Photography

(Fully Realized)

Fifth Edition

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Adobe Acrobat Reader DC is the recommended software for reading this work. For the best reading experience on Android or iOS mobile devices, download and install the latest version of Adobe Acrobat Reader and use Liquid Mode.

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Preface to the Fourth Edition

In just the past few years we have seen astounding jumps in photographic technology, in processing technology and in presentation technology. But now… well… scratch all that - in the past few months the advances in technology have been nothing short of astounding… advances that dwarf what has come before. The bulk of the photographic development has come from the smartphone makers - Apple, Samsung, Google, et al - and it seems they are not slowing down.

Yes, what is being said here is that unless you have some special photographic need, your relatively recent smartphone camera can meet your photo needs. It's now more than time for us to let the camera do the heavy lifting of setting focus, exposure, etc., and allow us to concentrate on telling the subject's story. It makes no difference if you are using an Android-based smartphone or and iOS-based smartphone as both systems are able to produce exceptional quality work.

That is why this fourth edition of *Photography (Fully Realized)* concentrates on using just a smartphone camera in the production environment… because what we saw as some far off future for photography only a decade ago is here now and in full force.

Having said that…

There are lots of things that can be done with the pictures – they can be printed out and put in an old shoe box stored away on the closet shelf, they can be left on a memory card, they can be uploaded to Flickr or Facebook, they can be put on a portfolio website, and on and on and on.

Here we're about putting them in a book to tell the subject's story.

And this is where even more of those technology advances have opened things up dramatically.

Photography books are, by their nature, fixed format productions. The format of choice for digital photo books is the Portable Document Format or the pdf. As the pdf is the fixed-format presentation of a page, it was impossible to get it to respond to all of the different (read: almost always smaller) size screens without simply being squished into a smaller, practically unreadable envelope. The pinching, spreading and scrolling required on smaller displays made the task of comfortably reading the content well north of totally impossible.

One workaround was to produce several different versions of the work, adapting each to a specific display “class”. This was not always a perfect solution but it did cut down on the pinching, spreading and scrolling some.

Now there is a solution that actually works.

Adobe’s AI assisted Liquid Mode has been around for a couple of years and all indications are it is going to be a permanent feature of Adobe’s Acrobat Reader system. (Yes, you do have to use Adobe’s reader. And, as of this writing, it is available for Chromebook and mobile devices running Android or iOS.

Liquid Mode makes the pdf file responsive to any display size. There are a few requirements and those are discussed in the second section of this book. It isn’t perfect but it’s at a point where it works extremely well and, according to Adobe, is under continued development.

And, in a third major change, you will notice all mention of printing books is gone. If your goal is to print books and give them as presents to friend and family or to have them put in a library, by all means, have at it… But if your goal is to have your work available to widest possible audience, the digital presentation and internet distribution is the only viable choice.

In just the past few years we have seen an explosion in digital book (e-Book) production and digital reading (e- Reader) technology. Folks are using laptops, e-Readers, tablets, and now, more than ever, they’re using their phones to read everything. Everything from books for pleasure reading to college text books and cookbooks are now available digitally. Local newspapers and national magazines are making the shift to all digital presentation. And this trend is growing explosively.

We’re not saying physically printed material is going the way of the westward wind… but…

Introduction

This is not the usual approach to photography. It isn’t concerned with f-stops, shutter speeds, the rule of thirds or what Photoshop filter to use.

Here, photography is part of a communication complex that fully realizes both expression and presentation.

We use photography for a lot of different things… everything from advertising and editorial to weddings and zoology. If this diversity of use proves anything, it proves that, at its core, photography is truly about communication.

While some want to make the photograph representational and interpretive – having a deeper or alternate reality as the "true" subject of the work – the reality is that photography is declarative and specific in its communication. And that communication is always about some*thing*.

But unlike a lot of the other communication media, at its core, photography is more personal in its presentation. It's a media that encourages the reader to take it into their personal space. The form of presentation that accomplishes this is the book, be it the physical, in-your-hand, page-turning variety or the in-your-device, swipe-to-turn variety. The photograph is taken into the reader's personal space and becomes something that encourages commonality.

And also at its core, photography transcends the photograph, communicating with the reader about the subject, not about the photograph.

The real advantage of presenting the photograph in a book is that it allows photography to be combined with text to present the fullest depiction of the subject. The photographs provide information the text can't and the text provides information that the photographs can't… but they both present information about the subject.

That very simple idea is the basis for all of this… having images and words work together to fully realize telling the subject's story.

Section 1...

Why We Photograph

There are a lot of reasons people give to explain taking photographs but it would seem the real reason is rooted in the fact that we're social creatures. We photograph to document our lives, as an expression of interest in the subject and to validate or corroborate the importance of what we saw. All of this is to share with others.

We have documented our lives from the beginning of time using both words and images. Words came when we sat around the fire, talking about what we did that day. Images started with paintings on the cave wall. In a modern, technical society we are able to combine words and pictures in social networking, video chat, web-based presentations, digital books, digital video, television, motion pictures, etc.

It seems the desire to document our lives is somehow hardwired in our brains. Go to any high school or junior high and look at the kids' notebooks- the sleeves are filled with pictures of their friends, their siblings, their friends, their pets, their friends, themselves, their friends, their parents, their friends, etc. It seems that no one has to tell them to do this. It's hard wired.

Look at the popularity of Twitter, Facebook, Snap-chat, Instagram and other social networking sites. For many, these are really nothing more than places to document their lives and to do it in a way that they can share with others. These are the modern and technical equivalent of putting the drawing on the wall for the next group that inhabits the cave.

As societies become more technologically advanced and more literate, the documenting of our daily existence becomes more and more prevalent.

Today it's very natural to pick up a camera, be it a dedicated camera or the one in your phone, and photograph. Your kids, holiday meals, before the prom, the big game, on vacation, the dog, the cat, the Christmas tree, the family gathering, boyfriends, girlfriends, weddings, divorces, husbands, wives, yourself, your room, your house, your mom, your dad, your car, your neighbor's car… all are photographed and shared regularly.

We share our images freely and openly with family, friends and with the complete strangers who visit our internet pages.

We photograph to express our interest in a particular subject. This can be the landscape, the cityscape, our kids, our

families, cars, motorcycles, baseball, architecture, our family activities, our pets, our plants, our travels... this list can just go on and on. The act of photographing is simply the means of exploring those things that have meaning to us or interest us. Notice here that for the overwhelmingly vast majority, the interest is in the subject, not the process of photography.

And finally, we photograph to validate or corroborate what we saw.

At one level this validation is simply to prove that what we saw was there... to say that at least for that moment, it existed in front of our eyes and in front of the lens. The photograph proves it. But more importantly, the photograph validates that we saw what was in front of the lens. The photograph validates *that* we saw it and *how* we saw it. Most importantly, the photograph validates what was important to us in that subject.

The validation comes from the mere existence of the image. Whether we do anything with that image is not the question. It makes no difference if the image sits in a shoe box on a closet shelf or is posted to the internet for the world to see; the fact that the image exists and can be shown to another is the validating factor.

Notice again that none of this has the slightest thing to do with the process of photography itself. The vast overwhelming majority of people do not participate in photography for photography's sake. The process of photography is simply a means to an end. And that end is communication with others.

Fully Realized Communication

At its heart, photography is communication. It is communication about the subject being photographed. It is communicating the reality of the subject and the ideas, perceptions, understandings, feelings and emotions the photographer brings to the subject.

There are a few fundamental requirements for communication to happen. At its basic level, communication is sending or transmitting “intelligence” or "a message" from one person (a sender) to another (a receiver) that is understandable by the receiver using a method or channel.

Obviously, if any part of these basic requirements is missing (a message, a sender, a receiver or a channel), no communication occurs.

In photography, the message must be understandable by the person viewing or reading the photograph. This is where the complex interrelationship of the photograph and the text helps to communicate a better understanding of the subject. The text could be a short introduction to the work, an essay about the subject and/or individual captions for each photograph.

In this approach to photography:

- The message is contained in the combination of the photograph and text. The photography provides the information the text can't. The text provides information the photography can't.
- The photographer is the sender of the intelligence or message.
- The receiver is the person who views or reads the message (Here we refer to “consuming” a photograph as reading.)
- The print, book, magazine, network, etc., is the channel to convey the intelligence.

And rather than a simple restatement of reality, as photography is often characterized as being, the message or subject’s story is filtered through the photographer's perception, recognition, understanding and appreciation of the subject.

Assume four photographers attend a custom car show. To the first, the importance lies in the variety of engines used to power the cars. To the second, the importance lies in the different interior designs. To the third, the importance is found in the different paint schemes. To the fourth photographer the importance lies in the people attending the event and the commerce the event generates. None of these choices are right and none are wrong. They are simply what each photographer feels should be the focus or subject of the work; what the message, intelligence or subject story should be. And the photographer encodes that message in the photographs.

The channel used to get the message from the sender to the receiver is irrelevant. It doesn't matter if the photograph is electronic or physical. It can be in individual prints, a web gallery, a book or a magazine. It can be held in the hand or read on any one of a number of devices connected to the internet.

When or where the complex of photograph and text is read has no impact on the communication. It can be accessed at some undefined time in the future and accessed from some undefined place independent of both the storage system’s location and the sender - but the important thing to recognize is that the communication from sender to receiver still occurs. It can occur over both time and distance and both the time and the distance spanned are irrelevant to the message.

Reality, Transparency and Trust

The two unchanging principles that have defined photography from its beginnings are reality and transparency. The principle of reality holds that what is presented in the photograph is real. Transparency holds that the photograph is presenting the subject as it was seen. Both of these may seem to be keen perception of the obvious, but each one needs to be expanded a bit...

Reality holds that the subject of the photograph actually existed. This has nothing to do with what is photographed or how it is photographed. It is all about photographing the scene and the subject as it existed at the time.

