmaker could bring back documents whose scope could reach beyond limited specialist audiences. After 1948 it was thus necessary to envision 16mm to 35mm color blowups,<sup>7</sup> but this operation was not technically possible in Europe until after 1951. In the United States this experiment had already proved possible using the technicolor process. Unfortunately this process necessitated printing a great number of copies in order to be commercially feasible, and was not applicable to films where the maximum demand to be hoped for would not exceed ten copies.

The year 1950 is an important turning point in the evolution of African film. The attempts of the preceding years marked the end of the cheap exoticism so characteristic of the pre-war films, and showed the necessity of discovering and understanding African cultures if one wanted to communicate about them to members of other cultures. Moreover, 1950 historically marked the opening of the colonial crisis and the first independence movements in African countries. From this point until present one sees the following trends in African films:

*Exotic Africa.* Outside of the Tarzan films, for which Africa was but a backdrop, a certain number of filmmakers, chiefly Americans, continued to exploit the "cannibal" and "witch doctor's dance" film genre. Africa, as before the war, was no more than scenery, and the Africans themselves functioned only as the unfortunate extras that one never hesitated to dress up in costumes of materials from the far



Atlantic, and paint with dreadful tatoos in order to take advantage of "local color."

As an example one can cite *King Solomon's Mines* (which started the Tutsi dancers of Ruanda-Urundi on their film career), whose very first images—a wounded elephant supported by its cows—are the only ones worth the trouble of keeping. Other examples are *Nagana*, a ghastly gangster film made among the Peul of Cameroon, but which could just as well have taken place in Marseilles or Chicago, and finally, a film made in Gabon by the production crew that made *Lost Continent*, for which a plastic skeleton was brought from Rome for the witchcraft scenes. This genre of film is far from exhausted, and today, in Kenya or Chad, someone is still shooting some new production in which Africa will serve as a country of beasts and savages, precisely fitting the White man's standard of adventure.<sup>8</sup>

*Ethnographic Africa.* Here we find filmmakers and ethnographers trying, sometimes rather clumsily, to show the most authentic aspects of African cultures. The influence of ethnographic film has not been limited to scientific research, and has already modified quite a few commercial films made in Africa.

In the purely ethnographic field, we must first note the films of Luc de Heusch, one illustrating an ethnographic thesis on Tutsi kinship (*Ruanda*), another concerning the lineage system of the Hamba of the Kasai (*Fête Chez les Hamba*). Here the ethnographer turned filmmaker, and tried to use film as a contribution to the techniques of ethnographic research. These two unpretentious but very carefully made films remain the only authentic documents on cultures of the Congo before the troubles of independence. And in comparison, the numerous high-budget Belgian films made in the Congo, such as *Congo*, *Splendeur Sauvage*, or most of the short films by Gérard de Bœe, seem less faithful.

The case of Henri Brandt is different: he was a filmmaker who came to ethnography in order to make a film in Africa. After a preparatory mission among the Peul bororo nomads of Niger, Professor Gabus, director of the ethnographic museum at Neuchâtel, sent Brandt out to the field for a year alone with these savannah pastoralists. Working in 16mm, Brandt brought back an extremely valuable document, accompanied by remarkably well recorded location sound. Brandt's *Les Nomades du Soleil* remains a classic film, even though it has never been distributed commercially.

From the beginning, all of these efforts were not particularly well greeted in scientific circles, and when the Comité du Film Ethnographique was created at the Musée de l'Homme, and charged with the responsibility of initiating students of ethnography to the techniques of cinema, a certain number of ethnographers reproached us for placing the research of an image before ethnographic research itself.<sup>9</sup> Despite this slight resistance, a true school of Africanist-filmmakers has developed, some working alone, others working with the aid of film technicians. We should mention the following.

Among the ethnographers: Capron, who with filmmaker Serge Ricci made *Noces d'Eau* (fertility rites of the Bobo and Bambara in the San region of Mali) and *Bobo-Oulé* (daily life of the Bobo-Oulé on the border of Upper Volta and Mali;

Igor de Garine, who alone shot *Gourouna*, *Bergers Sacrés* and *Les Hommes du Logone* (both concerning daily life and religion of peoples in Chad); Claude Millet, who despite problems with a bad camera made one of the most disturbing films on rites of passage in Equatorial Africa, *Rites de la Circoncision Chez les Mongom*; Monique and Robert Gessain, who illustrated their work on large initiation ceremonies of the Coniagui (Guinea-Senegal border) with the color film *Le Temps du Caméléon*; Guy le Moal, ethnographer and director of the Research Institute in Upper Volta, who during the many years of research for his thesis on the Bobo-Fing made a film on the role of children in religious masking traditions, *Les Masques des Feuilles*; and Dr. Zahan, anthropology professor at the University of Strasbourg, thanks to whom I was able to make a film on the funeral ceremonies of Mossi chieftans in Upper Volta, *Moro-Naba*.

Among the filmmakers: Jacques Darribehaude, who made two 16mm color films in Mali, *Pays Mandingue* and *Saison Seche* (daily life in Malinke country in the goldfields of the Sigiri region); Georges Bourdelon, who made a 16mm documentary on artisans of the Sahara, *Forgerons du Désert*; Pierre Ichac, who while out shooting a film on wild animals brought back a 16mm synthetic documentary on populations of Chad, *En Regardant Passer le Tchad*.<sup>10</sup>

Even professional filmmakers began trying to make truly ethnographic films. Jacques Dupont, filmmaker of the 1946 Ogooué-Congo expedition, later made, in 1951, a remarkable film, *La Grande Case* concerning Bamiléké, Peul, and Bamoun chieftainships in western Cameroon. Pierre-Dominique Gaisseau (also a former member of the Ogooué-Congo mission) made a series of films in Guinea on the Toma, Bassari, and Nalou peoples; *Forêt Sacrée* (first version in 1953), *Pays Bassari*, and *Naloutai*. Following these first documents Gaisseau went back to Africa with two European friends in order to be initiated into the secret societies of the Toma. The long version of *Forêt Sacrée* is the story of their attempt. Little by little they are received by members of Toma society, are tattooed, make a retreat into the forest for purification rites, but then, at the last moment, are not allowed to penetrate into the sacred forest. Sick and demoralized, they abandon their attempt. This film, which was contested by a number of ethnologists who felt that being initiated into another society was the surest way to lose the objectivity necessary for scientific study, nevertheless brought an entirely new aspect of ethnography to the screen. For the first time one is an actual witness to the research, which perhaps was hopeless, but nevertheless shows an unbounded respect for African culture. For in the end, this defeated attempt is a defense of the forest, which refused to be violated by unknowns, despite the fact that they had made relatively considerable accomplishments.<sup>11</sup>

*Evolving Africa.* Here filmmakers tried to show the problems posed by contact between traditional Africa and the modern world. In this instance the cinema is up against the same obstacles as African sociology. In both cases the principal stumbling block appears to me to be an ignorance of traditional cultures in the process of evolution. This fault is particularly serious when manifest in films of a propagandistic tendency, where the filmmakers preferred to mock



traditional African cultures, rather than attempt to understand them.

