Sam Hawksford White, 'Flood Photography and the Visual Component of Environmental American Studies,' *New Area Studies* 4:3 (2024).

Flood Photography and the Visual Component of Environmental American Studies

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Abstract

This article develops a new approach for using photographic sources that might be of interest to American Studies scholars whose research contributes broadly to environmental education. Over the past forty years of photographic scholarship, scientific and other record images have become relatively prominent as primary sources. This visual material can be used to interrogate past responses to flooding and other environmental events. On the other hand, discourses around social documentary continue to frame how the human impacts of rapidly changing environments are visualised. By comparing two sets of images from the 1930s, the article juxtaposes the approaches of photographers associated with these two conventionally distinct areas to offer a more rounded view of flood photography. The discussion starts with a reflective section detailing how I arrived at my current research project. Following this, the categories of scientific and social documentary photography are described relationally in the context of the agencies of the New Deal, in the process setting out an argument for the contribution that engaged visuality can make to Environmental American Studies. Afterwards, the attention shifts to focus on images from two official contexts. The first example concerns record photography from the Soil Conservation Experiment Station in Bethany, Missouri, whilst the second considers photographs that the Resettlement Administration produced in response to flooding in Posey County, Indiana, in 1937. The article concludes by remarking on some of the implications of this method for how American Studies researchers currently conduct environmentally focused projects.

The Path to Visuality

The increasing role that photography has assumed in American Studies scholarship is encouraging in many respects, not least because it has had the effect of expanding concerns to vernacular cultures and 'the agency of people whose role in history was previously ignored or minimised'.[1] If we are approaching an inflection point in environmentally engaged inquiry, as the title of this special issue suggests, then I would contend that now is the time to reassert this democratising instinct through promoting a newly inclusive approach to the use of photographic sources. In the context of my research, this often means the foregrounding of record or project photography: the functional, even routine, assignments that, I argue, can be instructive of environmental visuality as a common human faculty. I recall the first time that I consciously recognised the visceral impact that technical images might have when encountering a blog which featured photos of wreckage at Windley Island and the Matecumbe Keys that had resulted from the September 1935 Florida Hurricane.[2] These images were compiled specifically for a government inquiry into the deaths of 257 veterans who were stationed on beaches in poorly constructed camps as part of a work programme associated with the Federal Emergency Relief Administration (FERA). I could immediately see how this photography of recrimination started to situate often brief catastrophes within and in relation to the extended temporal scale of the aftermath. Now, as part of my current research project, I am in the process of surveying related evidential methods in photographs associated with flooding, drought and publicity around responses to these problems. The practical forms of visual material that I study emphasise the role of the camera as an instrument that is used to attempt to comprehend the details of ever-changing environmental circumstances, employing often repetitive actions to represent structures and processes that would otherwise be difficult to perceive or describe. This paper will discuss my approach to reading record photographs and argues that they

[1] Michael Kammen, 'Photography and the Discipline of American Studies', *American Art*, 21.3 (Fall 2007), 13-18 (p. 13).

[2] Maxwell, M. Marie, 'The Labor Day Hurricane of 1935', *The Text Message* <https://text-message.blogs.archives.gov/2011/09/02/the-labor-day-hurricane-of-1935/> [accessed 19 December 2024].

can be valuable sources of information for researchers whose work converges on the environment and the United States.

In his preface to the work of collected essays, *Vision and Visuality*, the art critic Hal Foster deliberates on distinctions between the two terms that make up the book's title: 'The difference between the terms signals a difference within the visual – between the mechanism of sight and its historical techniques, between the datum of vision and its discursive determinations – a difference, many differences, among how we see, how we are able, allowed, or made to see, and how we see this seeing or the unseen therein'. [3] Photographs, as material evidence for these differences, are now integral to the broad cultural analysis that American Studies scholarship provides. Far beyond the phase of being included only to illustrate broader points, images are understood to be containers of 'unique information that can only be communicated and analysed in visual terms'.[4] The inscription of information or rhetoric, akin to a text or broadcast, is part of what photographs can offer, and it is this function that the field is perhaps most familiar with due to similarities with techniques of literary analysis. However, although less obviously discursive, I see a need to move past trying to interpret what individual producers have attempted to communicate using photography, to ask what these sources tell us about patterns of human vision as it relates to the environment more broadly, both through photography and in terms of unmediated sight.

Developing an understanding of the observation of environments through photography has meant a sustained encounter with the theories of the psychologist James J. Gibson, whose ideas have been foundational to the science of perception. When, in 1982, a selection of his papers were published as *Reasons for Realism*, the book's editors remarked that, ultimately, behind his 'critical approach to psychology was his purpose of furthering our understanding of how people apprehend and act upon the real world in which they live'. [5] Whilst this sentiment should be supported

[3] Hal Foster (ed.), *Vision and Visuality* (Dia Art Foundation Discussions in Contemporary Culture No. 2) (Seattle: Bay Press, 1988), lx.

[4] Marsha Peters and Bernard Mergen, 'Doing the Rest': The Uses of Photographs in American Studies', *American Quarterly*, 29.3 (1977 bibliography issue), 280-303 (p. 280).

[5] Edward Reed and Rebecca Jones (eds.), *Reasons for Realism: Selected Essays of James J. Gibson* (Hillsdale, NJ: Lawrence Erlbaum Associates, 1982), p. 2.

by everyone with an interest in environmental education, it is Gibson's distinctively practical attitude to fundamental problems that has really shaped the methodological direction of my doctoral project. Gibson sought to provide a framework for thinking through what it is in an environment that is perceived, accounting for how we detect and use visual information by fixing and converging on certain details. I have repeatedly returned to passages from his writings as exemplary commentary on vision and photography from the scientific researcher's perspective, and every time I do return his observations generate new thoughts on the functions and characteristics of the record image. I am incredibly grateful for scientific or technical writers and their own descriptions of experiments and activities. The scientific or science-adjacent projects of visual documentation that I feature in my project, however, are rarely accompanied by comparably extensive sections of text.