Transparency holds that the photograph is presenting the scene and the subject as it was seen. This certainly does not mean we can't make adjustments to images in terms of contrast, sharpness, color balance, cropping etc., but we can't manipulate the image to the point where it is no longer the scene as it was seen.

Both of these principles embody the trust that society places in photography and is central to the viability of the medium, giving photography a special place in the public eye. It is the continuation of this trust that photographers must adhere to.

The watershed is whether the image conveys what was actually seen or presents what the photographer wished he or she saw. To present the subject as the photographer wishes it had been seen is to create visual fiction. Photography is non-fiction, telling the subject's story. Anything other than this makes the work about the photographer and not the subject.

It bears repeating that these twin principles of reality and transparency have allowed photography to earn a special trust with most people... namely that you can believe what is seen in the image as being the subject's story. These two principles are mind numbing in both their brevity and simplicity but also astonishingly demanding.

Real Creativity and Creative Development

(Please Note: this section and those that follow concern the photography of the project. Concerns with writing introductions, essays and captions follow and they are astonishingly similar.)

Real creativity comes when a photographer-

- investigates a subject of interest, and
- develops a project around that subject that reflects his or her personal “take” or appreciation, and
- recognizes the significance of any given scene to advance that project, and
- captures that scene in a way that reflects his or her understanding and appreciation of the subject’s story, and
- recognizes the additional information needed to fully realize the telling of the subject’s story.

The rest of the process- the entire rest of the process- is devoted to presenting the results of the project. Nothing more than what was seen, nothing less than what was seen and nothing different from what was seen.

Just to be as clear as possible about this, real creativity is not something that is “done to” or “added to” or “applied to” a photograph in post-production. It’s not adding sprinkles to the cupcakes after they’re baked. Creativity is baked into whatever your project is from the inception. In the end it’s what directs and drives the project.

There are all kinds of “step programs” that have been put forth to help folks initiate and organize their “creative process”. Some have as few as four steps and at least one has 22 steps. But in the main, there seem to be five phases or periods of creative development that the photographer, and hence the project, will go through.

Notice that there is a change here- it will no longer be referred to as the “creative process”. “Process” implies a number of preset steps that you follow and, at the end of the “process”, you have your project all tied up in a nice, neat package with a pretty bow on top. Sorry.

From here on it is called what it truly is, “creative development”.

The first phase is the genesis. This is the phase in which you develop the kernel of the project. This is the idea phase. It’s the “what if…” or the “how about…” or the “wouldn’t it be neat if…” stage. This stage may last only five minutes or it may last days or weeks while you figure out exactly what the idea is.

Once you think you have it figured out, write it down. This helps give the idea shape and makes it real. When the idea is ‘only in your head’, it is perfectly formed and immensely doable. When it’s on paper, the shortcomings become evident and can be addressed before moving onto the next phase. Remember, if the shortcomings evident at this point aren’t

addressed, they will be harder or possibly impossible to fix later.

Keep in mind that “the idea” is not always about “something totally new”. It can be about seeing something in a new way or taking a different approach to the subject.

Next is the development phase. This phase includes refining your idea and doing all of your research. If your project is your child’s fourth birthday party you probably won’t have a lot of research to do but if it’s the architecture of your town’s downtown area or photographing the Founder’s Day activities celebrating the town’s sesquicentennial, you might have a considerable amount of research to do.

In this phase you need to be open-minded and follow where the research leads you. This is when you start considering all of the options that are available to you. You literally start thinking inside the box, outside the box, above the box, below the box, without the box, etc. You are not selecting final options here, just looking at all of those available to you.

Project development is followed by synthesis in which you try to narrow all of the options down to the approach that will guide you through the actual photography of the project. Some refer to this as the “ah-ha” moment.

But it’s not really…

What a number of writers would have you believe is that after you have come up with the idea and have done the refinement and research, you can go off and do all kinds of other things and the synthesis will be forming in your subconscious. It’s there, in the background, magically creating your project. And then BANG! On a Saturday morning at 9:37 it hits you… you’re outside mowing the lawn… and there it is… the long awaited answer to how to approach the entire project. And it’s just so perfect! It can only work!!

We won’t go on with this because it isn’t always a moment. It isn’t even usually a moment. It isn’t even sometimes a moment. Like the genesis phase, the synthesis can come in a single, blinding, all-encompassing, jaw-dropping flash, but more often it develops slowly and with considerable consideration. Often, you have to try several approaches or combinations or rearrangements before you have the “right” synthesis for your project.

In many ways, synthesis can be like editing your project. Editing and synthesis are both very intense experiences and you

have to work through both with a measured approach, considering all of the elements and looking for a way to combine the elements that reflect the true idea of the project. You may not hit the “winning” combination right away. This is also the phase which can take the longest as you try different ideas to see which one is the most effective at getting the subject’s story told.

Synthesis leads to implementation. This is when the actual photography starts. This is when you start to exercise your vision at two complimentary levels- at the level of the project and then at the level of the individual photographs that are defined by the context of the project.

As you were open-minded during the development phase, you have to be open-minded during the implementation phase. This means that you’re open to all of those photographs that are within the context of the project and might help move the project forward. Notice the word “might” and all of the implications for shooting. During this phase you will shoot more photographs than you will need in the final project because you won’t be able to determine which you will be using as you are shooting.

This is where evaluation and feedback come into play. It is also referred to as editing. The idea here is to use just those photographs that, within the context of the project, advance the project in the strongest and most complete way possible. If it doesn’t do that, regardless of how good or unique it is, it’s not used. At this point, it is consideration of the individual photographs that support and advance the project.

The other part of the evaluation process is whether the project meets the goals set out in the genesis and development phases.

If it does, great! And yes, it has happened that you get to this point and are disappointed with the results. (It happens more often than most folks would care to admit, actually.) Perhaps the photographs are not forceful enough. Perhaps the project loses focus. Perhaps it moves in an unforeseen direction. There can be any number of reasons a project misses the mark. It’s always valuable to try and figure out where things might have gone awry so you can either try to fix the problem or start over, moving in a different development direction.

In the end, after going through all of the development phases, the project must reflect your unique take on the subject. The photographs, and hence the project, need to reflect your knowledge, understanding and appreciation of the subject

and your consideration of the needs of the reader to engage with the project. Without both of these, the end result will be flat and emotionless at best or feel like it was assembled by committee at the worst. The images may be technically perfect but if there is no recognition of the reader's needs, the images simply become things to look at and not a unified, cohesive statement of the subject's story.

Creative development functions within the context of any project, regardless how big or small that project is. Creative development does not wrap the project with some type of external sleeve but rather guides the project from within and is present from inception through completion. It also lives within the photographer's knowledge, understanding and appreciation of the subject.

The photographer simply has to realize it.

Using The Baked-In Technology

If, as you read through all of this, you get the impression it espouses the simplification of the photographic process in the face of what seems to be ever increasing complexity, you are exactly right. The reality is that every time there is a technological advancement in photography, the process is simplified. (Read: the medium moves a little more from concentrating on the process of photography to concentrating on the photographs produced, telling the subject's story.)

As evidence of simplification consider some of the previous photographic developments - the mechanical shutter, manufactured dry plates, roll film, 35mm cartridges, resin-coated polycontrast papers, built-in light meters, TTL auto flash, auto exposure, auto focus, etc., etc. All of these advancements, and hundreds of others, made the process both simpler and more predictable. All of which is a noble endeavor...

Before going further however, it must be noted that although we are not interested in the now-overblown and overheated tech side of the medium, there are a few things that have to be looked at so here we go...

You will read all kinds of stories in the modern photographic press, both in print and online, telling you that you have to use this camera or that, this piece of equipment or that. It has to have this adjustment or that control. You have to be able to do this kind of processing or produce that kind of file. In a word-

BALDERDASH!

While, within reason, any camera you want to use will give more than acceptable results, we are now at a point where, unless you have a very specific, specialized need, the camera on your relatively recent smartphone is more than sufficient.

And never forget- the best camera in the world is the one you have with you... and you always have your phone with you.

The fundamentals of the photographic process boil down to this:

Whether it's a fire breathing, top end mirrorless wonder or the camera in your phone, a digital camera is essentially three subsystems- the lens, the exposure control system and the sensor with its related electronics.

The lens collects the light reflected by the scene. That light passes through the exposure control system which makes sure there is enough to properly expose the sensor but not so much that the scene is overexposed. The sensor records the light, converts it into an electrical signal and sends it to the camera's electronics where it is processed into a usable photograph and then written to the storage medium.

Regardless of anything else the camera can do, the critical issue is the 'appropriate exposure' of the scene.

Before going through this, it should be pointed out that smartphone cameras overwhelmingly have a single, fixed size aperture and an electronically simulated shutter. With no moving parts, all of the adjustment is handled by the electronics and the software.

In theory the camera's exposure control system is actually a three legged stool – the camera's meter and ISO setting, the aperture and the shutter all contribute to getting the exposure 'right'. In the reality of smartphone photography it is only two legged as the aperture is a fixed size. Based on the camera's metering of the light being reflected by scene, the ISO system (a term held over from the days of film) sets the sensor's sensitivity. The higher the ISO number the more sensitivity there is to light. This means that as the ISO goes up, the required 'brightness' of the scene drops.

The camera uses this sensitivity to adjust the shutter speed, how long that amount of light is recorded the sensor. In bright light, the shutter speed faster. In dimmer light, the the shutter speed slower.

In the past, the photographer had to adjust the aperture and shutter manually to get an appropriate exposure, but since the 1960's camera manufacturers have brought these functions more under automatic control. Early auto-exposure systems were crude, often inaccurate and easy to fool. But as development continued, these systems have become highly sophisticated, astonishingly accurate, amazingly flexible and economical enough that they are in even the most modest cameras. While many cameras allow you to set any or all elements of 'the exposure triangle' manually, unless you have a special need, it is always preferable to allow the system to handle these functions automatically.