We have already mentioned the first film on acculturation—*Coulibaly à l'Aventure*, made in 1936. This topic was not dealt with again until 1950, when a young student at IDHEC (the French Film Institute), Vautier, clandestinely made *Afrique 50*. This film shows the struggle of the young RDA party in the Ivory Coast, which was then under attack from the colonial administration. Shot in 16mm, black-and-white, with a makeshift soundtrack added later, *Afrique 50* was prohibited in Africa and France, and limited to cinémathèque showings.

Another banned film was Alain Resnais and Chris Marker's *Les Statues Meurent Aussi*, made in European African museums by means of a remarkable montage of archive documents from Africa. The thesis was that the statues of African art in Western museums are degraded because they have lost the meaning of their representations, and the new African art that has been influenced by the West is already completely decadent. This violent and admirable film was censured and has only been seen by a privileged few.<sup>12</sup>

At the same time, the first African students at IDHEC, unable to obtain administrative permission to film in their own countries, turned the situation around and began making African films in Europe. If Mamani Touré's *Mouramani*, a story based on Guinean folklore, is only of slight interest, *Afrique sur Seine*, by Paulin Soumanou Vieyra, Jacques Melokane, Mamadou Sarr, and cameraman Caristan, is truly the first Black film. It is an interesting attempt to show the lives of Africans in Paris; unfortunately it only remained an experiment since the final editing and the sound track were never carried to completion.

Besides these more or less ill-starred films of the 1950s, a great number of films were shot in all countries throughout Africa on the subject of acculturation. But as already noted, they were made in ignorance—if not contempt—of traditional cultures in the process of evolving. In these films, as before in *Paysans Noirs*, *L'Homme du Niger*, and even *Bozambo*, African cultures were considered as archaic, and as unworthy of surviving contact with Western culture. Their existence was simply to be assimilated over time by "progress." In this connection I should mention *Men of Africa*, made in East Africa by Grierson and his group. This film treats the rivalry of the educated Blacks of the savannah and the primitive pygmies of the forest. Also, *C'était le Premier Chant*, by Carlos Vilardebo, a story of a young French civil servant who tries to improve the situation of a Cameroon bush village that is impoverished by both dryness and the lack of initiative of its inhabitants. Other films are *Bongolo*, made in Belgian Congo by André Cauvin, a story that follows the misadventures of a young Bapende girl who runs away from her village to be reunited with her fiancé, a sanitary assistant, because her parents want her to marry against her will.<sup>13</sup> Finally, *The Boy Kumasenu*, made by Sean Graham and the Ghana Film Unit in 1952, a story of the difficulties of a young fisherman who runs away from his village in the lagoon and falls into the corrupt city, where he turns from justice to delinquency.

Two films made by Claude Vermorel in Gabon and Guinea, *Les Conquérants Solitaires*, and *La Plus Belle des*

*Vies*, must be put in a somewhat different category. Here the author has tried to treat the reverse aspect of acculturation: the European who lets himself be taken in by the African cultures which he first set out to discover.

The political struggles for independence have equally inspired a certain number of films but, unfortunately, very few seem satisfactory. It was singularly the Mau-Mau struggle in Kenya that inspired the largest number of films. An example is Peter Brooks' *Something of Value* (1953), which tried to show the evolution of a friendship between two young students, one White and one Black, who as a result of circumstances find themselves in two opposing camps. This tremendously naïve and quite evidently prejudiced film is one more example of the unconscious attack on African dignity. Once again the African and his civilization are placed on an inferior level. For example, the major scene in the film shows the confession of an African nationalist leader who betrays his compatriots because he was afraid of a calamity.

*Simba*, made by Brias Desmond Huerst in 1955, is an incredibly violent expose about an African medical doctor whose father is the chief of a Mau-Mau group named Simba; the doctor can find no other solution to this drama than death. *Freedom*, an extremely costly film made by Moral Rearmament stresses the movement's customary theme of redemption of sin by confession. Properly speaking, and despite its title, this is not a film about political emancipation, but a propaganda film for the International Moral Rearmament Organization.

A rather similar category includes films made by African film units on the occasions of their countries' independence. A typical example is *Freedom for Ghana*, by Sean Graham, concerning the independence of Ghana on March 6, 1957. The historical interest of this film helps one forget its slightly irritating propaganda angle.

It is too soon to discuss Joris Ivens' *Demain à Nanguila*, made in Mali during the summer of 1962. This film treats the possible evolution of a peasant community supported by the government party.

*Outlines of a true African cinema.* All of the films just discussed were attempts by foreigners using film to convey their impressions—or their knowledge—of certain African problems. Here again the influence of ethnographic film, despite its modesty, is really considerable. Very quickly we have filmmakers wanting to reach below the surface, wanting to transcend the stage of exoticism, wanting to make the spectator enter easily into the African world, be it traditional or modern. And these are the first efforts toward a true African cinema of tomorrow.

The first example comes from South Africa, where in 1948 the Reverend Michael Scott made an extremely violent black-and-white film, *Civilization on Trial in South Africa*, which shows the reactions of Black South Africans to problems of racial segregation. Also from South Africa came the first film with a truly African story, even though it is told by a White. The film is Englishman Donald Swanson's *Magic Garden*, based on a ballad by a young Black man from Johannesburg (Ralph Trewheela, who plays the role of the lame flutist). The film recounts the amazing adventures of a thief who robs forty pounds from a church, loses it, then recovers it, and so on, with someone helped at every turn



along the way, until the money is finally returned to the church. This little masterpiece has unfortunately passed unnoticed in France owing to the fact that its French adaptation was particularly difficult.

In Ghana, Sean Graham followed something of the same idea in *Jaguar (High Life)*, a ballet based on the theme of a popular song making fun of "been to" Africans who had studied in Great Britain.

Other films were already in the works. In South Africa an American director, Lionel Rogosin, made *Come Back, Africa* (1959) which presented an even stronger message about the victims of South African racism. Undoubtedly, one might demand to know whether this film is not more the testimony of Rogosin on apartheid, than it is a cry of revolt by the victims of segregation themselves. But letting the role of the filmmaker be what it may, at some moments it is Africa which speaks, and the director is no longer the master of the door he has unlocked.