The papers selected for the third section of *Reasons for Realism* are concerned with pictorial representation and Gibson's attempts to assess the question of how pictures are perceived differently from other objects. Reliably motivated by practical problems, in this case the design of visual aptitude tests whilst working at the headquarters of the Army Air Force's (USAAF) Flying Training Command in Fort Worth, Texas and at Santa Ana Army Air Base in the forties, he established an assessment of the distinctive qualities of photographic representation, 'such that it can provide information for an absent object or scene'. [6] As evidenced in the findings of his reports, which were produced for the USAAF's Aviation Psychology Program, the main objectives of his investigations during this time were to establish the potentialities and constraints of using pictures as surrogates for direct vision in the context of education or training. The research that is detailed in his reports considers questions such as how active observers perceive objects that are in motion, and how this process might differ when attempting to replicate sight lines using pictorial training methods. These studies, or more properly, the approach that they take in trying to differentiate the rules that apply to direct vision and mediated pictorial perception, have influenced how I think about the perception of change in the natural environment. If series of photographic images are made with the intention of demarcating the significant moments in apparently continuous environmental

[6] Reed and Jones 1982, p. 226.

processes, are they successful in describing these changes? Could repeat photography turn out to be an effective tool for engaging visually with the incremental and accretive repercussions of ecological crises that the environmental writer Rob Nixon has identified as having specific representational challenges?[7]

I first presented a version of this paper at the British Association of American Studies Annual Conference 2023 at Keele University. At the time, I felt struck by the varied use of visual media in the programme, and particularly by the format of a joint keynote lecture by Ayesha Hameed (Goldsmiths, University of London) and Henriette Gunkel (Ruhr-Universität Bochum).[8] They delivered their presentation in the form of a dialogue on multiple levels, with phases of the talk alternating between contributors but also between sections of more familiar verbal delivery and sections of narrated video. With the development of new technologies and forms of presentation, but also through electing to use trusted formats more critically, I think this is likely the beginning of some very exciting developments in visual communication within American Studies. This shift towards revitalizing visual analysis and presentation would need to respond directly to our current environmental problems and try to build on the critique that Hameed has referred to previously in the context of current discourses on the Black Atlantic: namely that in a resolutely textual practice we inevitably lose any sense of the materiality (and, I would argue, the spatiality) of environments that we set out to explain and contextualise.[9] For the practice of cultural history, any such initiative would also engage with the idea that photographs can, in effect, collapse temporal moments together to relate specific instances of perception to contemporary audiences. This suggestion of course relies on the supposition that the techniques of perception are something that we share more or less identically with previous (and future) generations. As a starting point or model for analysis, the approach offers a route towards using photographs to address the patterns through

[7] Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge MA: Harvard University Press, 2011), p. 2.

[8] Ayesha Hameed and Henriette Gunkel, 'The Soil and Sea of the Plantationocene', BAAS Annual Conference 2023, April 14 2023, University of Keele.

[9] Anon., 'Ayesha Hameed and the Future – Between Resistance and Destruction', *C&10,* < http://contemporaryand.com/magazines/ayesha-hameed-and-the-future-between-resistance-and-destruction/ > [accessed 19 December 2024].

which humans have seen their immediate surroundings through history, shifting the emphasis of the discussion towards the features and commonalities of visual perception. At the same time, it departs from the exclusionary idea, influential in the early development of all area-based disciplines, that photography's major role in cultural history might be as a means of preserving and presenting the social data of otherwise 'inarticulate' groups, often in a manner that tends towards the encyclopaedic.[10] Rather, we might choose to foreground the agency of lesser known and often anonymous technical photographers working specifically on problems that are understood as having impacts over multiple temporal scales.[11]

Documentary, Experimentation, and the Record Photograph

The impacts of broad efforts to extend the types of photographic sources that are considered valuable for humanities research has been felt in many areas outside of American Studies. Since at least the start of the 1980s, historians of photography have supplemented the analytical guidelines of fine art criticism with readings of other categories of image-making, including the products of visual documentation, scientific experimentation, and the photographic archives of public institutions.[12] This renewed interest in the functional qualities of images has overlapped with significant changes of emphasis in the history of science itself, as sociologists of science authored new approaches to understanding scientific practice by following and relating the activities of its practitioners.[13] 'Informational' photography is a helpful term to frame the sources that I use in that it can group together most of the categories of practical images that relate or record environmental change, including not only scientific images, but also photographs that record engineering projects of different varieties, as well as documentary and publicity images associated with disaster response and

[10] Roy Stryker and Paul Johnstone, 'Documentary Photographs', in *The Cultural Approach to History,* ed. by Caroline F. Ware (New York: Columbia University Press, 1940), pp. 324-330.

[11] Nixon, p. 2.

[12] Barbora Kundračíková and Fedora Parkmann, 'Photo: Science: Art History. Mutual Interactions in the Era of a New Universalism', *Umění/Art*, 3.70 (2022), 259-264 (p. 259).

[13] Bruno Latour, *Science in Action: How to Follow Scientists and Engineers Through Society* (Milton Keynes: Open University Press, 1988).

the effects of environmental change on communities.[14] As the originator of the term, art historian James Elkins recognised how pictures that apparently relate prosaic processes seem at first to be 'intrinsically less interesting', or like 'half-pictures, or hobbled versions of full pictures, bound by the necessity of performing a utilitarian function and therefore unable to mean more freely'.[15] On the other hand, he recognised, perhaps despite his training, that the prominence of informational images within global visual culture deserves pause for thought and that specific examples are worthy of consideration as cultural objects that might reveal in themselves some of the conventions of human visuality.