Bluntly, the idea here is to let the camera do some of the heavy lifting for you so you can concentrate on the story being told.

Note that from here on out we are going to be talking about the native camera in your smartphone.

Before using the camera in your phone there are several things you should do to make sure you will get the best result -

First, make sure the screen brightness is set to maximum. This will allow you to judge the full quality of the photograph and, if you are using manual mode (not recommended), will allow to assess the exposure correctly. Doing this will impact you battery life some.

Next turn the grid on. Some may feel this is only for amateur or inexperienced photographers but this simple act can help you line up verticals, get horizontals straight, line up the horizon, etc., instead of relying on making those adjusts in post-processing.

Another thing to do before shooting is to turn on the scene optimization and smart HDR features. Again some may feel this is only for amateur or inexperienced photographers but this helps you to get the most out of the camera.

Make sure the focus auto tracking is on to help deal with moving subjects.

Now set the phone's volume controls to control the zoom in the camera. This is usually sets the "volume up" side to zoom in and the "volume down" side to zoom out and is usually done through an entry in the camera settings menu.

Set your aspect ratio to 4:3. If you set your aspect ratio to 16:9 or 1:1 you are simply cropping the sensor which is natively in a 4:3 ratio.

And finally, make sure the flash is set to either "Auto" or off.

Before moving on…The ability to zoom gets thrown into the anti-smartphone camera mix every now and then but this is really a non issue. Granted you can't hang a 600mm f4 lens on the front of a smartphone but… some smartphone cameras offer a zoom of 2x (roughly a 55mm equivalent on a 35mm camera) and a number of others offer a zoom capacity of 3x (roughly a 75mm equivalent on a 35mm camera).

Images taken at 3x and below are more than acceptable and can be handheld very successfully. Just be aware that when you get out into the extreme zoom ranges (10x or more) it can be difficult to keep the camera steady so a tripod or other stabilizing device might be necessary although some manufacturers offer image stabilization.

And the baked-in technology keeps on… many smartphone manufacturers are using innovative lens and sensor designs to

get true optical zoom capabilities in their cameras and extend the range of the zoom. At this writing the standard appears to be a 5x zoom factor (35mm equivalent of about 120mm) but there have been cameras offering a 10x zoom.

Smartphone cameras come with a variety of modes but the two that you will probably use regularly are the portrait mode and the night mode.

Portrait mode isolates the subject and introduces a softening of the background replicating the shallow depth of field found when using a wide aperture. When this mode is selected, it often opens with the camera in a 2x zoom to allow the subject to appear more natural and avoid all the distortions a wide angle lens can induce.

Night mode allows you to take photographs in low light by taking multiple exposures of the scene at varying exposure levels and then combining them to create a final photograph that has considerably less noise than a single photograph taken at a high ISO.

While you have to select this mode on some cameras, others will automatically switch to night mode when a low-light scene is encountered.

You just have to shop around for the camera features you want… and you usually get a pretty good phone too.

Now we move to handling – and this is really pretty simple!

If you try to use a modified grip you used for a dSLR or a mirrorless camera you will be sorely disappointed because this will allow the camera to bounce around and be more than somewhat unstable.

The primary consideration in getting a firm and stable grip on the camera is to have a thin, non-slip case. The case will allow you to hold the camera in one hand (we'll assume your right hand for the sake of argument) with it nestled firmly in your palm and the back of the camera supported by your fingers. This will allow your left hand to operate the shutter button (also called the "trigger") and the zoom controls if you have set it up that way.

A big part of the handling concerns for a smartphone camera is to not get caught up in all of the options that might be available to you. Some smartphone cameras offer you a complete manual exposure control system which includes setting the ISO, setting the shutter speed, adjusting the white balance, etc. The only thing not there is adjusting the aperture

because the aperture on a smartphone camera is a fixed size.

If you are in a studio setting with a fixed subject this might be an okay approach, but if you're out "in the wild" you can get lost in trying to chase down the "right" settings simply because of the time it takes to access all of the sliders and scales. (That can be kind of like all the menus and stuff on a discrete camera!)

The better approach is to let the camera do all that work for you so you can concentrate on what to photograph.

Making the exposure

To start making the exposure, look at the scene you are photographing. Not on the screen but at the actual 'real-life, what's in-front-of-you' scene you are photographing.

Select the highlight area where you want to render detail and texture and then look at the scene on the screen. Tap the screen to set auto exposure/auto focus on the point that you selected in your evaluation of the actual 'in-front-of-you' scene. In doing this you are biasing the exposure to the point you have selected and are allowing the other tones in the image to fall in place based on the bias point. This approach to setting exposure is designed for exposing color positive photographs.

It is strongly recommended you use the jpeg format as you principal or primary format for saving these files. It gives you an already-processed photograph that is ready for full evaluation and generally does not require the wholesale bludgeoning that can be required to get a raw file in shape. Some phones allow you to save in both jpeg and raw which is fine but the jpeg file should be your primary format. The file can then be transferred to your desktop or laptop for conversion to a tiff file for use in your project.

Granted, there are some photographers who will complain they are not in "control" of the exposure… meaning they didn't twirl the dials and flip the levers… but they are in total control of the exposure as they selected the exposure point in the scene.

See the example on the following page for setting exposure using this approach.

The exposure point for this photograph is the white sign on the left as shown by the red circle. This is a good exposure that renders shadows well and preserves the texture and details of the highlight areas. There is significant room for adjustment in this exposure.

Retrieving the photographs

In a discrete digital camera the photographs are written to a removable media card that can be read by a card reader and then transferred to longer term storage on a hard drive. This is where the smartphone camera system gives you a few more options and can make things a bit more confusing.

Some smartphones offer a mini-SD card slot that is very similar to discrete cameras but, if you have a case on your smartphone you will generally have to remove it to access the card. While this may not seem to be a big deal initially, after the 50th time of taking the case off and putting it back on, it can become a really big, time-consuming, why-do-I-have-to-put-up-with-this deal. Beyond that, you run the risk of breaking the case, dropping the phone, damaging the card by improper insertion, etc.

Because of the smartphone's constant connectivity and the numerous cloud-based storage systems, there is always the temptation to simply upload the files to your account and be done with it.

It's one thing to create a cloud-based, quick-reference inventory of work on Google Photos or Apple's iCloud that's accessible from any internet connected device or upload to a photo-sharing site like Instagram or VSCO… (here is the first big but you knew was coming) BUT if you are looking to use the photographs in a book or to be included in your permanent archive, you'll want to take a more secure approach to transferring the photographs.

(And here is the second big but you knew was coming… BUT don't make the assumption that creating an online inventory is the same as creating a well-curated permanent archive of your work. It's not.)

The most secure way to transfer photographs from your smartphone is to simply plug it into your computer using a USB cable, let the computer read the smartphone as a drive and transfer to files directly from the phone. Whether you are using an Android phone or an iPhone, a Windows computer or a Mac machine your phone will be recognized and you can transfer the photographs.

A second approach is to carry a USB-C flash drive that can plug directly into the smartphone or short USB-C (male) to USB (female) adapter cable and a USB-3+ flash drive (64gb is a good compromise size). This "system" is portable (fits in your pocket) and can be used periodically to transfer photographs during a session and the drive can be read later.

The files can be moved using the file explorer app on your phone.

Subject and Supporting Details

The subject is, far and away, the absolute, 100%, most important consideration in making a photograph. Period. Full stop. While there may be other considerations, the subject makes or breaks a photograph right from the start.

It's what the photograph is about. Pure and simple.

It draws the reader's attention. It establishes a connection with the reader. It establishes commonality with the reader. It is this commonality that elicits an emotional response rather than an intellectual one and allows the reader to relate to the work personally.

There are some considerations, however.

The subject must be tangible. That is, it has to reflect light. While your topic may really be the relationships between people, it is the people in the photographs who are demonstrating those relationships. We see it in their faces, their body language, etc. So, in reality, the subjects here are the people.

The subject must be readily or easily identified. It doesn't have to be the largest thing in the frame, but it has to be easily identified as the subject. It's the "what" in "what the photograph is about." It has to be clear, concise and coherent and the reader shouldn't have to search for it in the frame.

Because photographic subjects exist in the real world, placing them in a real context is critically important so that sense of commonality with the reader can be developed. A portrait has a totally different context if done in a sterile studio rather than in the subject's natural or normal environment. The context of the photograph gives more information about the subject and a better idea of what that subject is all about.

It bears repeating that in presenting the subject the photographer translates all of his or her perceptions, ideas, impressions, understandings and appreciations of the subject into the project and, therefore, into each photograph in the project.

Let's say there are two photographers... one sees the automobile as a necessary evil and the other sees it as a liberating

device. The first may show the city streets, choked with cars lined up bumper to bumper not really moving and people dodging between them. If the light is right, the photographer may include the clouds of exhaust fumes rising above the gridlock. The second may show the automobile cruising along an open road that's free of congestion, convertible top down, under a sweeping, bright blue sky. Both are photographing the automobile, but from drastically different perceptions, impressions and understandings.

The most important time for the photographer's expression is when the subject is being evaluated. The subject is evaluated based on the story being told and the photographer's perceptions, impressions, appreciations and understandings. A little planning goes a long way to ensure the subject is captured with the expression that tells the subject's story.

This evaluation includes the subject itself, of course including the best viewpoints, the best perspectives, etc. Most importantly, this includes an evaluation of the best way to present the subject in terms of the photographer's perceptions, ideas, understandings and impressions. This may take some 'time and walking around' and assuredly more than one photograph.

When evaluating the subject, here are some of the things to consider:

- Is the subject being presented as it reflects your perceptions, ideas, impressions and understandings?
- Is the subject being presented clearly as the subject?
- Does the context support your perceptions, ideas, impressions and understandings of the subject?
- Is the lighting conducive to your presentation of the subject?

This is not a checklist but more an awareness.

Considering these points helps assure the subject is presented clearly, concisely, coherently and appropriately.