It is in this same spirit that I, too, have worked over the last several years. As far back as the making of my conventional ethnographic film *Les Fils de l'Eau* I tried to avoid the traps of exoticism. Flaherty had already shown me a way of directing the documentary; by organizing and ordering the authentic elements of a culture the filmmaker takes them out of their alien framework and renders them accessible to a world public. But no one could hope to rival Flaherty's achievement of making Nanook the friend of men who had never seen an Eskimo. I thus tried another path, that of giving a voice to Africans themselves and asking them to comment directly on their behavior, actions, and reactions. In 1955 I used this method in *Jaguar* (not yet edited with a final sound track),\*\*\* giving three young Nigerian migrants the opportunity to tell of an imaginary—though plausible—voyage to Ghana. In 1957 I had the same experience in the Ivory Coast with *Moi, un Noir*. During the shooting I projected the silent film footage tracing the life of a poor dock worker from Abidjan to this same docker who had acted his own part, and asked him to improvise a narration. The result was remarkable: the docker, Robinson, stimulated by the projection of his own image improvised an astounding monologue in which he not only reconstructed the dialogues for the action but explicated and even judged his own actions and those of his fellow actors.<sup>14</sup>

*African cinema by Africans for Africans.* The attempts that I have just discussed have arrived at their own limits. For when all is said and done, neither Rogosin, Graham, nor I will ever be Africans, and the films that we make will always be African films by Europeans. This shortcoming is not bad in itself, nor does it prevent us from continuing to make African films. But it is time that the statement is made, as it has been by Georges Sadoul (*Ibid.*) "that Africans make African films using African money." This is starting to happen (I will discuss the technical training of African filmmakers a bit later) and already Paulin Soumanou Vieyra, the earliest of the African students trained at IDHEC, teaching in Dakar for several years, has produced a film, though perhaps still a bit awkward. *Un Homme, Un Idéal, Une Vie* portrays the misadventures of a fisherman on the Senegal shore who violates tradition by putting a motor on his canoe. But despite the awkwardness, what ingenuity!

Here the African tradition is not judged; it is stated and exhibited, and if the forest trees speak and join in with the counsel of village elders, no one dreams of ridiculing it.

Owing to lack of funds this film has never been completed. But Paulin Soumanou Vieyra has other projects, and he is no longer alone. Just to mention French-speaking Africa, it is from Vieyra and his comrades, Blaise Senghor, Timité Bassari, Thomas Coulibaly, Jean-Paul N'Gassa, and others, that we must wait for this film which we all hope for—above all, we European directors of African films.<sup>15</sup>

## NOTES

<sup>1</sup> Europeans go to films on an average of thirty or forty times per year; Indians, Middle Easterners, and North Africans one time per year; Africans one time every thirty or forty years, and in some African countries once per century.

<sup>2</sup> See Georges Sadoul, "Le Marché Africain," *Afrique Action*, Tunis, May 1, 1961.

<sup>3</sup> We should note a film shown in Paris in 1935: *Soeurs Noires*, a religious propaganda film in which the actors spoke Zulu. It is mentioned by Georges Sadoul in *La Vie Africaine*, June 15, 1961: "Africa has remained, until now, a country of filmic poverty."

<sup>4</sup> In the United States, on the other hand, the problem was previously studied by Walt Disney Studios. They decided to shoot in 16mm and then enlarge to 35mm; their celebrated series of films that included *The Living Desert* was done in this fashion. Despite their technical ingenuity, these films are of limited scientific interest.

<sup>5</sup> These films were made by Jacques Dupont, assisted by an exceptional ethnographic team (Raoul Harweg, Gilbert Rouget, Guy de Beauchêne) as well as an exceptional film crew (Edmond Séchan, Pierre-Dominique Gaisseau, Andre Didier, Nef, Francis Mazières). All of them have continued in these paths since this first experience.

<sup>6</sup> We cannot speak here about lecture "exploration" films as most of them have disappeared owing to the absurd lecture circuit system that required projecting the original. These lecture circuits began to be extraordinarily popular in France in 1946 (the "Connaissance du Monde" series held at Salle Pleyel, as well as series in the provinces) and in Belgium in 1950 (the "Exploration du Monde" series). Here we will simply report the format of these lectures: 16mm color films of about one hour in length, with direct narration by the lecturer-filmmaker. As a matter of fact, from the beginning of these lecture circuits Africa was one of the weakest attractions. So the loss of African films here is not very serious. The only valuable documents were edited elsewhere, had sound added, and were then marketed; we will discuss these films shortly.

<sup>7</sup> The instigator was filmmaker René Clément, who had made a 16mm color film of a trip to Yemen, around 1939. Titled *L'Arabie Interdite*, the film was only shown at lectures.

<sup>8</sup> We should also mention Denis' TV films of safaris in Kenya, where one finds some remarkable sequences on wild animals (baboons attacking an antelope who is giving birth), but where Africa and Africans are merely scenery.

<sup>9</sup> The Comité du Film Ethnographique was founded by the permanent advisory committee of the International Congress of Anthropological and Ethnological Sciences during the Vienna meetings in 1952. Its creation followed the projection of films by the author which were presented under the heading of an ethnographic contribution. These films were made with the help of Roger Rosfelder in Niger in 1951-52. They were all 16mm Kodachrome with original sound tracks: *Bataille sur le Grand Fleuve* (hippopotamus hunting), *Cimetière dans la Falaise* (funeral rites of the Dogon of the Bandiagara cliffs), *Yenendi: Les Hommes qui Font la Pluie* (rainmaking rites among the Sonrai and Zerma). These films were later joined together and blown up to 35mm—one of the first made in Europe—and retitled *Les Fils de l'Eau*.

<sup>10</sup> We should also mention François Balsan's *L'Expédition Panhard-Capricorne* on the Kalahari desert of South Africa, Fiévet's films on Nigeria, especially *Kano*, the films now being edited by



Father Pairault on Northern Cameroon, and Civatte's films on Niger. All of these films are 16mm Kodachrome, unfortunately reserved for limited distribution.

<sup>11</sup>Also deserving of mention is *Omaru*, a film made in 1954 in 35mm Agfacolor by Quendler, an Austrian filmmaker. Shot among the Kirdi and Peul of the Mandara mountains, its subject is a sort of African epic about the unhappy loves of a young Kipsiki shepherd. Without any scientific pretensions whatsoever, this film offers some interesting views of the life of the Kipsiki and the Peul chiefdom of Rai Bouba.

<sup>12</sup>The commercial release of *Statues* was an emasculated version that has been publicly rejected by the authors.

<sup>13</sup>André Cauvin has since made a film on the visit of King Badouin to the Congo, and another on Congolese independence. The editing of these two films together with a film on present day Congo (1961) would make Cauvin's collected work into the most important document on the evolution of a single African state.