It is encouraging that scholars are becoming increasingly supportive of the need to develop more accessible and environmentally engaged histories, including flood and drought histories. Particularly from the standpoint of accessibility, there is obvious value in foregrounding the kinds of historical photograph that appear indistinguishable from images seen directly through the eye; images that act as a reference for direct vision, but which should be understood as typical examples of mediated vision. After all, the subjects of photographs which attempt to capture the processes of granular environmental change – the fall of water down a spillway or the accumulation of sediment at the base of a gully – can arguably be viewed relatively consistently by different audiences, at least according to their own logic as records of positivist practice. If these less valued technical and working forms of photography were to be looked over by the growing scholarship that addresses environmental knowledge in the context of its broader relation to history, then any composite interpretation offered by the project would be severely lacking in breadth, its visual component covering only a limited range of artistic production rather than the broader dispersion of the informational image. It seems likely that significant historical insights, in addition to methodological innovation, can be achieved by creating a dialogue between two previously critically disconnected categories within the history of photography: informational or scientific photography and social documentary photography.

[14] James Elkins, 'Art History and Images That Are Not Art', *The Art Bulletin*, 77.4 (December 1995), 553-571.

[15] Elkins, p. 553.

This argument gains traction partly because many of the key photographers in the documentary movement themselves questioned such hard and fast distinctions. Russell Lee, one of the most prolific photographers working during the Great Depression, travelled the backroads of the nation for the Historical Section of the Resettlement Administration (RA) (later renamed the Farm Security Administration [FSA]) from 1936 to mid-1942, and is exemplary of this point. Formally trained as a chemical engineer at Lehigh University in Bethlehem, Pennsylvania, his practice has often been framed in terms of his educational background. For example, one recent biography suggests that he 'applied a scientifically based methodology to systematically examine, classify and document his subjects', recounting the comparison that Roy Stryker made as head of the Section between Lee's photographic methods and the science of taxonomy.[16] Lee's preferred approach to documentary practice was, as his recruiter set out in an internal letter, to photographically 'dissect' the places he was sent to on assignment, setting out the results according to an apparently logical ordering of the subject 'in all its parts'.[17] He was regarded as ideally suited to concentrate on the 'project work' that the Historical Section carried out in response to specific requests from the RA's regional offices.

In the administration, this type of photographic assignment could include, for example, recording in exhaustive detail progress being made on housing construction for programmes of rural resettlement and rehabilitation. Initially, under Information Division director John Franklin Carter, the preparation of visual records of projects and procedural operations made up the central part of the section's photographic activity. However, the transfer of photographic functions to Stryker's office in the middle of 1935 brought about a significant change in emphasis, as the Historical Section file evolved into a much more wide-ranging project to manufacture a visual inventory of the United States. Despite the inclination that 'usual project type pictures' would never be particularly effective at generating public support for relief programmes, such work continued throughout the period as a supplementary function of the Historical Section. Russell Lee differed from many of his contemporaries, his

[16] Mary Jane Appel, *Russell Lee: A Photographer's Life and Legacy* (New York: W. W. Norton, 2021), xv.
[17] Ibid.

biography goes on to argue, in that he used each of the routine assignments that came to him 'as a gateway to other work', indicating a readiness to treat mechanical record shots as intrinsically visual objects in their own right. 'Whereas colleagues covered government projects perfunctorily (or avoided them altogether), Lee embraced them, always looking for some intrinsic visual appeal', to the extent that some of his best-regarded material was originally intended to serve as 'progress pictures'; including those capturing the progress of the FSA's Southeast Missouri Farms Project of self-help housing during 1938.[18]

My current work with historical photography involves recreating, to a certain extent, the field practices of photographers whose assignments involved confronting the effects of flooding and drought in thirties America. The visual encounter is always the starting point, whether addressing land-based changes or the social and societal consequences of environmental instability. Engaging with these views as evidence for project-based knowledge, rather than as inherently subjective documents, I have decided to avoid auteurism as a model for analysis because of the way in which this can act to separate photographs from the social and particularly the material conditions of their production and distribution.[19] Whilst the need to sustain critical emphasis on the explicatory functions of photography, as opposed to the purely expressive or aesthetic, has been articulated regularly, the present climate emergency has brought relatively marginal debates about retaining the historical contexts of photographs to the point of necessity. The inclination that I have now is that to develop the visual component of Environmental American Studies over the coming years will mean working increasingly on interpretations of apparently commonplace and technical images of environmental change – images that might previously have been disregarded as incidental records – in addition to developing readings of the role that visual media plays in environmental activism, such as this term can be understood as present through different historical periods. For my research project this means tracing the campaigning activities of certain conservation-oriented New Deal administrators through publications and exhibitions that aimed to develop a

[18] Appel, p. 138.

[19] Allan Sekula, 'Dismantling Modernism, Reinventing Documentary (Notes on the Politics of Representation)', *The Massachusetts Review*, 19.4 (Winter 1978), pp. 859-883 (p. 864).

collective awareness of contemporary environmental problems. These early campaigning officials had as their figurehead Hugh Hammond Bennett, the soil scientist and director of the recently established Soil Conservation Service (SCS). In 1934 he wrote in a letter to the Service's Texas regional office:

> What we need, and this very badly, are good pictures such as newspapers and magazines can use and such as will strike a novice square in the face, knocking him off his feet with the tragedy of soil wastage shown by the picture itself even without a title. [20]

Refining this type of direct visual argument through government publications and the press, New Deal agencies successfully popularised the topic of land degradation to the point at which environmental issues had become a point of national discussion. Primarily, this resulted from the circulation of disconcerting landscape imagery that was relatively easy to capture in the most affected parts of the country. I am researching the routes through which visual discourses around flooding and drought moved beyond the official organs of specialised professional groups to address broader publics and political actors during the thirties. On the other hand, the project relates these circulated images to photographs that were used for research purposes, which would only have been seen in specialist and professional circles. I have found that it is often these more contained institutional records that offer the most sustained evidence for past visual engagement with change in immediate environments, whether registered by the camera as incremental or catastrophic. Record images of either type are currently undervalued as primary sources, with their deceptively simple content and layout obscuring an experiential capacity that has the effect of putting the viewer in the place of the photographer and standing in for his or her unmediated perception.

Photography and Environmental Education

[20] Bennett, Hugh H., 'Letter to H. O. Hill (Director, Regional Office, Texas), 22 June 1934, National Archives and Records Administration, Record Group 114, *Soil Conservation Service Circulars, Filed orders and memorandums, 1933-1957*, Box 1.