While the subject gives the photograph its structure, the supporting details flesh it out and give it its context.

Imagine a park. There are the standard grass, trees and cement walkways. In the background there's a shopping center and a parking lot. Cars are passing by on the street. There are a few people on the benches. This is obviously a small park in a city setting. We don't know if it's a large city or a small city, if it's in the city proper or a suburban area, but it is in a

developed area.

Imagine another park. This one has all of the standard features of the first except the shopping center in the background is replaced by houses and the street is devoid of traffic. There's a large swing set and play area visible. The houses in the background appear to be farther away from the camera than the shopping center was. There are a number of people in the park, mostly mothers or fathers with young children. This is obviously a larger park in a residential or suburban setting.

Now, imagine a third (and final) park. In addition to all of the standard features of the previous example, we see that the houses in the background have been replaced by ball fields and a stand of trees farther back. It appears that the streets visible in the first two parks have been replaced by well-manicured grass and walking paths. There are a number of people in the park, ranging from mothers and fathers with children to senior citizens. While we don't have any indication of the location of the park, all of the details certainly point to a much larger park.

In each of the three examples, the subject is a park, but the details of each image certainly give a much different impression of each of the parks in question.

Another example:

Imagine a photograph of a modest, three-bedroom ranch style home in an established residential area. The lawn is well manicured and the cement driveway leading to the garage is well swept. There's a tree on the right side of the image. There's a walkway leading to the front door. The home is brick and has wood accents. The background appears to be a moderately wooded area. The scene is under a blue sky with puffy white clouds.

Now imagine a photograph of another modest, three-bedroom ranch style home in an established residential area. The light-brown rock in the front yard is well defined and the cement driveway leading to the garage is well swept. There's a grouping of small cactus on the right side of the image. There's a walkway leading to the front door. The home is stucco with wood accents. The background is predominantly rugged mountains with little vegetation. The scene is under an absolutely clear blue sky.

Obviously, both houses are fairly similar in size and basic location, each being a "modest, three-bedroom ranch style home in an established residential area". But here is where the supporting details take over. The first home could be almost

anywhere from the Northeast to the Northwest but the second home is obviously somewhere in the Desert Southwest. The supporting details really help locate the home.

The real question here is how to manage all of the supporting details that come with a subject. Which details serve the view of the subject and which don't- that is, which details do you want to emphasize and which do you want to minimize? Which details help tell the story or get the message across? There are no pat answers to these questions.

The idea is to take the time needed to study all of the aspects of the scene, not just the main subject. Be prepared to make adjustments. Moving a step to the left or the right can make all the difference in the world. Moving in a bit can help. Moving out a bit can make improvements. Making the photograph from a low viewpoint or a high viewpoint can dramatically change things. Include more detail, include less.

In the end, the subject and the supporting details will make or break the image. It takes a bit of time and a bit of effort to develop the evaluation skills needed, but, with practice, they build on themselves.

When evaluating the supporting details, here are some of the things to consider:

- Do the supporting details support your perceptions, ideas, impressions and understandings of the subject- that is, are they helping convey the context of the subject?
- Have the supporting details been pared down to only those necessary to support your view of the subject?
- While paring down the supporting details to only those necessary, have enough been included to maintain the context of the subject?

Again, this is not a checklist but more an awareness. Considering these points helps assure the supporting details are presented clearly, concisely, coherently and appropriately for the story so the reader can understand the information in the photograph.

Six traits of Successful Storytelling

Just as setting exposure for any photograph is a three-legged stool (ISO, aperture and shutter speed), telling the subject's story is a three-legged stool as well. While the first two legs, the photographs and the text, have to work both separately

and together, the storytelling, the third leg of the stool, has to work as well. There are six traits or characteristics that will help shape the storytelling. Those characteristics are engagement, framing, structure, theme, brevity and avoiding the trendy.

1. Engagement.

Within the first few sentences or the first few photographs the reader will decide if it is worth continuing with the work so it must be put together in a way that engages the reader from the very beginning. The storytelling must elicit the reader's interest by making the subject's story relevant and interesting in some way.

The opening few sentences or paragraph of the subject's story should present what the rest of the work is about and give the reader both the overview and the context. In theory, the entire story should be summarized in the first 30 to 35 words with the rest of the story filling in the details. Remember, this is non-fiction - it's the subject's story.

But theory and practice are often quite different. The opening paragraph in this section alone is 57 words.

But more than simply reporting the subject, the storytelling has to find the human element. Facts and figures are nice and, at times, may be necessary to advance the subject's story, but these generally reduce the story to a collection of bullet points. A solid narrative that makes the subject relevant to the reader is always preferable. There are some basic questions that can help focus the narrative:

- Who am I trying to reach about this subject?
- What does the reader want to know about this subject?
- Why does the reader want to know about this subject?
- How do I cast this story to meet the reader's needs?
- What is the context of the story?

The other aspect of engagement is for you to allow your enthusiasm for the subject to come through the work which will help frame it for the reader.

2. Framing.

The framing of the subject's story is the structure you give it. This is where you, as the storyteller, establish your perceptions, ideas, impressions, appreciations and understandings of the subject and use those to conceptualize the story. The idea of framing the story is critical as it will give the reader a "frame of reference" for the work.

It must be noted that the framing is generally never openly stated but rather comes through in your approach to both the subject and the subject's story.

3. Structure.

You need to provide a structure that the reader can follow. The structure for the story can be -

- Sequential - Once upon a time… and then… when… but while… and… finally.
- By priority – showing the story elements in their order of importance.
- By event – this is the 150th founder's day celebration, Bobby's fourth birthday, etc.
- By activity – Bobby's summer in Little League.
- By location – Our visit to Grand Canyon.
- By subject – my new car.

You should limit a particular work to one type of organization except when in combination with sequential organization. You can base your work on your summer vacation (structure by activity) but then it could be organized sequentially by what you did first, what you did next, etc., or by priority covering what the most important parts of the trip first, etc.

4. Theme.

The theme is what the story is about. For our purpose, this is also called the topic of the work or the subject of the work. It may seem keen perception of the obvious but you should restrict the work to a single theme. Unfortunately, it is not uncommon to start out with one theme, wander to another and then a third. This becomes a problem for the reader as the second and third themes are often related to the original only tangentially. The best way to prevent this wandering is to

use an outline. And what you find is the more detailed the outline the easier it is to tell the story you want.

5. Brevity.

Whenever you are involved in storytelling the idea is to give the reader as concise a work as possible that still effectively presents the subject's story. There is an old but still very true guidance that holds you never use a phrase when a word will do, never use a sentence when a phrase will do and never use a paragraph when a sentence will do. The goal, both photographically and textually is to fully explore the subject but in as compact and concise a manner as possible. The other idea that applies here is economy of expression - avoid the fluff and repetition that can sometimes work its way into a piece on both the photographic side and the text side.

6. Avoid the trendy/bleeding edge stuff.

Unless your your subject's story is about the trendy/cutting edge/bleeding edge stuff that appears every now and then, leave the trendy/cutting edge/bleeding edge stuff out. More often than not it simply gets in way of telling the subject's story. It may be fun to do but more often than not it leaves the reader cold.

Six Traits of Successful Photography

In a traditional approach to photography you learn a lot about the mechanics of exposure, composition and "photoshopping". But mechanics are just that, mechanics. And, at the risk of sounding redundant, they become mechanical. They produce images that look mechanical. Successful photography tells the story of the subject and communicates a message about the subject to others. To create those images, there are six traits or characteristics that go far deeper than simple mechanics or technique. These traits, which photography shares with writing, are ideas, element choice, organization, fluency, voice or style and conventions.

1. Ideas-

It has often been said that light is the heart and soul of photography... not so! Ideas are its heart and soul. Ideas bring the story into existence. Ideas allow photographs to spring to life. Ideas come from our interests. Ideas shape the message being told which in turn generates the content.

- An interest in paintball can lead to photographing the competition.
- An interest in bicycles or motocross can do the same.
- An interest in people can lead to portraiture.
- An interest in architecture can lead to photographing buildings.
- An interest in geology can lead to photographing the landscape.
- An interest in history can lead to photographing sites of local significance.
- An interest in... well, the list goes on and on.

But, on the downside, there is a huge problem with ideas. They can easily lead you astray so you have to limit them within a project. The more narrowly defined the project (to a point), the more the ideas are going to fit. Now, some may say that limiting ideas in a project is "counter-intuitive" or "self-defeating." To a point they are right. But without some self-imposed structure, projects tend to wander and lose their focus. The message becomes muddled and, often, abandoned.

2. Element choice-

The objects that appear in the photograph are the elements. If we are photographing fire trucks, they will be the main element of the image and all of the other elements will support them. But this doesn't always happen. There can be competing elements in the photograph that keep the main element or subject from being clearly identified. Unless you are shooting against a totally blank background in a studio, there will always be a number of elements in the photograph. How you arrange or use those elements to tell the subject's story in the photograph is critical.

Sometimes you have a degree of control over the placement of the elements. If you are photographing people or cars or boats, etc., you can stay in one place and move them around. But if you are photographing landscapes or buildings or the Little League game, you don't have that degree of control. You will have to do the moving until the elements are positioned appropriately. This can mean moving in closer, moving to the left or the right, moving in or backing up or zooming in so you can include everything you want in the image.

Notice the word "appropriately" is used to describe arranging the elements in the frame and not the word "correctly". There is no "correctly" in any of this. The arrangement or positioning of the elements is based on the story you want to tell; on the message you want to communicate to others about the subject.

Most of the time, element choice focuses on what to include in the photograph but it also is about what to leave out. This can be more important than what to include. Often, there can be distracting or competing elements around the subject that have to be eliminated or managed in terms of the story being told. Here is where a little caution is needed- you can't remove so much that the context of the subject is lost. If the context is lost, the flow of the story is lost. And, after all, that is what we are doing… telling a story… but it's the subject's story we are telling.