<sup>14</sup>Finally we should mention the American TV films made in Kenya for Time-Life Inc. by Richard Leacock, formerly Flaherty's assistant on *Louisiana Story*. For the first time in Africa, Leacock and his crew used a portable camera synchronized to a portable tape recorder. I will return to this subject in the third part of this report.

<sup>15</sup>I have not cited the films made in South Africa by local companies (particularly the films of Jack and Jamy Ulys) treating typically South African subjects. Although the production of these films is important and liable to increase given the favorable conditions in South Africa, they cannot be considered as African films since they are almost exclusively films made by Afrikanders, in Afrikaans, and dealing only with subjects of interest to Afrikanders.

#### TRANSLATOR'S NOTES

\*English translation of "Situation et tendances du cinéma en Afrique" which appeared as an appendix, pp. 374-408, of the *Premier Catalogue Selectif International de Films Ethnographiques sur*

*l'Afrique Noir*, Paris, UNESCO, 1967. Rouch's paper was first written and presented to a UNESCO symposium in 1961. A translation of the 1961 original was prepared by UNESCO for limited distribution. Portions of the first third of the article, slightly edited and modified, formed the basis of a short article, "The Awakening African Cinema" published in the *UNESCO Courier*, March 1962. Otherwise, Rouch's extensive knowledge of African cinema has not previously been accessible to an English-reading public. The translation is by Steve Feld, Anthropology Film Center, Santa Fe; special thanks are again due Ms. Marielle Delorme of the Comité International des Films de l'Homme in Paris for review and for locating a copy of the 1961 UNESCO translation. Due to the unusual length of the article it will appear in two parts. Rouch's own footnotes are numbered through the text; asterisks refer to translation notes.

\*\*\*"... le courage et la bonne humeur du tirailleur 'sénégalais' favorisèrent la création du stéréotype du Noir bon enfant, style 'Y a bon Banania.'" The Senegalese sharpshooter is a common West African stereotype. Marielle Delorme informs me that "Y a bon" is a publicity slogan for Banania, a commercial breakfast cocoa with bananas. The picture illustrating the product shows a smiling Black brandishing bananas and speaking pidgin French. The image of the happy banana-eating African is perhaps most similar to the "Uncle Tom" and "Aunt Jemima" stereotype of Black Americans.

\*\*\**Jaguar* was finished in 1967. The catalog to which Rouch's paper is appended lists a French version of 130 minutes. A 90-minute version with English subtitles has been available in the United States since 1972.

EDITOR'S NOTE. *My apologies to Marielle Delorme, translation consultant on this series, whose name was inadvertently transformed to "Deloriné" in the Editor's Introduction to the first issue of Studies (Vol. 1 No. 1, p. 2).*—SW



## REVIEWS AND DISCUSSION

*The Old Ones of New Mexico*. Robert Coles. Photographs by Alex Harris. Albuquerque: University of New Mexico Press, 1973. 74 pp., 40 photographs. \$7.95.

Reviewed by Edward T. Hall<sup>1</sup>  
Northwestern University

To the Spanish Americans of New Mexico, there are two kinds of books: those by insiders and those by outsiders. *The Old Ones* is by an outsider. However, an unwary reader could be misled into believing that the people Coles interviewed—an old woman, a storekeeper, an ex-janitor-farmer, and a priest—are really presenting an inside view of Spanish American village life in New Mexico, for on first perusal one is left with the impression that Coles learned something. As a matter of fact, this impression prevailed among the outsiders (predominantly Anglo) whom I interviewed about *The Old Ones*. Almost without exception they liked the book and said something to the effect that “this was a true to life picture.” They then commented on how well the book was written. It seems, therefore, that if you are a liberal middle-class Anglo, the chances are that you will find yourself responding as many such do, and will accept this book at face value.

As to Coles' proficiency as a writer, judging writing is like judging art. One hesitates to criticize a “Pulitzer Prize” winner for his writing, but this reviewer, having subjected Coles' book to an old but reliable test, found the writing wanting. The test is simplicity itself—does the writing improve or appear to deteriorate with each reading? Most slick writing must stand up through at least the first reading, and may stand a second, while only exceptional writing reveals new insights, subtleties, and discoveries with each successive reading. Some of the problem stems from the fact that Coles was translating from Spanish to English, and Coles himself admits to “broken or at best passable” Spanish (p. xv). Several of my informants, the ones who really know New Mexico, had never heard anyone talk the way Coles has his subjects talking.

I do not want to give the impression that I am simply “out to get Coles.” Far from it. His stated intentions are good, and I laud his concern for children and old people. I agree with his introductory observations that the “gente” are “strong, proud, vigorous, independent.” I am not taking issue with Coles personally or even with his manifest goals. Mine is a deeper, subtler, more insidious target. I want to speak for people everywhere against the kind of cultural imperialism—the naive meddling—the unstated sense of superiority, and the condescension of the American intellectual establishment whenever they discover something different which they think they understand when quite clearly they do not. As a resident of New Mexico for over 50 years, I have found much to

object to in the traditional Anglo intellectual's view of our Southwestern ethnic groups—be they Indian or Spanish. These outside experts all too often distort their data and, through unconscious selection of their material, reinforce the very stereotypes they seek to break down. Books like this one mislead the public about the complexity of interethnic research, and at best they appear to condescend. Grantsmanship and status all too often involve treating one's data and one's subjects as pawns on the chessboard of success. This point is not lost on our Indian and Spanish friends when they talk about these “rip-offs” by instant experts.

Admittedly, many of the outsiders who have written about the cultures of the southwest were not consciously putting us down; they were simply using the procedural, analytic, and literary models bequeathed to them by their elders and popular with their peers. It is these unconscious, unevaluated, unquestioned models that should be unmasked. This is not an easy task, for, as Einstein once said, ways of thinking that one takes most for granted are imbibed “practically with the mother's milk” and are reinforced from that moment on.

The principal problem I face in criticizing Coles' book is that those who know Spanish American culture well will immediately recognize what I am talking about, while others will not. Let us therefore begin with a few questions, examples, and tests that might be applied to the book. Perhaps in that way at least the outlines of my objections to much of modern social science will begin to emerge.

*Question 1.* If one removed all the references that fix the scene in a particular space/time frame (Northern New Mexico, late twentieth century) would it be possible to distinguish the people Coles describes from any others in similar circumstances in another part of the world? I think not. They could be poor Greek or Asian villagers who are struggling with life and death and a marginal subsistence economy in a rapidly changing world. All over the world people's problems are exacerbated by an encroaching complex technology controlled by other groups. This control may rest with another class, caste, political, religious, or ethnic group. What, then, is unique? In other words, where are the New Mexico *Spanish Americans* in *this* book? Who paid enough attention, who cared enough to find out who they really are? What we see is reporting by cookie cutter. Find a people who are living marginal lives and let them tell their stories in their own words. How simple, yet how deceptive. What gets left out is the core of their culture. Such decontexting omissions by a psychiatrist of Coles' background are incomprehensible to me.