As is becoming increasingly clear, the role of visual media in communicating as far as possible the complexities of our environment is reaching a new tenor of importance. The valuable contribution that environmental media scholars and initiatives such as the *Journal of Environmental Media* and *Global Green Media Network* have made in recent years has been in highlighting the significant gaps in knowledge that remain, both amongst consumers and producers of digital images, as to the implications of their content on environmental attitudes and behaviours. This research is in addition to work that has drawn attention to the need for a new media theory that speaks to the problem of environmental communication.[21] The function of historical images in producing mediated portrayals of the environment, and the role that photographic archives might perform in bridging psychological distances between individuals and remote environmental issues, has been considered less often. Archival record images should be examined as a potential alternative to contemporary or stock imagery for education projects that are designed to increase environmental awareness.

Currently, using methods that are in some ways the 2020s equivalent of Gibson's use of training film, psychological researchers are testing the potential impacts of immersive media (360-degree images and video) on feelings of nature connectedness and the perception of both distant and proximal environmental issues, concentrating on forms of communication that can deliver high levels of vividness and spatial presence when compared, for example, with still photographs.[22] Whilst immersive experiences that simulate direct visual experience have been shown to improve levels of personal relevance and reduce the sense of abstraction that many individuals feel about current environmental problems, my concern would be that to lean unreservedly towards the experiential does risk underplaying the need for background and context when identifying and communicating shared problems. Photographic sources might not necessarily require place-based or even temporal explication to be

[21] Hunter Vaughan, *Hollywood's Dirtiest Secret: The Hidden Environmental Costs of the Movies* (New York: Columbia University Press, 2019), p. 194.

[22] Cassandra L. C. Troy and Chris Skurka, 'Being outdoorsy indoors: Nature connectedness through 360-degree images and video', *Journal of Environmental Media*, 4.1 (April 2023), 27-47; Priska Breves and Holger Schramm, 'Bridging psychological distance: The impact of immersive media on distant and proximal environmental issues', *Computers in Human Behaviour*, 115 (February 2021), 1-9.

functional within environmental education. However, retaining documented examples from history is intrinsically useful in that associated personal accounts can be used to disentangle the embodied aspects of visuality: the subjects that have been selected from fields of vision over time as both noticeable and worthy of noticing and making apparent.[23]

Learning to perceive environments critically can probably never be based wholly on sustained and general exposure to nature, but instead develops from improving, through practice, the capacity to identify features that are present in an environment whilst reflecting on the patterns through which objects of attention have previously been apprehended and recorded. As environmental knowledge is increasingly communicated in visual or part-visual terms, and as this information seems more often to occupy contested and politicised arenas, I agree with many media scholars as to the pressing need to construct theories that explain how photography and other visual formats are used as environmental messaging. However, in a way that reflects the internal and external lives of images, there is a need to develop related frameworks of knowledge around the production of images and spend the time to interpret specific techniques that media practitioners have employed in the field. The decisions that photographers make might then be thought about in relation to patterns of environmental visuality across human society.

Looking back at the influential work of the environmental educator David W. Orr, whose first book challenged all of those directly involved in higher education to adapt their curricula to sustainability, much was written about in 1992 that still holds relevance today. Orr stressed then that researchers who were engaged in environment-focused projects, across all academic disciplines, should strengthen their methods of observation. He concluded that what he later termed the 'long emergency' could never be challenged directly by an education system that failed to support the improvement of what he called ecological literacy amongst researchers, students and citizens.[24] He also maintained that it would be a significant problem for society in

[23] Epi Wiese, 'Gibson at the Movies', *Leonardo*, 15.4 (Autumn 1982), 287-290.

[24] David W. Orr, *Ecological Literacy: Education and the Transition to a Postmodern World* (Albany: State University of New York, 1992), pp. 84-86; David W. Orr, *Dangerous Years: Climate Change, the Long Emergency and the Way Forward* (New Haven: Yale University Press, 2016), p. 168.

general if academic researchers undervalued the importance of place, as defined by the human scale. In most cases, confining the geographical scope of studies to these smaller spatial scales might be a particularly effective strategy for new forms of environmentally engaged humanities research, if only due to the applicability of the local to first-hand accounts of lived experience. Using the limitations provided by the camera frame or the human eye to relate spatial points of measurable change can definitely be helpful when faced with the interpretative problem of vast conceptual scales. In practice, photographic sources are particularly valuable to the Environmental Humanities researcher because they can periodically narrow the focus of concern back to the local and the perceptible, to 'those things nearest at hand' that are 'often the most difficult to see'.[25]

The contributions of environmental researchers and activists have been encouraging in a personal way when faced with the familiar debilitating sense of complexity that result from learning about climate change and the exponential nature of our predicament.[26] Countering the problem that, cognitively, it is impossible to act on any problem that cannot be made perceptible, I have concluded that photographs can contribute significantly to environmental research by centring forms of meaning that can be understood at personal and biographical scales. It may be through reflective and empathetic applications of direct and mediated visuality that many of us will gain the impetus to change some of our behaviours or attitudes. Perhaps there is also intrinsic value to relaying direct personal experience and the experiences of others within their lived environments, as specific responses to climate change can only materialise through closely examining our own 'sites of change, and [perceptible] leverage points'.[27] Indeed, the developing environmental component of the interdisciplinary American Studies project is particularly well suited to examining personal or biographical accounts that can provide context to pervasive and universal issues, rendering features of change legible where before they may have been vague, distant and ambiguous. In this context, Environmental American Studies has the potential to build towards countering the fundamental representational imbalance

[25] Orr 1992, p. 126.

[26] Sarah Jaquette Ray, *A Field Guide to Climate Anxiety* (Berkeley: University of California Press, 2020).

