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A PERSONAL VIEW OF A SEEMINGLY FORGOTTEN PART OF THE HISTORY OF THE USE OF AERIAL PHOTOGRAPHY IN NEW ZEALAND

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In the first book on New Zealand archaeology to be based on the extensive use of aerial photographs, Jones (1994) devotes three pages (16-18) to a discussion of the development of aerial photography in New Zealand archaeology. The overall impression of the account is to strongly suggest that with a few exceptions very little sustained use was ever made of this resource, especially as a research tool, in the period from the 1950s to the 1970s. It also implies through omission it was not until the 1980s, using oblique aerial photographs taken by its Audio-Visual Unit, that archaeologists at the University of Auckland really began to exploit its potential. Jones (1994:83) is certainly aware of the dangers in practising revisionist history, with its selective use of sources, as he demonstrates in respect of his comments on James Belich and the New Zealand Wars. It seems to me that more than a little revisionist history, common in these days of post-processual, post-modern, relativist based, "anything goes" archaeological interpretation, may be lurking in these few pages, in what is very likely to become the major and definitive account on the subject. For this reason, the following comments become no more than a rather personal and minority view of an otherwise seemingly forgotten past.

As Jones (1994:17) notes, Blake-Palmer's 1947 paper on aerial photography "does not appear to have been particularly influential" among an emerging archaeological cadre within New Zealand in the 1950s and beyond, and is seldom cited in the later literature. But the newly formed New Zealand Archaeological Association at its annual conference in Wanganui in May 1958 "began with a talk by Professor D.W. Mackenzie of Victoria University, on *Air Photography and Field Archaeology*", which was followed by talks by Jack Golson on *Field Monuments of New Zealand*, and J.D. Buchanan on *The Recording of Archaeological Field Evidence* (Scarlett 1958:2). These papers, of course, drew on Golson's (1957) paper on *Field Archaeology in New Zealand* with its useful discussion of aerial photography cited by Jones, and formed the basis for the New Zealand Archaeological Association's proposed site recording scheme (Groube 1993).

To implement that scheme Golson and his "gang", officially the Auckland University Archaeological Society, ran a series of Saturday workshops in preparation for a day's site recording on the South Kaipara Head. The intention was to test these site recording proposals in the field (Ambrose 1959:4).

Roger Green presented as a prelude to the Kaipara trip an invaluable practical course in elementary surveying. The handbook which all

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Association members received was in fact compiled from the preliminary at Kaipara and included preparatory surveying (Ambrose 1959:4).

In Golson and Green (1958), *A Handbook to Field Recording in New Zealand*, one will find two sections on aerial photography and its use in archaeology, along with other sections on site location and mapping techniques. They draw on Green's survey training in a Civil Engineering course, his experience in using aerial photographs for mapping in field geology, and the influence of Gordon R. Willey, who taught him the theory and practise of settlement pattern archaeology. Acknowledged sources on the use of aerial photographs and archaeology in the Handbook therefore were Bradford's (1957) *Ancient Landscapes: Studies in Archaeology* (also reviewed in the NZAA Newsletter for New Zealand archaeologists, [Green 1959a]), a technical article on the topic by Solecki (1957), and the Viru Valley bulletin by Willey (1953), but not the Blake-Palmer article. One section of the Handbook dealt explicitly with making preliminary plan maps of sites using the epidiascope before entering the field, and was first put into practise in the Kaipara survey. Moreover, areas to be surveyed by each field party were determined and controlled through that medium.

Groube and Green (1959) wrote up the initial results of the South Kaipara Head site survey, noting that in all but two instances "the pa were initially located on the aerial photographs" (1959:9), whereas pits were identified in only two of six instances (1959:12) and middens not at all (1959:12). This may even sound familiar to Jones. The format of that article was framed in a settlement pattern approach, which Green was trying to "sell" to New Zealand's archaeologists, without notable success except in the case of Groube. As two authoritative sources state, Groube went on to do the pioneering work in this field in New Zealand (Davidson 1993a:252, Sutton 1993:1). Our tangled relationship, never easy, was in this instance effected by rather disparate views on applying settlement analysis to the New Zealand data. Its outlines are reviewed by Green (1967:107-12) and Les could doubtless provide another version.

