

# CONCEPT AND VALIDITY OF ASSOCIATION PHOTOGRAPHIC INTERPRETATION KEYS IN REGIONAL ANALYSIS\*

Glenn Landis, Aero Service Corporation

EARLIER today Mr. Heath and Dr. Churchill read papers dealing with the philosophy of "associations" in regional photo interpretation keys. At Aero Service Corporation the application of this "association concept" in the form of "association keys," together with selected subject keys, is believed to be the best approach for presenting the regional information to the photo interpreter. The reasons are:

1. It not only permits the accurate identification of objects, but of greater significance is that it places the objects in their proper perspective.
2. It facilitates the true interpretation of the significance of the objects identified.
3. If the association concept is properly applied, a better understanding of the entire region is obtained because each association is presented in its proper relationship to adjacent associations and to the region as a whole.
4. It is the most expeditious means of presenting specific information to any desired and allowable degree of treatment.

The validity of association keys is dependent upon the proper selection of the associations and, of course, upon their development and presentation. Errors in selecting the associations result in ambiguous or erroneous conclusions. The optimum size of the association for a given level of treatment is one for which the greatest number of valid statements can be made. If the unit is too large for this level of treatment, the variations within are so great that the organization is cumbersome and decreases the utility of the key materially. On the other hand, if the unit is too small, few or no statements can be made about this unit which are not also characteristic of adjacent units. It is obvious that even when associations are

properly selected, the utility of the association key is directly proportional to the quality of the development and presentation of the information.

The quantity and quality of information which can be extracted from aerial photographs, by utilization of aerial photographic interpretation keys, is limited both by the ability and experience of the interpreter and the quality of the interpretation keys. However, it is considered that regional association keys will permit the nonspecialist interpreter to report a significantly greater quantity of more reliable information. On the other hand, the specialist interpreter brings a large quantity of detailed information to the task. This information and that information uniquely incorporated in the association type key, permit him to fully exploit his background, the association keys, and the aerial photographs.

## DISCUSSION OF MR. LANDIS' PAPER

DR. ROSCOE: We should define the two principal types of keys that will be discussed today.

One is the *regional key*. This is concerned with the interpretation of the significant objects or conditions characteristic of a particular region. The importance of illustrating any particular image is directly proportional to the number of times that that type of image appears on photographs of that region.

The other type key is the *subject key*. This is concerned with the various photo images presented by one subject regardless of the region. Such a key might be concerned with the interpretation of glacial land forms, irrespective of whether they are in the Soviet Union, Canada or the United States.

DR. COLWELL: We have heard papers to the effect that a photo interpreter may be required to identify "virtually anything"

\* Presented at the 21st Annual Meeting of the American Society of Photogrammetry, March 8, 1955, Washington, D. C., as a part of the Symposium on Photo Interpretation Keys.

from a photographic image. When he has that wide a scope, we must consider that "virtually anything" includes animal, vegetable and mineral. A ground photograph might show a rabbit (the animal) in a cabbage patch (the vegetable), growing on a well drained soil (the mineral). How does one prepare an associated key to describe this particular scene? It seems to me that regardless of what your ultimate objective is, you first have to tell how to identify a rabbit, second, how to identify a cabbage from some of the other plants, and finally, how to identify well drained soils.

From the limited experience I have had in preparing photo interpretation keys, my approach without question would be first to describe each of these separately. If you will, there would be three separate subject keys. I certainly would not stop at that point since I endorse the associative concept, I believe, as whole-heartedly as the speakers who favor it. I would have as a fourth and final section then, such

integrated analyses as the ones I have indicated here showing how the various components tie together in the various combinations to give conditions such as the one I just indicated.

If there is any comment on that I would be glad to hear it, especially from the past speaker.

MR. LANDIS: As I said, in the paper, we do not advocate using association keys exclusive of subject keys. The subject keys are part of the regional key and they very definitely have their utility. One of their utilitarian values is that they eliminate repetition from one association to another. It is not a matter of an association type key as *opposed* to a subject key but in *conjunction* with a subject key.

DR. COLWELL: Then would the approach that I indicated for this particular problem be essential to the way you visualize the way it should be done?

MR. LANDIS: That's correct.

## REGIONAL KEYS ARE VALID GEOGRAPHICAL GENERALIZATIONS\*

*Dr. Lloyd D. Black, Geographic Consultant, U. S. Department of Agriculture, Washington, D.C.*

THE title of this paper is loaded with semantic pitfalls. So let's try to avoid them. The statement is true at least on a theoretical basis. Regional keys by their very nature are geographic generalizations. The question of validity is something else. Let us first examine the statement—regional keys are geographical generalizations—and then discuss various aspects of validity.

Regional keys are prepared for various kinds of areas—in some cases for a whole country or a part of a country, or in other cases, for a group of countries. In most cases subject keys are made for the entire region or area, rather than for a series of regions within the over-all study area. The question has often been raised whether this procedure develops true regional keys

or merely a series of subject keys for an area—a political area that is usually large and non-homogeneous. A true regional key is one based upon distinctive combinations or associations of elements in an area. Let us assume that both types of regional keys are acceptable. Are both types geographic generalizations? The answer is yes, because the nature of geography is dualistic—dualistic in the sense that it deals with subjects and areas per se, and dualistic in the sense that it deals with man and nature. Thus, a regional key that treats only one subject in an area may be considered a geographic generalization.

The question of validity involves a variety of considerations, such as purpose of the key, availability of photos, ade-

\* Presented at 21st Annual Meeting of the Society, Hotel Shoreham, Washington, D. C., March 8, 1955, P.M.