[27] Ray, p. 79.

that Nixon identifies: how to communicate impactful 'stories, images, and symbols' that can contextualise the long term and concealed social impacts of ecological crises. These examples of more amorphous damage proliferate as a result of the delayed and continuous impacts of events and not just during spectacular or instantaneous phases of greatest intensity.[28]

Soil Erosion Experiment Station, Bethany, Missouri

The Federal Erosion Farm at Bethany, Missouri started its investigations into the basic factors affecting runoff and soil losses on agricultural lands in 1930, one of the initial group of six federal erosion research stations that had been allocated funding in the Agricultural Appropriations Act of the previous year.[29] Congressman James P. Buchanan of Texas inserted the amendment to the act that provided for the stations, in the process consolidating government research activities around the influences of farming practices on erosion and flooding.[30] Before this enterprise, which was intended to provide some of the quantitative data from field plots needed to substantiate soil conservation farming methods under varying conditions, information was limited and highly dispersed, with just three of the State Agricultural Experiment Stations (Missouri, North Carolina and Texas) having previously undertaken soil erosion and runoff experiments. [31] The work at Bethany started soon after the leasing of the station and land (220 acres) on March 1 and was initially a collaborative effort between the Department of Agriculture's (USDA) Bureau of Chemistry and Soils and Bureau of Public Roads (later the Bureau of Agricultural Engineering). There was also some continuing input from the Missouri Agricultural Experiment Station and the Bethany Chamber of Commerce. The station was in operation continuously over a

[28] Nixon, p. 2.

[29] Douglas Helms, 'The Development of the Land Capability Classification', *Readings in the History of the Soil Conservation Service* (Washington DC: Soil Conservation Service, 1992), pp. 60-73 (p. 62).

[30] Ibid.

[31] D. D. Smith, D. M. Whitt, Austin W. Zingg, A. G. McCall and F. G. Bell, 'Investigations in Erosion Control and Reclamation of Eroded Shelby and Related Soils at the Conservation Experiment Station, Bethany, Mo., 1930-42', *USDA Technical Bulletin No. 883*, (April 1945), 1-175 (p. 10).

ten-year period, with most of its scientific programmes finally discontinued on December 31, 1940.

Originally the central part of an old livestock farm, the station's investigations took place at various numbered plots and other bounded sites, 'subject to natural conditions of rainfall, temperature, and wind', with data recorded by gauging soil and water losses, crop yields, and other variables using devices such as measuring flumes and silt samplers, as well as through observation and pictures.[32] The site layout was subdivided into a number of experimental fields, terraced areas and watershed pastures but was dominated topographically by the presence of three ravines. These channels, branching features that can be identified by relatively steep banks that confine most of the storm runoff to a definite path, have sides that are generally grassed or timbered rather than showing exposed soil. Elsewhere, the continuous cropping to corn had initiated the growth of networks of hillside gullies of the type that would, in time, establish steeper gradients and unvegetated sides, deepening and deepening until, at the most advanced stage, eating back to within 20 to 30 feet of the crest of the hill.

The two record photographs from Bethany that are included here are intended to provide a window through which to consider the visual encounters of two specialists as they participated in the research activities: C. K. Shedd and A. T. Holman. These are the credited names on the selected prints, and as is often the case with this type of image, the discussion must start from a position of limited biographical background. Both men used photography during their investigations but what is known about them as individuals can be gleaned only from the contents of publications that they contributed to as part of their main professional concentrations. Claude Kedzie Shedd, an agricultural engineer, appears to have maintained a particular interest in modern farming machinery and equipment. He published, with W. A. Foster, a book on silo construction at around the time the Agricultural Experiment Station at the University of Nebraska employed him as Manager of Tractor

[32] Smith, et al., p. 26.

Tests.[33] After this, and particularly in the period immediately before and following his work at Bethany, his institutional movements are difficult to trace. However, towards the end of the New Deal period, he appears in records once again as co-author for the USDA circular *Machinery for Growing Corn* (1940) and was later involved in research at the Iowa Agricultural Experiment Station, studying the effects of water and soil losses on corn yields.[34] A. T. Holman, another agricultural engineer, was employed as an 'Extension Specialist in Farm Engineering' at the North Carolina State College for a year or two at a time during the thirties and was also based in the Bureau of Agricultural Chemistry and Engineering at the USDA as an Agricultural Engineer.[35]

[33] C. K. Shedd and W. A. Foster, *Silo Construction* (Ames: Agricultural Experiment Station, Iowa State College of Agriculture and the Mechanic Arts, 1919); L. W. Chase, E. E. Brackett, O. W. Sjogren and C. K. Shedd, 'The Nebraska Tractor Law and Rules for Official Tractor Tests', *University of Nebraska Agricultural Experiment Station Circular No. 10* (1919).

[34] C. K. Shedd, J. B. Davidson, and E. V. Collins, 'Machinery for Growing Corn', *US Department of Agriculture Circular No. 592* (1940); G. M. Browning, R. A. Norton, and C. K. Shedd, 'Mulch Culture in Relation to Soil and Water Conservation and Corn Yields in Iowa', *Soil Science Society of America Journal*, 8.C (January 1944), pp. 424-431.

[35] Anon., 'Chapter 1 – A Department Grows to Maturity', North Carolina State University, Department of Biological and Agricultural Engineering <https://www.bae.ncsu.edu/about/history/chapter-1/> [accessed 19 December 2024].