Beyond this idea of what to leave in and what to leave out is whether or not the strongest elements are being used to relate the message you want to send; to tell the subject's story.

3. Organization-

This flows directly from element choice. If you have the strongest elements in the frame, the next step is to make sure all of them are supporting the subject or main element. This requires some walking around and looking.

After some investigation of the subject, angles that present various parts of the story are discovered. Now you have a number of different views of the subject to use with each contributing a unique strength to incorporate in your finished project.

For example- you and your family are on vacation at Grand Canyon. Rather than (or in addition to) photographing them standing by the National Parks Service sign in front of the visitor's center that says "Welcome to Grand Canyon", photograph them at some of the points where the canyon lies in the background. The story is the family vacation to Grand Canyon. So maybe the approach should be making images of Grand Canyon that include the family rather than making photographs of the family that try to include the canyon.

If the family is gathered at Uncle Jacob's farm, instead of doing the group shots in front of the house, like they are every year, how about using the barn or the tractor or the barn and the tractor as the setting? And rather than having everybody stand in front of (around?) the tractor, how about having some folks sitting on the tractor?

In these examples, the elements have been chosen more carefully and the organization of the elements has been worked into the photograph to strengthen it.

4. Fluency-

This is probably the most subjective of the six traits. The fundamental question to be answered here is whether or not the content flows easily and freely in the frame allowing the reader's eye to move without difficulty?

The best way to look at this trait is by using some examples:

In the photograph of the family gathering on Uncle Jacob's farm- if we had one group standing at the front of the tractor, one group in the center and one group by the rear, we would have a segmented, mechanical photograph. If, on the other hand, we had all of the family members intermingled and just kind of hanging around the tractor, the photograph would appear much more natural and it would be much easier to read.

In our Grand Canyon photo, if we have all of the family lined up in order of descending height leaning against the rail we have one of those mechanical shots. Taking the photograph from a slightly elevated view point (stand on the seat of one of the benches?) from a slightly side angle with the family looking out over the canyon would be less mechanical and less segmented. Granted, they might not dominate the frame from a size standpoint (they may be smaller in the frame than getting up close and having half family and half rail) but they will still be the obvious subject and the photograph will flow, telling the story much more effectively.

5. Voice-

This trait is closely linked to fluency in terms of subjective evaluation. Voice in photography is synonymous with style. If you follow your own stylistic inclinations, you will create work that has more of a chance of connecting with the reader because it is personal and looks nothing like something “created by committee”.

And there are all kinds of personal traits in voice- Some of us take a more formal approach while others are more casual. Some of us take a wider view of the world, looking more at the overall scene, while others take a tighter view, looking at details. These are some of the elements that go into making up a photographer's style or voice and all of these approaches are valid.

The important thing to remember here is that the subject of the photograph is *what* you photograph; your style or voice is *how* you photograph it… the subject is what your story is about while your style or voice is how you tell the story.

In the end, the one question to answer is "does this look like something I would do or does it look like I am trying to imitate somebody else?" Remember that voice is something that is ever evolving and that we all have our own approach to things. If you follow your instincts in this, then you are developing your own voice. Doing that, while putting your perceptions, ideas, emotions, understandings and appreciations of the subject in the work will create photographs that will connect with others.

6. Conventions-

Of the six traits, this is probably the easiest to look at as it is absolutely objective. This trait looks at all of the technical and appearance issues relating to the photograph. These include such things as:

- No color or tonal banding
- "Correct" tonal balance
- No color cast
- Solid, crisp edges or borders
- Appropriate density (lightness/darkness)
- Appropriate contrast
- Appropriate detail/texture in the shadows and highlights
- Solid, crisp focus on the main subject or element, etc., etc., etc.

Paying attention to these conventions helps create an image that doesn't call attention to itself but calls attention to the subject. The photograph becomes almost transparent and allows all of the attention to focus on the subject's story.

*The "Six Trait Writing" system was developed by Northwest Regional Educational Laboratories, Portland, OR.

Intelligent Composition

Photography embraces a number of approaches to composition. There are approaches on top of approaches. There are approaches that are systems. There are systems that are approaches. There are "sure-fire" approaches and there are "guaranteed" systems. Most of these are cookie-cutter methods that are more interested in the system than in the photograph being made. But in reality the composition of the image has to reflect the story that's being told.

There are three basic principles of composition that we always need to remember. And these are directly from the Six Traits:

- Selection or element choice (from Trait 2): This is what to leave in and what to leave out. If we leave too much in, the photograph can become confusing. If too much is left out, the photograph can be sterile. With either extreme, the communication suffers.
- Clarity of subject and supporting detail (from Traits 3 and 4): The subject is unambiguously stated and the supporting details narrow it. The details provide additional information, set the context and create the visual layers that involve the reader.
- Recognition of the significance of the subject of the individual photograph within the message of the overall work (from Traits 4 and 5).

These three concepts work together to tell the story or communicate the message. In a "tight" composition all three elements work together to communicate a concise, coherent message. If one element is removed or diminished, the image loses some of its impact.

While what to photograph is a personal decision, there are some things to consider when figuring out how to photograph the subject:

The Center of Interest (Subject): assuring that the center of interest is appropriate for the overall story is the most important consideration of composition. The center of interest certainly does not have to be the largest thing in the frame or in the center of the image, but it clearly needs to be the main thing. It has to be what the photograph is about.

And, to repeat and reinforce an earlier concept, here is where the photograph goes well beyond simple restatement and becomes a very personal statement. This center of interest incorporates the photographer's perceptions, impressions and

understandings of the subject. After the center of interest is determined, the supporting details narrow the presentation.

Simplification: This is the process of winnowing the supporting details to just those necessary to support the subject within the context intended. Too few details can lead to boredom and uncertainty while too many details can lead to confusion. There is a fine line in any composition - what to leave in and what to leave out... when is it too much? when is it not enough?

And here is where we deal with the idea of "less is more". This is the theory of photographic composition asserting that the fewer elements there are in the frame are "the better", and this is very true but only to a point. If the selection process puts too much in the frame, the impact of the subject can be diluted or diminished. We have seen this over and over again. But if too little is put in the frame, we lose the context of the subject and it becomes boring and isolated.

Pictorial areas: There are three pictorial areas in a photograph- the foreground, the mid ground and the background. In traditional composition theory, the foreground is the "front" area of the composition leading into the mid-ground, traditionally where the subject is located. The background forms the back drop for the subject. All three areas can provide information about the subject.

Framing: Poor framing can kill an otherwise excellent photograph. This can include distracting elements in the background, foreground or at the edges of the frame. How many times do we concentrate so hard on the subject that we miss the telephone pole at the edge of the frame, the power line that cuts through the scene, the tree growing out of the person's shoulder, a tree limb intruding in the edges of the frame, signs, parked cars, people who happen to wander in the frame, etc.? The object here is to frame the photograph carefully and include only those elements in the photograph that support the subject. When considering a shooting angle, make sure you look at the subject, the background and foreground and then check all four edges of the frame.

Viewpoint: This refers to the angle of the camera in relation to the subject. A high viewpoint places the camera above the subject and is often considered to be an observational position. A normal or eye level viewpoint places the camera at a height relative to the subject that would be considered a normal standing position. A low viewpoint is from below the subject and is sometimes used for dramatic impact.

This is not to be confused with our point of view which is how we perceive and thus present the subject.

Visual distance: This is the apparent distance from the camera to the subject. A long shot or an establishing shot is an overall view of the subject and the environment around the subject. A medium shot eliminates some of the environment- this is somewhat tighter than the long shot. The medium tight shot removes more of the context and begins showing more subject detail. A close up or an extreme close up of the subject removes virtually all context.

Whatever you do about “composition”, whatever your approach is… always remember that the photograph has to reflect the message. Your photograph might be beautifully composed but if it does not advance the subject’s story, it certainly won’t work in your project and may even detract from its overall impact.

Editing The Photographs

We often refer to “photoshop work” done to individual images as “editing”. In reality this is more adjustment than anything else. For our purposes, editing is the process of selecting the photographs that will appear in the final book of the project. And be warned, editing is neither quick nor easy (even for experienced editors)…

The big hint - don’t try to edit the project until you have all of the photographs. Trying to do a piecemeal edit will only lead to a disjointed and mechanical result.

First, go through all of the images looking for ones that are obviously not going to make the grade technically. These could be images that were either under exposed or over exposed, images that are poorly focused or have other, obvious technical flaws. Get rid of those images. Literally - delete them! Those who use a raw file format need to take special note here – when judging the image for exposure, color balance, contrast, etc., you should not use the raw file. At the very least, bulk process all of the raw images to give you usable tiff-format photographs and do your editing from there.

Now the editing process to select the images for the project begins. As you start, remember that you are looking for the images to include in the project not ones to exclude. This is positive editing not negative.

To begin, select a group of photographs to create a pool of possible images that will be included in the project. As this is not the final cut you will be selecting more photographs than you need. All of these are the “maybe’s” . The next step is to walk away from the project for a little while. Give yourself a break. Go do something else. Then come back to the project.

The second cut will be a lot more exacting and you will need to be a lot more critical in the selection process. You will need to make sure each photograph selected strongly supports the project and each other. These are the “probably’s”. The next step is to walk away from the project for a little while. Take a break. Go do something else. Then come back to the project.

Now comes the third and final cut. You are going to be absolutely ruthless in the selection of photographs that show precisely what you want to show. After this selection process, you should be down to the photographs that will be used in the book… but you are not finished…

The next step is to walk away from the project for a little while. Give yourself a break. Go do something else. Then come back to the project.

After getting all of the selection done and determining the photographs you want to use, the next step is to look at the flow of the work. Does each lead logically to the next? Does each follow logically from the previous? If not, rearrange them until they flow appropriately for the story. If this doesn't work, you might want to select a different photograph or two or add a photograph or two to improve the flow of the story. Infrequently removing a photograph improves the flow of the work.