*Question 2.* How does this conscious and unconscious structuring of data distort the picture he presents? Coles frequently hides the identity of his villages (a social science device designed ostensibly to “protect” one's subjects). If there is one critical piece of information one needs to know before anything else when evaluating a report about New Mexico it is the identity of the particular village one is reporting about. Northern New Mexico villages may look alike to outsiders, but they are not. Truchas is different from Pojoaque, Pojoaque from Nambe and Jacona, Trampas from Ojo Sarco and Peñasco. Each has a distinctive character that leaves its stamp on its residents. Villages near Santa Fe and Albuquerque are different from those in Rio Arriba, and



mountain villages from those in the valley. Each produces its own characteristic gestalts for dealing with the environment. Coles does name Cordova where Mrs. Garcia lives, but hides the identity of the other three. Another point to understand is that what impresses one the most about village life is that it is made up of a complex web of strong personalities and their relationships to each other set in the unconscious matrix of Spanish culture. Yet there is no feeling in Coles' book for the interplay of either personalities or culture at the deeper levels. In fact, one is left with the impression that these do not exist. These relationships are not discovered overnight, and the Spanish, like every other ethnic group, cannot describe the structure of the paradigms by which they live. The observer has to be around long enough and be involved enough to recognize and define these paradigms. Unfortunately most research in social science is geared to one- to five-year time spans, and the investigators must "produce" within these time frames because that is the way their work is funded. How can the results be anything but superficial?

*Question 3.* How about the "facts" related to the people Coles writes about. On page 16, he notes, "boredom or indifference" . . . to "politics"!! Why this conclusion? Because the Garcias don't listen to Walter Cronkite and John Chancellor. Why should they? Cronkite and Chancellor live in Coles' world, not the world of the Garcias. The fact that it is a different world does not make it less valid, involving, or rewarding to live in. Politics in New Mexico are *local*—characteristically *personal* and intense. To give the impression that indigenous New Mexicans are apolitical is a distortion of the worst kind.

The importance of the church in New Mexican life comes through and, if anything, is overemphasized, but I suspect that the emphasis on God, church, and priest may be simply an artifact of Coles' methodology. Coles (p. 14) seems surprised that the people are philosophers. What does he expect when an Anglo outsider comes in and wants to immortalize his subject's speech by putting it in a book? These people are talking for the record when Coles is not talking for them, and there is no way to tell which is which. However, what I object to is not a particular sentence or word attributed to his subjects but the totality of these texts and commentaries. This book is like a Norman Rockwell painting or a portrait by Bachrach, designed to appear more like the idealized image than to convey a sense of reality. In this connection, when I questioned individuals who have lived in New Mexico all their lives and who have worked at the interface between Anglo and Spanish American culture, their first comments were how improbable the conversation sounded as reported by Coles. "He is silent because he understands the world" (p. 23). Who ever heard "No habla porque entiende el mundo" coming from the mouth of a Truchas villager?

For years, recording people's speech and juggling sentences and situations to hide identities has been a popular device of social science. Given the mass of raw data this technique generates, it is an easy method for fieldworkers. Yet the very convenience of the system obscures its defects and pitfalls, of which there are a number. Unless one is extraordinarily gifted and has a deep feeling for pattern, the people lose their dimensionality and become flat, pasteboard figures, colorless and devoid of the juice of life and of all

human frailty. The people in *The Old Ones* are unreal. The Spanish Americans of New Mexico have blood in their veins and are subject to the same negative human emotions, greed, envy, lust, anger, and hate as the rest of humanity. None of this comes out.

Some mention of Alex Harris (Coles' photographic collaborator and friend) is in order. Coles calls him a "pioneer." He states that Harris's photographs are the first real efforts to document the life of the people. All other photographers are supposed to have been captivated by the country. Clearly, Irving Rusinow's *Camera Report on El Cerrito* was overlooked, but no doubt the 1942 publication date had something to do with this. In discussing photographs it is very important to remember that man does not see passively. He paints his own picture of the world with his eyes, and even more so with a camera. Harris's photographs are no exception. Another photographer would have told a different story, and if the reader takes this to heart he will not be misled. *The Old Ones* is a story by Coles and Harris. It is *their* story, and a much better picture of what *they* see, think, and value than it is of the people who mouth the sentiments that Coles chose to include in the text. People are always looking at things through their own eyes, which would be all right if only they would realize that what they see is not always what is there. We see this most graphically in Harris's photographs—he repeats all of Coles' clichés and thereby reinforces the middle-class stereotyped distortions. One returns to the fact that one does not see passively. What Harris sees, the Spanish do not like, which is one of the ways we know that their visual models are different from ours. Behind these differences one sees two cultures struggling to reach each other with little or no awareness on the part of either the social scientist or the photographer that cultural differences are far from abstract, but are instead very real, very deep, and extraordinarily subtle.

#### Note

<sup>1</sup> This review is a slightly revised version of a review appearing in the *Rio Grande Sun* (Santa Fe, New Mexico), Vol. 1, No. 4, September 5, 1974.

## CANCIAN REPLIES TO COLLIER

Frank Cancian  
Stanford University

I thank the Book Review Editor for inviting me to reply to John Collier's review of my *Another Place: Photographs of a Maya Community* (Scrimshaw Press, 1974) which appears in the first number of this journal (*Studies* 1:60-61, 1974).

I would like to respond to: (1) Collier's comment on the message of the book; (2) his comments on the organization of the book; (3) his speculations about my intent as a person and an anthropologist; and (4) his exploration of the proper nature of visual anthropology. First, I want to say that Collier has not really reviewed my book. He begins by stating that "it offers a starting point for reasoning and exploring further the contribution of visual communication for anthropology, for it places focus on the intellectual and creative role of the anthropologist." In what follows, I serve as his



straw anthropologist and the book serves as the foil against which he expounds his conception of orthodoxy for visual anthropology.

Collier ridicules the title and principal message of the book by comparing it to the logically suspect "People have to live somewhere, so everywhere there are some people." "Zinacantan is another place where people live" (the final line of my introduction) is clearly, in the context given it, a phrasing of the standard message: despite their differences, people share a common humanity. Anthropologists and many other people are constantly struggling in life and work with the distance between humans created by cultural difference. The fact that one more statement about common humanity will not solve the problem does not justify Collier's refusal to see it for what it is.