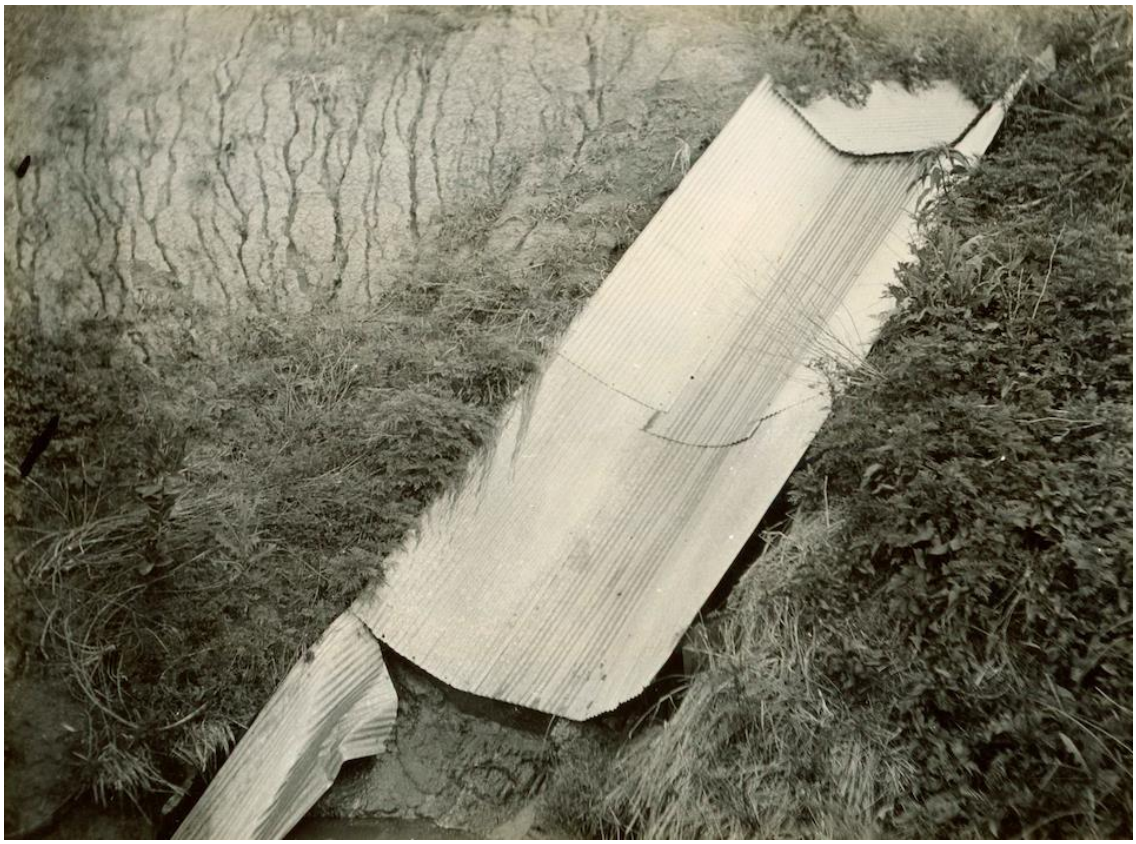

Figure 1: Spillway on dam B-2 showing damage done by rain of June 5, 1931, Bethany Soil Erosion Experiment Station. C. K. Shedd. National Archives and Records Administration (114-CS-7-83-12405).

After a period of intense rainfall on June 5, 1931, within the month that the station's meteorological data shows as having the greatest average rainfall over the length of the project, the decision was made to photograph a storm-damaged section of corrugated metal spillway below dam B-2 (Figure 1). This self-styled soil-saving earth dam was fabricated across Ravine B to test one possibility for slowing the rate of soil wash-off along the course of the channel and potentially stemming the resulting overflow into the valley's bottom lands. In the space behind the dam structure, engineers intended for a deposit of soil to gradually accumulate until the channel could be reclaimed for pasture or other cultivatable use. As long as the barrier remained tight, the ravine could not extend or enlarge itself by creeping down to the bottom of the hill. The border of the pond of water that had formed below the dam is shown at the base of the picture, immediately beside a crumpled section of prefabricated metal sheeting that has, for the most part, come apart from its adjoining length. The metal ramping had been placed immediately below the dam as overfall

protection in an attempt to control the trajectory of falling water and soil if the dam were to fail, narrowing its flow and halting any sense of chaotic movement.

The flow itself, though, is not represented – this is an image showing the ultimate result of a day of hard-beating summer rain. This first image from Bethany can be interpreted in two different ways: the first is as just one component view in an ongoing project to test a variety of drainage structures from the practical standpoint of adaptability, initial cost, maintenance, durability and so on. The second, lived, aspect of the image, however, becomes active when we consider the responsiveness of its photographer to short-lived weather events; when we start to imagine the immediacy of his response to the specific environmental changes that were taking place at Bethany on that particular date. The picture can indicate how we often use the days after a difficult event to take stock of the situation in quite a measured way. It also shows the familiar tendency during periods of extreme or extraordinary weather for observers to choose to fixate on material damage to property or equipment, often through applying the close-up view. The three panels of sheet metal are basically the subject of the image, the feature that needs to be captured as evidence of weak durability in comparison to other materials: creosoted lumber, galvanised iron, or unformed reinforced concrete. Shedd has selected this small point of damage as a legible marker of change in a recorded environment. Incidentally, however, in the upper left-hand corner, there is a band of rills or 'shoestring erosion' that betrays a wider point of anxiety: the encroaching drip, drip of water that makes threatening cuts to the earth; cuts that structures like the soil-saving dam were purported to be able to stop in their tracks. The parallel lines, which actually comprise close to a quarter of the photograph, provide evidence for the earliest phases of soil erosion below the dam, demonstrating the fact that engineering infrastructure could never be a full stop on the effects of runoff and wash-off. Instead, structures like soil-saving dams were part of broader efforts to restrain these ongoing processes: investigations that necessarily involved assessing the range of fluctuation and critical periods of local rainfall to design effective cropping systems and land management practices. Shedd's structured visual engagement with the consequences of excess runoff might be incidental in some ways to present definitions of environmental concern. However,

they present a valuable example of close observation in the wake of abrupt changes in weather.

The second featured record image captures the process of runoff even more directly, showing water passing over a gully control flume that was installed in Ravine C and depositing into what appears to be a larger farm pond at the foot of the slope (Figure 2). The flume had been positioned at the head of a gully within the channel and was designed to intercept the flow of surface water and prevent it from rushing straight down the incline, leading to indiscriminate soil washing and flooding in the farmed area below. The picture is, like Figure 1., an example of routine work to visually document the operation of different control structures: small-scale engineering projects that relied on a close understanding of the science of hydraulics in relation to runoff and the flow of water under different conditions. This kind of diversion ditch used overflow storage ponds to store water, redirecting its course from hitting the head of the gully and preventing the soil-carrying current from dropping into cultivated areas 'with its attendant destructive erosive power'.[36] The picture was taken on March 24, as the snows were beginning to melt at Bethany. The impacts of seasonal snow thaws on levels of excess runoff had previously been discussed at some length in Hugh H. Bennett's article 'The Geographical Relation of Soil Erosion to Land Productivity', which was published in the *Geographical Review* four years before this photograph was produced. Bennett used this article to draw a clear contrast between the drastic impacts of the heavy summer rains, locally called 'cloudbursts' or 'gully-washers', and the more gradual and potentially manageable effects of thawing snow cover in the early Spring.[37]

[36] C.E. Ramser, *Brief Instructions on Methods of Gully Control* (Washington DC: Soil Conservation Service, 1935), p. 2.