While it was concluded in the article that in general Groube's proposals were to be preferred, I believe both of us, from circa 1959 on, felt strongly that to do any settlement pattern archaeology in New Zealand, a thorough grounding in the techniques of field surveying including the use of aerial photographs was a *sine qua non*. Groube (1960) certainly went on to use the epidiascope technique learned in the Kaipara in 1958 to produce a base map for one of Auckland's more complex volcanic cone *pa*, Maungarei [Mt. Wellington]. As Davidson (1993b:41) recently observed, that base map provided the foundation for all later maps of the site.

Green (1959b) also did a survey of sites along the east Coromandel coast,

and then excavated and wrote a report on the Tairua moa-hunter site, which was subsequently published as Smart and Green (1962). Following the example of an aerial photo mosaic to give an environmental context to these types of beach sites (Duff 1956: Plate 1 - note also an aerial oblique in Plate 39 showing the setting for the inland Takahe site), they too pinpointed the Tairua site with an arrow on a vertical aerial photo, and showed on a larger scale plan map adjacent the area covered by it (Smart and Green 1962: Fig.2). An example of an early use of deliberate low level aerial photography, taken three days after the excavation in May of 1963 (see Law and Green 1972: Plate 1 and caption) is of Taniwha pa. This unique vertical even showed the drains and posthole patterns in some of the recently excavated pits. It and other photos of the site by Aerosurveys Ltd have been reproduced too many times since to require further comment (Fox 1976: Fig.39, Kirch 1984: Fig.66). The article is mentioned by Jones, but curiously no mention is made of this instance of post-excavation site specific aerial photography.

The employment of aerial photographs in the assessment of damage to Auckland City's archaeological sites was done by the Auckland University Archaeological Society over a 12 month period in 1961-1962 (Brown 1961, 1962). It relied on information obtained from both large scale aerial verticals and obliques, as well as mosaics (Brown 1962:71), and is an early example of their use in what is now termed "Cultural resources management".

Colin Smart's work in the Wanganui area, referenced by Jones to a pers.comm. from Bruce McFadgen is, of course, described in some detail in Smart (1962) where it is accompanied by a number of published aerial views taken by the author. As Smart (1962:173) notes "most of the sites... were located and recorded from aerial photographs", before they were visited in the field. Stereo pairs prior to fieldwork were the basis for site recognition, with the location then marked on aerial mosaic sheets. A selected series of sites were projected through an epidiascope for detailed mapping in the field.

In my view the techniques and the field strategies Smart employed have their origin in the experience initially gained from the Kaipara survey and the Handbook prior to his arrival on the Auckland scene, plus the time Colin spent working with Les Groube, Jack Golson, and myself. They were exported to the Wellington Archaeological Society and applied in the Wanganui region through his leadership. A notable development was that some of the costs were met in the years 1961-1962, and again in 1963 by the National Historic Places Trust. As Smart and Smart (1963:187) record this "made possible the aerial reconnaissance of a large part of the recording area as well as the aerial photography of a large number of sites". In short, aerial photography was the basis for the field research, not just an extra.

Alistair Buist was one of the important participants in Smart's project

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(1962:170), and not surprisingly, he too came to view aerial photography as a major tool in his own monograph on North Taranaki (Buist 1964), as Jones duly records. But he also employed oblique aerial photos in a comparable survey of Kuaotunu Point on the Coromandel (Buist 1965 and Plate III). Here, for the first time settlement pattern type comparisons, and comments on regional variation based on these intensive surveys, also began to appear in the literature. Most such surveys had employed aerial photographs as part of their analytical technique, as was true in my own case for the Kauri Point region (Green 1963, and NZAA Site Records file). Jones (1994:17) statement that "[W]ith the exception of the Buist monograph, they [sic] are no strong attempts to use aerial photographs as a source of new knowledge" is difficult for me to accept as a summary of this early period. The published record reviewed here seems to suggest otherwise.

Later in the 1960s Groube served as the influential source for the use of aerial photographs in archaeology among Otago students, and these were applied in both the Bay of Islands and Palliser Bay projects, the outlines of which are summarised by Jones (1994: 18). However, I am very sceptical of his view that Hawkes Bay "led in the development and use of aerial photography in archaeology" or that it was that area which played the vital role in Groube's use of the technique, fond though Les was of certain sites in that region. It is more likely that his use of aerial photos stemmed from the Auckland and NZAA Conference experience and was extended to that region.