I believe it is useful to portray people in other cultures in a way that will permit the viewer to see commonalities. To take some obvious examples from *Another Place*: young people at the courtship age (pp. 11, 49), a young girl playing at women's work (p. 25), a boy tightening and expanding his body with his slingshot (pp. 87, 89). If Collier cannot feel with these experiences, and/or can see no value in showing them to occur among "exotic" people, I am at a loss to respond. He is quite right that "the qualities of eyes and the fluency and composure of bodies . . . cannot be found in Liberal, Kansas, or Sleepy Falls, Iowa." But, I hope the message of commonality gets through often enough to the viewer to make him or her identify with some Zinacanteco experiences, and, thus, try to look through the cultural differences masking others.

The book also pictures the material and political realities of Zinacanteco life; and a part of the introduction Collier does not quote makes explicit the position of subjugation they share with other Chiapas Indians and the positive ways they use ethnic identity and community boundaries to build their own world. Certainly Collier could see the contradiction between children living in the situation the book shows and the message on the school blackboard. He might have seen a similar message in the Coca Cola sign or in the Mexican wedding in the city. And he could have picked up the self-confidence and positive feeling in the religious officials, the farmers, and the judges, or the tension of people in Mexican dominated situations.

These contradictory realities—human commonalities, specific material and political superordination/subordination, and construction of a bounded more tolerable ingroup—are omnipresent, and showing them in the life of Zinacantecos is simply another reminder that life is not simple. Collier's search for further meaning (paragraph 4 of his review) is unrewarded in part, I suppose, because I intended no further meaning.

Collier also charges that "the book has no layout, no sequential relationships; pictures tumble one upon the other with little association." This is not so. Collier spots the introductory (pp. 7-15) and concluding (pp. 85-93) photographs for what they are. He misses the interplay between photographs of specific activities outside the home, on the one hand, and portraits and domestic scenes on the other.<sup>1</sup>

The transitions from outside to inside are not marked (except by content of the photographs), and the viewer could easily miss them. It was not my purpose to have them

noticed, and that may have been a mistake in design of the book, for many readers may want more structure than I give. It is, however, characteristic of Collier's gratuitous negativism that he fails to mention, and apparently fails to notice, that each "outside" section begins with a full page devoted to a short introductory paragraph.

The book is also organized, visually, in terms of self-conscious use sequences of righthand pages, and repeated use of walking and weaving pictures. The layout is not hung on a scientific framework, to be sure.

I will now go on to Collier's speculation about my intent as a person and an anthropologist. He is concerned about "doubt in the author's mind about photography's place in anthropological research" (paragraph 5); "But as an anthropologist, *what is he trying to explore in this book?*" (paragraph 7, emphasis in original); and "why did Cancian want to retreat from anthropology?" (paragraph 8).

Collier does not recognize the simple fact that I am a photographer who is also an anthropologist. If I, or other anthropologists who are also photographers, had to be one "thing," and that was the thing he or she was "best" at, most of us would probably be anthropologists. But, roles are not that mutually exclusive. People do live with internal contradictions and conflicts, and across categories.

For me, *Another Place* is a coherent book. I say this as a photographer who did not leave his anthropological role behind when working on the book. I saw no point in separating the roles as long as the academic anthropologist did not try to take over. As a consequence, it is hard to know clearly in what sense the book is anthropology; but that is important only if you have a high investment in the boundaries of anthropology. In the academic world it is common to eschew confusion and conflict and erect rigid intellectual boundaries. I did not intend an academic book.

Finally, what about the contributions of visual communication for anthropology that Collier sets out to "explore"? They are complicated and apt to be very diverse, I think. And they will range from pictures of artifacts used as records, to stills and film used as a basis for behavioral analysis, to photographs used as interview aids, to photos, essays and films that give people the "feel" of people and places. The photograph as data, the photograph as illustration, and the photograph as communication are all included.

I support Collier's exploration of the issues of the subjective and the objective, the humanistic and the scientific, the nature of photography as assertion and description. But he seems tired of the debate and determined to impose a unique and fairly restricted solution. He seems ready for rules, not exploration. Just as many people have begun to fully understand the limitations of "objective" science, to which Collier refers, he seems ready to close up shop. In many ways he has led visual anthropology to the edge of flourishing by his hard work during the difficult times. I hope he agrees that if success is transformed into conformity, failure will be just around the corner.

#### Note

<sup>1</sup>Outside activities are school (pp. 17-21), fiestas (pp. 27-35), the market city (pp. 41-45), men's agricultural work (pp. 51-59), the Zinacantan political-legal system (pp. 65-71), and Zinacanteco curing (pp. 77-83). The contrasting portraits and inside scenes fill pages 22-25, 36-39, 46-49, 60-63, and 72-75.



Ian Dunlop  
Film Australia  
Lindfield, New South Wales

I am puzzled by Jean Rouch's references to my films in "Man and the Camera" (SAVICOM 1:37-44, 1974). I know that Rouch does not much care for *Towards Baruya Manhood*. He has told me so in his frank, honest and constructive manner. However, in this article he makes a serious and unsubstantiated moral judgment, when he says, "the Eskimo films of Asen Balikci, and Ian Dunlop's recent series on the New Guinea Baruya are for me *examples of what should never happen again*—the intrusion of a group of first rate technicians into a difficult field situation, even with the aid of an anthropologist" (my italics).

Rouch is arguing for the one man anthropologist/filmmaker concept. I agree that for many field situations this is the ideal; but it is certainly not the only way to make ethnographic films as Rouch himself concedes. He states his approval of *Hadza*, *Emu Ritual at Ruguri*, and *The Feast*. What he does not explain is why in one case intrusion is acceptable and in another reprehensible.

We all know, as Rouch says, that filmmaking causes cultural disruption, but this applies to any anthropological study, not just film. The degree of that disruption depends not only upon the quantity, but also the quality of the intruders, and on the field situation. Why does Rouch stand in moral judgment on the intruders into Netsilik and Baruya life in particular?

The Netsilik Eskimo films are a recreation of a bygone way of life. Their makers did not intrude into an actual situation at all. It is inconceivable that such films could have been made without the willing, and, judging by the pictures, happy cooperation of the actors. Rouch gives no evidence at all to support his contention that morally these films should not have been made.

The Baruya films portray an actual situation. There was

an intrusion of three film technicians into a valley community of about eight hundred tough, proud, resilient Baruya. Anthropologist Maurice Godelier had been living with the Baruya for three years. In consultation with them he invited me to work with him. Godelier took responsibility for our introduction into Baruya life. Thereafter the Baruya judged us for themselves. Rouch implies that this intrusion was so gross that the awkwardness of the film crew's presence comes through. As evidence he cites only one sequence, where a lecture to initiates turns into an address to the anthropologist. During this the Baruya say that the films may be shown in Australia but not in New Guinea. Rouch claims this is an *a posteriori* rejection of the films by the Baruya. I think he has misinterpreted this scene. The Baruya are publicly accepting the presence of the anthropologist and the film crew among them, and the film documents this.