The next step is to walk away from the project for a little while. Give yourself a break. Go do something else for a while. Seriously, maybe take a couple of days before you come back to the project.

The final step of the editing process is to go through the photographs once more and make sure they appropriately tell the subject’s story and are sequenced properly to tell that story.

It can’t be stressed enough that with the exception of the very first cut where you were throwing out images that do not make the grade technically, this editing process is entirely and completely positive. You are not looking for the photographs to be eliminated… you are looking for the ones to be included. You’re not looking for the photographs that don’t tell the story… you are looking for the ones that do.

…and now moving on to the writing-

Six Traits of Successful Writing

Whether you are writing an introduction to give context, an essay to expand the reader's information or caption lines to enhance the individual photographs, the goal is still to tell the subject's story and communicate a message about the subject. Just as with the photographs, there are six traits or characteristics that help shape the writing. These traits are essentially the same as those guiding the photography — ideas, word choice, organization, fluency, voice or style and conventions.

1. Ideas-

The ideas to incorporate in the writing will all come from the photography and will answer one fundamental question – *what do I need to tell the reader about the subject that the photographs can't*? Another version of the same question is… *what is the context the reader needs to have to fully understand the photograph*? Some examples are-

- We have a photograph of a group of people… who are the people in the photograph? Why were they photographed? What is the importance or relationship of the people in the photograph?
- We have photographs of a community event… what was the event? What was being celebrated? When was the event? Where was the event?
- We have photographs of what appears to be a family vacation… the first thing that needs to answered - is it? Who are the people in the photographs? Where were the photographs taken? When were the photographs taken?

These will often take the form of reporters questions – who? what? when? where? why? how? and so-what?

A process point here – as you develop your ideas you will want to jot them down at least as notes. Using those notes, you can develop a simple outline to help guide your writing. Having a good outline can help the writing process go more smoothly.

2. Word choice-

Very simply, you need to make sure that the words chosen to accompany the photographs in either an essay, introduction or caption are specific and accurate using language that is natural and not overdone. The nouns used are specific, not general. Whenever possible, strong action verbs are used to show the reader the context of the photographs rather than

tell them. Adjectives are as descriptive as possible. Striking words and phrases catch the reader's eye, but slang and jargon are used sparingly, if at all.

We have a photograph of a girl pitching during a softball game. One option for a caption could be “Mary pitches during her game Tuesday. She and her team won the game over the Mustangs 8-0.” Another option for a caption could be more expressive and set more of the context. “Mary comes hard to the plate during the third inning of her game Tuesday against the Mustangs. Her pitching befuddled Mustang batters who could manage only two hits. She recorded eight strike outs in dominating her city league arch-rivals in the 8-0 shutout.” We have more of the story and the word choice – ‘comes hard’, ‘befuddled’, ‘dominating’ - shows rather than tells the reader what happened.

3. Organization-

Organization is a necessary consideration in writing an introduction or an essay. A well organized piece puts events in a logical and easy to follow order that keeps the readers interest. The organization ties the writing together into a focused and unified piece that comes to a logical resolution. The most often used organizational pattern is sequential where one event leads to another and so on to the resolution. Another pattern of organization is to use a single, overriding element as a touchstone throughout the piece.

Here, in what would serve as a brief (approximately 225 word) introduction to the photography, the events are presented in order of occurrence and the weather is the touchstone.

“The only thing wrong with this year’s Founder’s Day celebration was the gray sky overhead that kept temperatures down and threatened rain at any minute. It was almost cold as the bands and other marching units arrived at the staging area to get ready for the Fireman’s Parade. Band members complained about cold fingers having to play even colder instruments but all seemed to warm up not long after the parade started. Stepping off on time, the parade was led, as always, by the American Legion Color Guard, followed by the Citizen of the Year, and then the junior high school band. While the parade was winding its way through town, the finishing touches were being applied to the homemade booths that lined the ‘midway’ at Community Park. As the high school band, always the last unit of the parade, arrived at the park proudly playing the school’s fight song, the festival was declared opened and people started to pour in from the parade route. Ignoring the weather, kids raced to the small carnival ride area while still bundled-up grown ups mingled. And then came

the real signal that Founder's Day had started; the cooking of the Polish sausage for the sandwiches that everyone looked forward to. The aroma defied the heaviness of the day and began to envelop the park with its magic."

4. Fluency-

This is probably the most subjective of the six traits. The fundamental question to be answered here is whether or not the content flows easily and freely, allowing the reader to move through the writing without difficulty. Are awkward or confusing word patterns or constructions avoided? Is jargon that might slow the reader avoided, if possible? The real test of fluency is simply how does the work sound when read aloud?

5. Voice-

This trait is closely linked to fluency in terms of subjective evaluation. The basic question to be answered by this trait is very simple – does this read like something I would write or does it sound like I am trying to imitate someone else? Another way to think of evaluating this trait is 'is this how I would say something?'

6. Conventions-

Of the six traits, this is probably the easiest to look at as it is absolutely objective. This trait looks at the execution of the writing including correct spelling, correct punctuation, correct grammar, etc. Having significant errors here can be a real deal breaker for the reader.

*The "Six Trait Writing" system was developed by Northwest Regional Educational Laboratories, Portland, OR.

Writing Captions

The-photograph-stands-alone crowd notwithstanding, every photograph "published" needs a caption. In this case our definition of "published" is very loose. It includes photographs posted to social media, photo sharing sites, "professional portfolio" sites, books (either print or digital), magazines (either print or digital)... just about anywhere really. And in consideration of the-photograph-stands-alone crowd, we often get something approaching a caption in the exhibit catalog.

The purpose of the caption is to give the reader information that puts the photograph in context, provides additional information that is not readily available from the photograph and amplifies and extends the reader's understanding of the photograph. Without properly written captions the reader is left to flail about to come up with some level of significance for the photograph.

Captions are astonishingly deceiving. They are short and because they are short folks feel that are easy to write. Often we get a caption that simply restates the photograph. This is especially true if it starts out "pictured here..." or ends with "poses for a photograph". And then there are the captions that drift off into discussions of what the photographer went through to "get the photograph" or the equipment and various settings that were used to "get the photograph". None of these discuss the context of the photograph or fulfill the true function of the caption .

Consider the photographs on the following pages. In each case the caption adds significantly to the understanding of the photograph.

In each case, the caption writing shares a common approach:

1. The visible subject of the photograph is specifically identified by name or description (this is referred to as the identifier)
2. Supporting details or information about the specific subject are given
3. Related information about the subject is given.

We see two people seated at a table in what appears to be a public situation- we assume this given the other people in the photograph and the "wall of windows" designed to encourage people to look out at something. They are wearing name tags so it would be safe to assume they are part of a larger group. Given the table card in the lower left advertising a desert it would also be safe to assume that the setting is some kind of restaurant. The time of day is unknown. But these facts from the photograph are about all we know or can deduce.

Consider the same photograph with the caption:

Mom and Dad celebrated Dad's 80th birthday with a bus trip to Bowie Raceway. The track restaurant surprised Dad with a small cake after lunch. He said he enjoyed the racing and eating the cake (which, of course, he shared with Mom). The trip was part of the Senior Celebrations program at their church.

Here, we see an old car parked on a patch of grass in what is obviously a rural setting. Given the visible condition of the car it appears to be well maintained. Given the patch of what appears to be gravel in the lower left of the photograph it could be assumed that this photograph was taken with the car simply pulled off the side of the road. Given the angle of the shadow relative to the car it appear the photograph was taken around midday. The specific location is unknown.

Consider the same photograph with the caption:

Cousins Mike Leopold, Bill Leopold and Sarah Jackson restored Uncle Jacob's 1963 Ford Futura after discovering it in the back of the barn on the family farm. While Mike and Bill did the mechanical and body work, Sarah handled all of restoration chores for the interior. The project lasted two years and was finished in time for Jacob's 75th birthday celebration.

And finally we see an old bridge crossing what appears to be a long-dry river bed, canyon or arroyo in a minimally inhabited area. There are telephone or power poles scattered in the distance and there is some type of structure visible in the upper left. The bridge appears to be a single lane and the road surface leading away from the bridge appears to be dirt. There appears to be a road taking off to the right just past the bridge as well. It appears to be a desert setting.

Consider the same photograph with the caption:

This single-lane bridge at Canyon Diablo, AZ, was part of an early alignment of Route 66, allowing motorists to safely cross the canyon. The highway alignment and bridge, which to this day has a gravel surface, was later replaced, bypassing both the canyon and a popular tourist stop known as Two Guns. AZ.

Many caption-writing tutorials will urge keeping the caption as short as possible so we could have "Mom and Dad at Bowie Raceway", "Uncle Jacob's old car" or "The Canyon Diablo Bridge". And while we might have a name or an identifier for the subject, we have little else. The object here is to make the caption part of the message or story that gives the reader a well-rounded understanding of the subject. In that vein, the length of the caption is not the issue - within reason. Some publishers/newspapers/magazines limit captions to a certain number of words in the belief that if the caption gets to long, the information should be contained in a story that would reference the photograph. This doesn't always work. While length is not a hard-and-fast issue, captions should be kept under 120 or 125 words.

Supporting details included in the caption should not be obviously stated in the photograph. To say that Mom and Dad were seated at a table would be redundant. Unless there is something specifically unique about the paint or the color of the car, to say it is red is redundant. To say the bridge is concrete is redundant.

The related information included in the caption is designed to give the reader context for the subject.

Just like the essay or the introduction to the book, remember, the key to writing a good caption is to be concise.

Section 2…

The Goal - write it once, read it everywhere!

The goal of any digital book development process is to do the design and layout once and have it readable on any device.

With text-only or text-and-limited-graphics works this goal can be supported by a variety of different e-book formats. But photography books generally have a fixed format and the only e-book format that truly supports this is the pdf format. Until now the pdf format was not responsive and did not do well on smaller screen sizes, especially smartphones. The constant enlarging, pinching and scrolling made it almost impossible to read a pdf document comfortably on a mobile screen.