[37] Ibid.; Hugh H. Bennett, 'The Geographical Relation of Soil Erosion to Land Productivity', *Geographical Review*, 18.4 (1928), 579-605 (p. 587).

Figure 2: Flowing water from melted snow passing over gully control flume installed at the head of a gully in Ravine C near silt box C-10, Bethany Soil Erosion Experiment Station, March 24, 1932. A. T. Holman. National Archives and Records Administration (114-CS-7-88-12660).

The continuous processes of environmental representation that were carried out at the station, on the East Fork Big Creek Watershed, were part of a comparatively new field of research in agriculture for which the methodology was largely undeveloped. The camera is often being placed in the hands of technicians who are interested in learning more about practicable methods for reducing water loss, whilst their photography is highly responsive to seasonal and even daily variations in climate;

they are investigative in a broader sense. The photographic work of figures like C. K. Shedd and A. T. Holman is perhaps aesthetically unfamiliar for one important reason: it was produced in the setting of a model farm that performed the role of a stand-in for the conditions of the much more extensive problem area of Shelby and related soils in north-central Missouri and south-central Iowa, and to a lesser degree in southeastern Nebraska and northeastern Kansas (approximately 15,730 square miles of territory). The people whose livelihoods might come to depend on the government's research programme are, in most cases, missing from the picture: this applies equally to the farmers who operated from comparable upstream watersheds or those who lived far downstream and would only see the effects of flooding after the 'land phases' that were being investigated so exhaustively at the station had long passed. The photographic practices of the federal Soil Erosion Research Stations should be seen as part of a broad preoccupation in thirties culture with seeking out the rural origins of national events, in this case accentuating the connection between short-lived upstream floods that 'might last but a few hours' ('when the sun shines again the farmer knows the worst is over') and the spectacular and often disastrous consequences of downstream flooding on large river systems.[38] The implications of excess run-off in small watersheds for downstream communities formed the basis of the influential pamphlet *Little Waters: A Study of headwater streams & other little waters, their use and relation to the land*, published jointly by the SCS, RA and Rural Electrification Administration (REA) in November 1935.[39] As the decade progressed, government information photography, like an experimental flood control programme starting at the upper end of a watershed and proceeding methodically downstream, eventually turned its attention to the eventual destination of the waters; to farm buildings in the floodplains, their inhabitants, and damage to crops, stored feed, goods, and equipment of all kinds.

[38] Hoyt, William G. and Walter B. Langbein, *Floods* (Princeton: Princeton University Press, 1955), p. 7.

[39] H. S. Person, *Little Waters: A Study of headwater streams & other little waters, their use and relation to the land* (Washington DC: United States Government Printing Office, 1935).

The Historical Section of the Resettlement Administration in Posey County, Indiana, 1937

In the winter of 1937, a series of abnormally heavy rains centred in the upper Central States began during December and continued through January, reaching climactic intensity in the period January 20-25.[40] Between January 22 and 27, the Ohio River was in flood stage along its entire length, greenish-grey waters spreading over 15 miles in some places, pouring out over the flood plain to inundate homes and deposit tons of debris and silt. Around 70,000 cubic feet per second of water rushed through a low divide into the Mississippi River at the Cache River Valley near Columbia, Illinois. The authorities were faced with a thousand miles of high water from Pittsburgh to Cairo, Illinois, an area across which entire counties were temporarily cut off and underwater and the necessities of life provided to the displaced by Red Cross workers. Whilst the river towns of the Ohio Valley were overwhelmed, the situation in the agricultural townships that surrounded them was reported as being 'almost beyond comprehension'.[41] Ray Roll, a farm advisor within Gallatin County, described a situation where 'waters rose so quickly and unexpectedly that in most cases farmers were forced to leave their livestock and grain to the mercy of the flood'.[42] The backwaters, lowlands and mudflats where rehabilitation work could not even start for several weeks as the flood waters receded so slowly, became the concentration for Russell Lee and his behind-the-scenes photographic assignment for the Resettlement Administration.

Lee's pictorial reporting of the aftermath of the 1937 Ohio-Mississippi floods saw him travel across the Missouri Bootheel, Southern Illinois and southwestern Indiana, just as many transportation and communication routes into and out of the area faced severe disruption. Roy Stryker, the director of his section, responded to a letter sent by Lee in January from his hometown of Ottawa, Illinois: 'Better watch out, or you'll get caught in the flood raging in that part of the country. Incidentally, [he remarked] if you get a chance to take any pictures showing the results of floods, particularly

[40] Hoyt and Langbein, p. 384.

[41] Anon., 'Southern Illinois Communities Look To Rehabilitation', *Evansville Courier and Press*, 7 February 1937, p. 19.

[42] Ibid.

ones showing good farm land ruined by overflow…'[43] The developing situation had produced one of the few instances where the Historical Section had cause to respond directly to a rapidly unfolding national news story. However, the ambitions of the file meant that the assignment gravitated towards relating the medium to longer-term effects and the period of salvage, even if this meant staying behind through February and March to see how and if rural populations were brought back onto their feet. Loans were being made available to farmers in the flood area through the RA in April, with the intention being to try to get ready for the start of the next growing season.[44] Loan applications could be made to cover the living expenses of families until any returns could be received from crops. Local rehabilitation supervisors of the RA were also able to administer loans for the replacement of livestock, machinery, and feed. The affected farmers were urged in a press article to direct their claims to local offices as soon as possible by the regional director of the agency, R. C. Smith.