Furthermore, when we screened the series back to the ceremonial leaders of the Baruya there was no rejection. They wholeheartedly approved of the films. Their only regret was that we had not managed to film *all* the ceremonial activity (it was physically impossible to do this). They still maintained that the films could be screened in Australia, but not, at the present time, publicly in New Guinea because of their secret nature. They have given me an open invitation to return to their valley for further film work in collaboration with Maurice Godelier.

My confusion is compounded when Rouch goes on to say "This ambiguity [what ambiguity?] doesn't appear in Dunlop's earlier *Desert People* series, owing no doubt to the 'piece of trail' shared by the filmmakers and the aboriginal family they met." This sounds like wishful thinking. To descend upon a single, fragile, isolated, nomadic family with two landrovers and a ton of gear is going to cause a monumental cultural disruption however sensitively you may try to do it. I am still haunted by fears and doubts about whether I had any right to do what I did then or not. Walking into a large New Guinea village was less traumatic . . . for everyone.



## NOTES AND NEWS

□ **INTENSIVE FILM STUDIES** of the Bushmen, the Yanomamo Indians, and the Pittsburgh Police. Documentary Educational Resources is devoted to producing large numbers of films and study guides on single cultures, to be used for teaching anthropology. Under the direction of Timothy Asch and John Marshall, DER (formerly the Center for Documentary Anthropology) now distributes 18 films and 9 study guides on the Bushmen, 12 films on the Yanomamo Indians of southern Venezuela, and 16 films on the Pittsburgh police. About 12 new films are in production (see below for partial listing of DER films).

DER films, for the most part, center on a *single series of actions*; they are straightforwardly edited and lightly narrated. These short "*sequences*" are excellent for helping to teach students the ability to perceive unstructured data and to make sense of it through theory. DER films attempt to create in students the experience of the anthropologist in the field.

In addition, DER publishes a complete series of *study guides* to its films. Each study guide reviews a film in detail, providing background information, and answers important questions which the film raises. Study guides—which can be used by both students and teachers—also include maps, bibliographies, and a pronunciation guide. Nine study guides, totaling 186 pages, are now available; write DER for more information:

### *Partial List of DER Films and Study Guides*

A. <i>Bushman Series</i>	Min.	Study Guide
1. An Argument About a Marriage	18	yes (33 pp.)
2. Bitter Melons	30	yes (46 pp.)
3. A Joking Relationship	12½	
4. Melon Tossing	14½	
5. N/um Tchai	19½	yes (34 pp.)
6. The Wasp Nest	20	yes (16 pp.)
7. The Meat Fight	14	yes (28 pp.)
B. <i>Yanomamo Series</i>		
1. A Man Called "Bee": Studying the Yanomamo	40	yes*
2. Magical Death	29	
3. The Feast	30	
4. Yanomamo: A Multi-Disciplinary Study	44	
C. <i>Pittsburgh Police Series</i>		
1. Three Domestics	36½	
2. Vagrant Woman	8	
3. After the Game	9	

\*Napoleon Chagnon, *Studying the Yanomamo* (Holt, Rinehart and Winston, 1974).

4. Twenty-one Dollars or  
Twenty-one Days 7½
5. Inside Outside Station Nine 90

For further information on DER films and study guides, telephone (617) 666-1750 or write to DER, 24 Dane Street, Somerville, MA 02143.

□ **THE DANCE NOTATION BUREAU** (19 Union Square West, New York, NY 10003), who feel that application of Laban movement analysis and notation might be of value in their research, would like to offer a seminar for researchers conducting specific projects in non-verbal communications. Anyone interested should write for their questionnaire.

□ **KALANI MEINECKE**, Department of Anthropology, Indiana University, Bloomington, IN 47401, is compiling a bibliography on non-verbal communication studies done on Pacific cultures. Your contributions and suggestions are welcome.

□ **1976 CONFERENCE ON VISUAL ANTHROPOLOGY ANNOUNCED** Temple University, in conjunction with the Society for the Anthropology of Visual Communication, will sponsor its sixth Conference on Visual Anthropology on March 10-13, 1976. Persons interested in organizing symposia, workshops, discussion groups and/or submitting 16mm, Super-8 films, videotapes, or photographic essays should write for submission forms. The deadline for contributions is November 10, 1975. For further information write: Jay Ruby, COVA, Department of Anthropology, Temple University, Philadelphia, PA 19122.

□ **IBM** has developed a "Selectric" typing element which prints Labanotation symbols. The element was developed in conjunction with the Dance Notation Bureau. The Bureau has designed a chart showing the position of the Labanotation symbols on the Selectric keyboard. The element is available from any IBM supplier.

□ **THE AMERICAN PSYCHOLOGICAL ASSOCIATION** has established a Task Force on Environment and Behavior. Its goals are (1) to bring to the attention of APA members the research and scholarly potential in the area of environment and behavior; (2) to provide information about alternative educational models and courses of instruction in environment and behavior; (3) to develop interdisciplinary contacts, and (4) to promote application and policy oriented research. For further information contact: Willo P. White, Office of Scientific Affairs, American Psychological Association, 1200 17th St., N.W., Washington, DC 20036.

□ **THE EAST-WEST CENTER** has published *Selected Abstracts of Japanese Research on Mass Communication* (Hidetoshi Kato, editor). For a copy write to University of Hawaii Press, 535 Ward Ave., Honolulu, HI 96814.



□ **THE FOLLOWING PERIODICALS** are of interest to scholars working in communication research in the Third World:

*Communications in Africa* (\$6.00/year; quarterly)  
Publications Department, Rhodes University, Box  
184, Grahamstown, 6140 South Africa

*The African Journalist* (\$2.00; quarterly) International  
Press Institute, Munstergasse 9, Zurich, Switzerland

*Leader: Malaysian Journalism Review* (\$12.00/year;  
quarterly) South East Press Center, 57 Klang Road,  
Kuala Lumpur, Malaysia

*Media* (\$1.80/year; monthly) Press Foundation of Asia,  
10th Floor Magsaysay Blvd., Roxas Building,  
Manila, Philippines

*Indian Press* (\$5.00/year; monthly) Box 69 New Delhi  
11001, India

*Media Asia: an Asian Mass Communication Quarterly*,  
AMIC, Newton Road, Singapore 11

(Compiled by Sam G. Riley, Temple University)

□ **SOCIOLOGICAL CONFERENCE ON THE ARTS AND PHOTO EXHIBIT** The combined departments of Sociology at the State Universities of New York at Fredonia and Oswego, sponsored an informal conference focusing on the relationship of Art and Sociology and on the possible contributions of the Arts to theoretical and empirical Sociology. **SOCIAL THEORY AND THE ARTS** was held April 25-27.