But those days are well behind us with the development of Adobe's Liquid Mode, an AI assisted system to allow pdf files to adapt to any Android or iOS mobile device. Using the system requires the latest version of Acrobat Reader be installed but this is no different than having to install Amazon's Kindle Reader on your phone or tablet.

Pdf files that can take advantage of Liquid Mode have to be smaller than 10mb and not longer than 200 pages. While document length would not generally be an issue, the goal is to create a photo book that meets the file size requirements This requires software that allows the greatest control over the pdf creation process (read: as granular as possible).

When the fist edition of *Photography (Fully Realized)* was written in 2019 there were some fledgling attempts to make a pdf responsive but nothing that was usable in a production environment. It was recommended that the print-quality version be done as a high quality pdf and the responsive work be done in a content management system. *In reality all of that was simply a very involved, time consuming workaround. But it worked… to a point.*

Now, with Liquid Mode we have a way to make pdf files responsive. But, again, this takes pdf creation software that can give you sufficient control over the process.

There are any number of programs that can take a document and write a pdf file. There are any number of programs that can offer some degree of control over the process. These are mostly word processors and although they fall into the good-at-what-they-do category, what they do is simply not granular enough to meet the needs here. The need here is for

desktop publishing software which gives precise control over the creation of the file for device or online reading. This obviously narrows the field of potential candidates considerably. And of the few remaining candidates, including Quark Express, Adobe InDesign, and Scribus, the clear winner is Serif's Affinity Publisher which offers some pdf creation control features absent in the others.

Setting the Book in Affinity Publisher

For many, a "book" is defined as "a finished work of fiction or non-fiction bound into a single volume." Be that as it may, the baseline definition of a "book" is "a set of written, printed, or blank pages fastened along one side and encased between protective covers." Nothing is said about content nor is there allowance for the digital book.

We need to go a bit further so, for our purposes, a book is "a finished work of fiction or non-fiction in either print or electronic form, presented as a single volume which is complete unto itself." Rather than worrying about the binding or the covers, this definition is based on the function of the book.

Some may argue with the "complete unto itself" caveat but…

On the "production" side of things, the book, by the definition above, presents the photographer with a structured approach to thinking about and organizing work, allowing it to be presented exactly as intended.

The thought of "doing a book from scratch" can be daunting and fraught with trepidation. But with the right tools and breaking the process down into its component parts, it becomes fairly straight forward. Not easy but straight forward.

This section gets fairly technical and be forewarned- there is a bit of a learning curve with Publisher. Also, the first book you do will be a frustrating mess because of all the little details (hopefully a little less so if you keep reading here), will go infuriatingly slowly and require a lot of going-back-to-fix-stuff stuff. The second one will be a lot better. And by the third one, the process should be almost second nature.

Setting the structure

The first step in 'doing the book' is breaking your project down into the various page types so you can see the different page designs needed. You will need five different designs for a book with an essay:

- a cover page.
- a legal notice/copyright page.
- section cover pages for the essay (text) and the photographs.
- text and image pages.
- a back cover.

If you are doing a short, single-page introduction of 300 words or so you will need four page designs:

- a cover page.
- a legal notice/copyright page.
- introduction and image pages.
- a back cover.

The design and layout of the book's pages is a personal choice but it needs to be clean and simple so it doesn't compete with the photographs. What follows is one design suggestion (but the principles can be applied elsewhere)...

Basic Sizing - page and photograph

It should be noted at the outset that all of the dimensions cited for the photographs are designed to maintain the aspect ratios of the images as photographed. The dominant ratios in photography are 4:3 for compact cameras, smartphone cameras, some dslr cameras, etc., and 3:2 for 35mm film cameras, mirrorless cameras, dSLR cameras, etc. Smartphone cameras also offer a 16:9 aspect ratio which is not addressed here. If that is your aspect ratio of choice the page and image properties here can be adjusted to meet your needs.

The very first decision that needs to be made is the size of the book. While some may say this is a minor consideration, determining the size of the "container" is the start of giving the work its structure. And even though this is an all-digital design and presentation, the reader's "comfort" is a consideration in the design needs to be familiar so it does not call attention to itself and compete with the photographs presented. Hence the use of paper sizing for the "container".

The container (paper) size that would make the most sense here is 8½”x11”. It is the ubiquitous standard in the United States and Canada. (In Europe, Australia, and elsewhere this would be the A4 standard.) It is the most common aspect ratio (the ratio of the length to the width) and it – along with its A4 counterpart - is the paper size that generally “looks and feels right”. We will be using the U.S./Canada standard here.

When a new document is opened in Affinity Publisher you will see the “New document” dialogue where you can set the basic defaults for the book. You can select the “Letter” preset that will set the default page size to 8½”x11”. As will be discussed later, you can set the page orientation to landscape and set the margins. For the book design presented here you will set the margins to 1.5” for both inner and outer, 1” top and .75” bottom. Note that the “inner” margin refers to the left side of the page while the “outer” margin refers to the right side of the page.

The next choice is the size of the images for the page (and the assumption here is that 8½”x11” paper is being used in landscape orientation).

There is a “formal” presentation in which the image covers approximately 25% of the page. In this presentation, the page orientation will always be “portrait” and the size of the image will be about 6”x 4” in either landscape or portrait. There is nothing else on the page in a formal presentation so there is a lot of “open” real estate.

The other extreme has the photograph covering most (or all) of the page. This is an 8” x 10” image (or an image that bleeds off all four side of the page) presented with nothing else on the page as there is no room for anything else. Generally this kind of presentation can seem “forced” or “artificial”.

A better presentation than either extreme is one in which the image covers about 50% of the page. For an image with an aspect ratio of 4:3, the image dimensions are 8”x 6” in landscape or 6”x 8” in portrait. For an aspect ratio of 3:2 the image dimensions will be 8”x 5.3” in landscape or 5.3”x 8” in portrait. This presentation leaves sufficient margins and the image is sitting comfortably on the page. There is sufficient space for page numbers (if used) and a reasonable caption.

A few basic layout tips-

- Don’t mix portrait and landscape orientation if at all possible. Keep all of the images in the book either landscape

or portrait. Maintaining a consistent size and orientation focuses the reader's attention on the message or information of the photographs, not the page design.

- Keep the design to one image per page. When you have more than one image on a page they tend to compete for the reader's attention and diminish the impact of both.

- And about page numbers (if used)... Good design holds that page numbers ARE NOT included on the cover page, and generally NOT included on the legal notice/copyright page, the introductory pages, the first page of the essay or a section cover sheets. Page numbers ARE included on the second page of the essay and all pages that follow and all of the pages displaying photographs. The page number block can be just the page number or can include the title of the work and the page number.

Setting Margins

Again, this is best done in the "New Document" dialogue to set the default for the entire book.

The margins are the foundation of page design and everything on the page flows from the margins. As the page is the container for the book, the margins are the container for all of the content on the page. They allow for consistent and identical placement of page elements. They set consistent "borders" for the all pages in the book. And the margins should be consistent for every page... from cover to cover, the covers included.

Setting the Typeface

Along with setting the size of the page and the margins, a major, absolutely fundamental consideration is the typeface that will be used in the book. The font you select should be clean and readable on all devices. The recommended fonts include:

(serif fonts - these are more formal fonts)

- This is a sample of Georgia set in 12 point

- This is a sample of Palatino Linotype set in 12 point

- This is a sample of Times/New Roman set in 12 point

(sans serif fonts - these are more casual fonts)

- This is a sample of Arial set in 12 point

- This is a sample of Calibri set in 12 point

- This is a sample of Helvetica set in 12 point

- This is a sample of Tahoma set in 12 point

- This is a sample of Verdana set in 12 point

The other selection that is made at this point is the font size. The object is to select a font size for your typeface that is an appropriate size. Generally speaking, an 11 point or 12 point font size is appropriate.

And a final consideration for the font is to make sure you set the body of the essay or the introduction, the captions and the page numbers (if used) in the same font. Titles can be set in a contrasting typeface. The legal notice page can also be set in a different font.

This book is set in 12pt Georgia with the title and section titles set in Arial. Section heads and subheads are set in bold text. The legal notice/copyright page is set in Times/New Roman 10pt.

Now to look at the various pages -

First - You insert/add new pages through the “Add Pages” dialogue in the “Pages” tab.

The cover page is the gateway to your work so its design is crucial. If the cover page is not inviting, the reader will just pass the work by. The cover needs to have the title of the work, a sample photograph and the photographer’s byline.

It cannot be stressed enough that the title of the book needs to spark the reader's interest- "Yellowstone: A Journey of Discovery" may be more appealing than either "Yellowstone, Summer 2015" or "A Trip Through Yellowstone". More often than not a dummy or a mock-up front cover is used until the book is completed and then it is designed.

The cover photograph should be different from photographs in the body of the book. And the cover photograph will be the only photograph that's a different size (except, of course, those photographs included in any essay that's written).

The legal notice/copyright page is pure, straight text with no embellishment whatsoever. This is your statement of ownership of the work. This is also where you tell the reader what they are allowed to do with the work- if they can download and keep it, if they can send it to family and friends, etc. Make sure you consider all of the consequences as you look at this "rights" statement. If you want to add a permissions contact, this is where it goes. All general notices or disclaimers about the work such as "don't try this at home", "property/model releases on file", etc., go here as well.

Technically, you *do not* need to include any copyright information as, according to the U.S. Copyright Office, your work is covered as soon as it is created, but it's always a good idea to explicitly say so.

Following the legal notice/copyright page there would be a section cover for the essay (this assumes you are using an essay rather than a single page introduction) and, following the essay, there would be a section cover for the photographs.

Following the "essay" and "photographs" cover sheets are - obviously - the essay and the photographs, respectively.