When the site recording handbook was republished in a new format, reference to using aerial photography was severely curtailed to a few very brief comments (Daniels 1970:6, 40-42, 66). However, it now included photographic illustrations, including aerials by the Department of Anthropology, University of Auckland (Elletts Mountain), N.Z. Aerial Mapping (Hawkes Bay), and Buist (Taranaki), all taken in the 1950s and 1960s. More sensible discussion of the use of aerial photographs in archaeology was restored in the revised handbook (Daniels 1979:53-55), and a few new aerial photos were added.

A major use of aerial photography as means of data collection and research tool at this time, not cited by Jones, was by Gorbey (1970:28, 124). Again we have an instance of mapping sites from vertical aerial photos in which "sites...were viewed stereoscopically and features were lightly outlined with pencil. The plan was then taken off this marked photograph using a Planvariograph" (Gorbey 1979:38 and fn.42, 47), a method often in use thereafter in the Anthropology Department, University of Auckland. The technique resulted in the first map detailing the distribution of archaeological features on the Pouerua volcanic cone (Gorbey 1970: Fig.2). Sutton's (1991) detailed mapping of the whole locality, cited by Jones, occurs more than a decade later. More importantly, aerial photos were extensively employed as a major source for site distributions in the following regions: coastal Bay of Islands, interior Bay of

Islands, west coast - Waikato River to Raglan Harbour, Raglan, Aotea and Kawhia Harbours, Albatross Point to Whareorino, lower Waikato River basin, Waikato basin - Upper Mokau valley, White Cliffs - Mokau coastline, and Taranaki coast (Gorbey 1970:44, 78 and fn.48; 80 and fn.56; 93 and fns.87 and 88; 94 and fns.89, 90; 95 and fn.92; 106 and fn.122). The object of Gorbey's research in these regions was to test various hypotheses about site distributions.

To conclude this account, one should also note that at the same time that Helen Leach was applying aerial photos to mapping agricultural sites in Palliser Bay, Sullivan was carrying on a parallel kind of work in the Auckland volcanic cone field systems. Her survey methods consisted of the usual perusal of the NZAA site record files, and a search of aerial photographs and historical picture collections (Sullivan 1972:149). Early aerial photographs were the principal source for assessing their extent and identifying some of the by then totally destroyed systems (Sullivan 1972:153) whose existence could be backed up by literary sources. By the time of the Puhinui excavations, Sullivan had many of the South Auckland systems mapped, often employing a combination of aerial photography and the Planvariograph for the base plan map, followed up by thorough field survey (Lawlor 1980: Fig.2 - note caption indicates it is based on aerial photography and thus not an accurate planimetric map). In the actual Puhinui project, purpose flown low level aerial photography was undertaken and produced two sets of oblique and near-vertical photographs (Lawlor 1981:11). Colour and infra-red shots were also experimented with, and before the flight measured ground controls were established to act as location markers for the aerial photography and the grid baseline used in excavation. A number of aerial photos appear in the final report, and yet again aerial photography was part of the technical and analytical repertoire in the field survey strategy, before the Auckland Audio-Visual based efforts of the 1980s described by Jones.

CONCLUSION

Jones has used a rather selective set of published sources, certain M.A. theses, and a few personal communications to serve as background in *constructing* what now becomes the standard account of the use of aerial photography in New Zealand. Here I have used other largely published sources to develop a somewhat different account of the early years, though I could have drawn on unpublished records in its support as well. As Jones (1994:16) outlines, four broad purposes are served by this resource: (1) illustration, (2) for research as data in its own right, (3) as an aid to field research and excavation, and (4) as an aid in determining the rate of destruction of sites and measures to conserve them. The sources I have consulted in the review above indicate that from 1958 on aerial photography in New Zealand was being applied to all these ends, and stems from endeavours not covered or cited by Jones. Those sources lead me to doubt that it was not until the publication of Buist's book

in 1964 "that the potential of aerial photography for illustration and analysis began to be fully realised" (Jones 1994:17). Moreover, it seems hard to accept claims about a general lack of "strong attempts to use aerial photographs as a source of new knowledge", or that with two exceptions all exercises in making maps of individual sites "produced results of indifferent archaeological value", or that in the main such attempts were confined to technical photogrammetrists, or that site records using aerial photographs as one source of new knowledge "have seldom been gathered into a published work", or that Hawkes Bay somehow "led in the development and use of aerial photography in archaeology" (Jones 1994:17-18). There also seems to be a neglect of how, as part of Auckland Archaeological Society initiatives, many in New Zealand including Les Groube, Colin Smart and others, came to value aerial photography as a significant resource for their work. Maybe as a result of these comments, a revised account of the topic will one day be forthcoming.

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