In conjunction with the conference, the Michael C. Rockefeller Arts Center Gallery, located at the State University of New York at Fredonia will sponsor **THE HUMAN IMAGE: SOCIOLOGY AND PHOTOGRAPHY**. This exhibition of photographs by professional sociologists and photographers is an attempt to expand and explore visual sociology and the sociological imagination through photography. The exhibit which ran from April 13 to May 7, will travel from July 1975 until August 1977.

For information on the conference and exhibit contact: A. Derral Cheatwood (Department of Sociology) or Therold Lindquist (Department of Art), SUNY, Fredonia, NY 14063.

## FILMMAKERS

How would you like to have the use of a 16mm. Eclair NPR and double system sound capabilities for 25 days a year each of 5 consecutive years for the total cost of \$3,000.00?\*

The Institute for the Study of Man, Inc. (ISMI), the founder and owner of the journal **URBAN ANTHROPOLOGY** is forming an anthropological filmmakers rental cooperative in order to provide Anthropologists with the equipment they need for 16mm. double system cinc sound filmmaking.

If you are interested please write for further information.

Before 1 May 1975

Dr. Jack R. Rollwagen  
Apartado Postal C-95  
Cuernavaca, Morelos  
Mexico

After 1 May 1975

Dr. Jack R. Rollwagen  
ISMI  
113 Utica Street  
Brockport, N.Y. 14420

Pass this information on to your friends.

\*Value of equipment and services in this package totals \$25,000.00.



## PUBLICATIONS

The following publications are available from SAVICOM, 1703 New Hampshire Ave., NW, Washington, DC 20009. Payment must accompany orders.

### *Studies in the Anthropology of Visual Communication*

*Studies* is a publication of the Society. It is published two or three times a year and contains verbal and visual material describing and analyzing research in the areas of interest described under the purposes of the Society. *Studies* also publishes reviews of relevant books and larger review articles of groups of related books and other publications. It contains a section of correspondence and brief communication. The publication committee encourages members as well as non-members to submit written and visual materials for publication. Write to the *Studies* editor for additional instructions for submission.

From time to time SAVICOM will publish special publications related to the interests of its members. The following is a list of current publications:

### *Films for Anthropological Teaching*

The fifth edition of Karl Heider's *Films for Anthropological Teaching* lists over 500 films together with their distributors, bibliographic references and has subject, distributor and author indices. The cost is \$3.00 for Society members and \$5.00 for non-members and institutions.

### *Handbook for Proxemic Research*

Edward T. Hall, author of the *Silent Language*, *The Hidden Dimension* and other works, is allowing SAVICOM to publish this new handbook detailing his methodology for proxemic research. The *Handbook* includes computer programs, illustrations about the placement of cameras and observers, and an extensive bibliography. It is available to members at \$3.00 per copy and to non-members and institutions at \$5.00. In order to keep the price down for teachers, students and active workers in proxemic research, Hall is not accepting royalties on sales to SAVICOM members. Bookstores, teachers and others wishing to place bulk orders should write to Sol Worth for special instructions. All others wishing to obtain copies should write directly to SAVICOM.

### *News, Notes, Correspondence and Brief Communications*

In addition to the section of correspondence and brief communications which appears in *Studies*, the Society is responsible for a section of news and notes in the *Anthropology Newsletter* of the American Anthropological Association. All interested persons are encouraged to contribute news of fieldwork, announcements of conferences, festivals, training opportunities and any other pertinent news and notes to Jay Ruby, News and Notes Editor, Temple University, Department of Anthropology, Philadelphia, PA 19122. Members of the Society who are not already members of AAA will regularly receive the *Anthropology Newsletter* without additional charge as part of their membership dues.

## INFORMATION FOR AUTHORS

**STYLE.** Issues of the current volume should be consulted, along with the *Manual of Style* of the University of Chicago Press. Major subheadings should be kept to a minimum and, where possible, roman numerals only should be used. Under no circumstances are second-level subheadings to be used. **MANUSCRIPT PREPARATION.** Manuscripts must be typed *double-spaced* (including abstract, quotations, notes and references cited) one side only on 8½ x 11 *noncorrasable* bond, with ample margins for editorial markings (at least one inch on all sides). Do not break words at the ends of lines. Retype any page on which complicated corrections have been made. The original and two copies must be submitted. Author should keep a copy. **ABSTRACT.** The text should be preceded by a 50-75 word abstract and a list of up to five headings under which the paper should be indexed. **FOOTNOTES.** Footnotes appear as "Notes" at the end of articles. Authors are advised to include footnote material in the text wherever possible. Notes are to be numbered consecutively throughout the paper and are to be typed on a separate sheet (double-spaced). **REFERENCES.** The list of references which accompanies an article should be limited to, and inclusive of, those publications actually cited in the text. References are not cited in footnotes but carried within the text in parentheses with author's last name, the year of original publication, and page, e.g., (Kroeber 1948:205). Titles and publication information on references appear as "References Cited" at the end of the article and should be listed alphabetically by author and chronologically for each author. Write out the names of journals and other publications in full. Provide complete references following the style of recent issues for form of citation, punctuation, capitalization, use of italics, etc. References cited should be typed on a separate page (double-spaced). References not presented in the style required will be returned to the author for revision. **TABLES.** All tabular material should be part of a separately numbered series of "Tables." Each table must be typed on a separate sheet and identified by a short descriptive title. Footnotes for tables appear at the bottom of the tables and are marked \*, †, ‡, §, ¶, etc., according to standard usage. Marginal notation on manuscript should indicate approximately where tables are to appear. **FIGURES.** All illustrative material, drawings, maps, diagrams, and photographs should be included in a single numbered series and designated "Figures." They must be submitted in a form suitable for publication without redrawing. Drawings should be carefully done with India ink on either hard, white, smooth-surfaced board or good quality tracing paper. Photographs should be glossy prints and should be numbered on the back to key with captions. All figures should be numbered consecutively and all captions should be typed together on a separate sheet of paper (double-spaced). Marginal notations on manuscript should indicate approximately where figures are to appear. **PROOFS.** Galley proofs are sent to authors who are expected to check for typographic mistakes and errors in fact. No part of an article can be rewritten in galley proof. Significant new data or an absolutely necessary comment may sometimes be added as a brief footnote. All changes and addenda submitted by the author on his corrected galley proofs are suggestions only and may be disregarded at the discretion of the Editor. The corrected proofs should be returned to the Editor within 48 hours of receipt. It will be impossible to make corrections not promptly received by the Editor. **REPRINTS** will be supplied to authors who return with payment by the specified deadline reprint order forms mailed to them at the time of publication of the journal.

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