[43] Letter from Roy Stryker to Russell Lee, January 19 1937, cited in Stu Cohen, *The Likes of Us: America in the Eyes of the Farm Security Administration* (Boston: David R. Godine, 2009), p. 10.

[44] Anon., 'Loans Available to Flood Area Farmers', *The Weekly Record* (New Madrid, Missouri), 16 April 1937, p. 1.

Figure 3: Interior of farmhouse after flood. Posey County, Indiana. February 1937. Russell Lee. Library of Congress Prints and Photographs Division.

Lee, typically, took the opportunity provided by the agency's demands for visual evidence of damage and recovery to produce images that, methodically, present the personal consequences of the flood disaster in imminently relatable terms. His visual choices are striking and counterintuitive, often preferring to turn his sight towards objects - the crumpled wreckage of formerly cherished possessions - rather than, like many of his more familiar colleagues, offering evocative portraits of the farmers themselves. He was, over the course of weeks, developing his own methods for generating intimacy in disaster photography. The series evidences the 'small things' that matter in the face of the unprecedented and the illegible, and document the practical acts that, together, constitute personal and community responses to periods

of extraordinary change.[45] Interestingly, Lee's flood images often frame a similar scale or degree of material damage to pictures from Bethany that document storm damage to agricultural infrastructure. In Figure 3., he shows, for example, a broken round table lying on a domestic floor that is covered with a sheet of mud, the very substance of what the journalist Frederick Simpich, who was touring the flood area at this time for *National Geographic* magazine, called the 'slow soaking and settling slime which wrought ruin'.[46] In the towns, some furniture might have been saved by storing it away, up in attics, on the second stories of buildings or on scaffolds, but, for farmers, practically all of their belongings would have been ruined, whether household objects or implements and equipment that was needed for cultivation.[47] In a series of interior views from Posey County, Indiana, we observe the distillation of domestic loss in broken, everyday furniture: tables, chairs, beds, lamps, bowls, instruments like pianos and sewing machines, and debris that has broken down to become fragmentary and indistinguishable from the layers of sediment that migrated into these homes from the periphery. The photographic investigations that took place at Bethany had direct applications for similar soils across an area of approximately 15,730 miles in four states, whilst in Posey County alone, four hundred refugee families were being cared for on the 23rd of January, 1937.[48] In both cases, photographs were being created for federal agencies to convey the visual impacts of excess water and to at least point towards these larger scales: scales for which one person could not properly provide witness. The first set of images was produced for the purposes of scientific investigation, the second as part of an extensive documentary or historical project. Both ultimately perform very similar representational and functional tasks, and, when viewed together, are illustrative of the qualities that make record photography particularly effective at portraying the specifics of environmental change. This is achieved ultimately through serialisation and the thoroughness with which the photographer sets out to replicate first-hand experience. It is a granular process of

[45] F. Jack Hurley, *Russell Lee: Photographer* (New York: Morgan & Morgan, 1978), p. 17.

[46] Frederick Simpich, 'Men Against the Rivers', *National Geographic*, 71.6 (June 1937), pp. 767-794 (p. 768).

[47] Anon., 'Southern Illinois Communities Look To Rehabilitation', *Evansville Courier and Press*, 7 February 1937, p. 19

[48] Smith et al. 1945, p. 11; Anon., 'Floods at a Glance', *Evansville Courier and Press,* 23 January 1937, p. 1.

documentation that does not need to literally resort to repeat photography of identical views (before and after images) to convey substantial environmental change or responses to change.

Figure 4: Woman shovelling silt and debris in flooded farmhouse. Note overturned piano. Posey County, Indiana. February 1937. Russell Lee. Library of Congress Prints and Photographs Division.

Conclusion

Frederick Simpich's article quotes an unnamed engineer on its first page: 'Time is a fourth dimension in floods. Length, depth, and width – they're the familiar old three. But time, or the rate at which the stream runs, forms another'.[49] Record photography is important for environmental research according to this reasoning, being the methodical and visual explication of a developing event or process over a specified

[49] Simpich, p. 767.

period of time. Informational photography was used in the thirties to attempt to locate and define the origins of events such as floods and record their repercussions as the torrents receded to reveal the devastation left behind. We can certainly experience change in our localised natural environments as vital and immediate – 'Pushed by racing, icy flood, windows and doors of houses first smashed in; then groaning and crumbling' – but, in our protracted and seemingly permanent state of climate crisis, the gradual and cumulative impacts that record photography attempts to capture seem especially relevant.[50] The homes that Lee documents, where 'saturated mattresses and upholstery bloated to twice normal size; wall-paper-peeled; rugs were thick with slime and mud; pianos and cheap, glued chairs literally fell to pieces', stayed that way, unoccupied and dark, for week after week.

The environmental crises that are unfolding in the twenty first century are similarly established and set in. They will need to be understood through looking at the details of everyday processes rather than only intermittently considering lived environments at times of particularly sudden or noticeable impacts. The decisions that photographers have made in the field are revealing of the ways in which people have responded to environmental changes in the moment: these representations of damage as enacted on functional objects constitute just one strategy that has been used to humanise complicated environmental processes. Figure 4., and many of the other photographs that Russell Lee took in Posey County, are effective at putting the reader in a position to view the practical processes of recovery in the wake of catastrophe from the direct perspective of another person. Historical record photography can evidently be useful for any humanities researcher whose work engages closely with environmental change and could be utilised more regularly as sources within the emerging and increasingly relevant sub-discipline of Environmental American Studies. The pictures that I have included are examples of visual sources that relate specific instances of embodied human action. It is through considering these embodied human actions that we can begin to promote more vivid and accessible forms of environmental scholarship.

[50] Ibid.

Acknowledgements

This work was supported by the Leverhulme Trust (Grant Reference Number DS-2020-039). I would like to thank Barnaby Haran and Rebecca Tillett for their invaluable comments and suggestions on earlier versions of this text. The author has no competing interests to declare. ORCID Identifier: 0000-0002-4817-0856.

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