To enter text, grab the text tool and "draw" (click and drag) the text box on the page. You can either draw the text box on the page exactly as you want it or you can draw a smaller box, use the transform dialogue to set the width and height and then use the alignment tool to locate it on the page. Note that as you are "drawing" Publisher will give you helplines to show when you are aligned with the margin or centered on the page

The text or essay fills the space between the margins and is NEVER allowed to exceed the margin. Essay titles, bylines, historical photographs, charts, etc., all fit in the margins. With the exception of the page numbers (if used), everything fits

inside the margins. You might come to a point when the length of your text exceeds the size of the text box. You can create additional pages with text frames and link them to auto fill the overflow text. You can insert separate text boxes for titles

or you can simply include them in the main text box and format them appropriately.

You can write your essay or text at any point in the process however, it might make sense to wait until after the photographs are selected to see what additional information might be necessary to make the presentation of the subject complete. The essay should be long enough to cover the subject but short enough to be interesting. This is a crucial thing to remember as you write - the essay does not explain the photographs but rather adds information and, as you will use as many photographs as necessary to tell the subject's story, the essay takes up as many pages as necessary.

Following the essay comes what, in reality, this is all about… the photographs.

All of the photographs selected for use should be linked (assigned to a page) as uncompressed tiff files. If you have not already done so, there are several image viewers/processors that can do batch format changing.

Granted, there are all kinds of arguments about what format to process in and what format to photograph in and what format to save in… these go on ad infinitum, ad nauseam. The best approach is to photograph in jpeg and then process and store in tiff. (If you want to have that argument, we can, but in another time and in another place. BIG HINT- it all has to do with accepted standards, format support and sustainability.)

Another argument that comes up – not as frequently as the file format arguments – is around color space. While there are several esoteric color spaces out there, the goal here is to create a pdf the will display as universally as possible. The recommendation is to use the sRGB color space. (BIG HINT AGAIN- it all has to do with accepted standards, format support and sustainability.)

Use your normal processing routine to adjust the photographs. At whatever point during processing you set resolution, the image resolution should be set to 300dpi x 300dpi and the image size set to (assuming a landscape orientation) 2400 pixels by 1800 pixels for a 4x3 aspect ratio or 2400 pixels by 1590 pixels for a 3x2 aspect ratio. When you have finished your processing do not re-save the image as a jpeg, leave it as an uncompressed tiff. (The book will be published as a PDF and that process converts the image to a jpeg. Compressing a compressed image may generate unwanted quality issues -

why take the risk?)

In Publisher you assign (link) a photograph to a specific page in the book and the image will appear on the page like it is embedded. You open an image on the page you are working on in a similar fashion to the way you add text to a page. Select the “Insert Image” tool and the then go to the folder holding the photographs you are using in the book. Click on the image and then click “Open”. You and also simply double click on the image.

To place an image on the page you can click and drag after selecting it. You can either attempt to add the image to the page exactly – position and size – or you can “draw” a smaller representation and then size and place it accurately using the transformation dialogue and the alignment dialogue.

Hint - if you resize the image using the transform dialogue you will be working in inches by default - this means that for a 4x3 aspect ratio your image will be 8”x6” and for a 3x2 aspect ration your image will be 8”x5.3”.

Another hint – put all of the photographs you are going to use in a separate folder and keep that folder with the “book file” you are creating. If you keep the photography folder with the book file you will never get that dreaded “program can’t locate necessary resources for the work” notice.

When you place the photograph on the page, center it and align the top of the image with the top margin. Both commands are available in the alignment dialogue. If you are doing a formal presentation, make sure the photograph is centered both horizontally and vertically. When you center the image it will automatically fit between the margins.

After the image is placed on the page, draw a text box below it for the caption. The page number (if used) goes slightly above the image unless you are using the formal presentation alignment then neither caption or page number are added.

Once the page is complete, you can open a new page by simply clicking on the “Add page” button in the “Pages” panel. Note that by default the pages panel shows the pages in your document in a two page spread rather than as individual pages.

And as with any project SAVE FREQUENTLY!

Continue creating new pages and placing photographs until all photographs have been placed. Once the book is put together use the “Preflight” tab in Affinity Publisher to check the document for errors. After any errors, misspellings, placement issues, etc., have been addressed the time has come to publish it as a .pdf file.

Creating the pdf

The next step is to export your book as a pdf under 10mb so it will work with Liquid Mode. And here is where the advanced features of Publisher come into play.

Again, you want to make sure the “PDF” format is selected in the opening export dialogue panel.

As you are now exporting the book for online reading, the next step is to make sure the preset is set to “PDF (Digital – small size)”. Note that as changes are made to the settings, that preset will no longer be listed. This is not a concern as the program simply moves into a user-controlled export mode.

The “Raster DPI” should show a default of 96dpi which is more than sufficient for online reading. In the past 72dpi was the recommended resolution of online use however, in testing, the files with 96dpi presented better in terms of sharpness and overall fidelity to the original images especially on larger screens.

Assure the “Area” is set to “All pages”. There is some more fine tuning that needs to be done to assure the highest quality pdf for online reading is made.

Next, click the “More…” command.

When the dialogue opens, make sure the “Downsample images” entry is set to 96 dpi. It might come up as 120 by default. Next – and this is absolutely critical to preserve the quality of the images - make absolutely sure the “Resampler” is set to “Lanczos 3 – non-separable”. After setting the “Downsample”, make sure the “Use DPI” entry is set to 96. One of the biggest changes to make to assure the highest quality pdf is exported is to set the “Allow JPEG compression” control to Quality 85 rather than the Quality 98 that might come up by default. If you still don’t get an acceptable file size at this quality setting, reset the Quality to 80.

Further controls to check are to make sure the “Compatibility” control is set to “PDF 1.7”, the “Color space” is set to RGB, the “ICC profile” is set to “sRGB IEC61966-2.1” and the “Embed ICC profile” box is unchecked. This sRGB standard is the default.

And finally, make sure the “Embed fonts” is set to “All fonts” and that the “Subset fonts” box is checked.

There are a few things to remember about creating the file for Liquid Mode -

- The file has to be under 200 pages in length
- The file has to be under 10mb
- There can be no restrictions or encryption on the file (that is no passwords controlling access to any functions such opening, printing, etc.)
- Liquid Mode requires the latest version of Adobe’s Acrobat Reader running on:
    - iOS 14.0 or higher
    - Android 5.0 and later. (Android devices with less than 1GB of RAM or x86 processors are not yet supported.)
    - Chromebook
- Complex layouts may be difficult to reflow.

While this may seem extremely restrictive to some, the reality is that the vast majority of mobile devices “in the wild” will be able to take advantage of Liquid Mode.

Some may object to the inability to restrict or encrypt files, feeling it will allow wholesale plagiarism of their work. While this is a valid concern, it would seem that providing a comparatively low resolution file device/online reading would address those issues.

While the intent here is to create work that is distributed without charge, if your interest leans toward selling your work, there are any number of websites where you can upload your pdf files. Bear in mind these sites may have their own requirements you will have to meet.

And finally (for this section) the intent of this section is not to teach you the ins-and-outs of the Affinity software but rather to give you some of the very basics of using it. There are any number of websites offering tutorials and there are any number of books available covering its use.

Publishing and distributing your books

Note – the assumption here is that you need a way to distribute your books but don't have your own website. There are a number of website creator/hosts on the internet. Some of them are free, some are free with ads and some are offered at "competitive rates". Some offer more features than others, some offer fewer.

Google Sites is chosen because it's free to use, it's easy to use, there's no advertising on any page, it's offered by one of the most established and strongest tech companies around and, most importantly, it's geared to consumer use rather than enterprise use.

There are a number of different things you can do with a Google Sites web page or website. You are certainly encouraged to look around the service and experiment with its various features but the focus here is to create a "landing page" that will allow readers to view a sample thumbnail photograph,read a brief description of the book and open it to read.

Google Sites is a fairly straight forward website creator that even first time users can use to easily create attractive and functional web pages and websites for book (pdf file) distribution. Your site is hosted for free and can be updated as needed – like when you need to add more books!

And Google Sites comes free with your free Google account.

If you don't have a Google account you need to create one before you can start using Sites.To sign up for an account go to www.google.com, locate the "Sign In" button in the upper right corner of the page, click it and follow the on-screen prompts to create your account.

You won't need to enter any personally identifying information when creating your account. You won't be asked to

enter any financial information and the sign-up process doesn't ask for credit card or bank information.

When you sign up for your account you'll be asked to enter a user name that will form the basis of your Gmail address, your name, a password, your birthday, an alternate email address and a phone number so your account can be verified. Of all this, the only thing that's "public" is your Gmail address. Everything else is related to account security.

The only restriction is the 15gb of disk space allowed in Drive. But in reality. if you are somewhat careful with file sizes, you can have a significant number of books stored on the service ready for reading.

If you already have a Google account you might want to consider getting a second one just for photography/book distribution use.

The assumption here is that you are using this Google account exclusively for book distribution.

After logging into your Google account you will notice an icon of 3x3 squares in the upper right of the screen. This icon opens the apps menu. Clicking on the "Drive" icon will open the Google Drive app.

Before doing anything else it's recommended that you create a new folder in your Drive space to contain all the elements for the particular project you will be distributing. This will include the pdf file for reading and the photograph that will be used for the thumbnail image that will be used on your landing page. You will link to these resources from your website. You'll create a new file in your Drive space for each book project you want to distribute.

It is recommended that you upload a full size photograph for the thumbnail and allow the system in Google Sites to resize it as needed. This is to meet the needs of the responsive page sizing system.

Upload the pdf files and the landing page photograph to the folder you just created. Once the upload is completed close the book folder.

Click on the "New" button again. From the drop-down menu select "More" and then select "Google Sites" from the fly-out.

When "Google Sites" opens it will present a page with a header with no content and a functions panel on the right side of the screen. You will have to enter three "identifiers" for the site:

- The site title - Enter the name in the upper left hand corner of the screen. This is the internal (non-public) site "name" for you website that Google will use. This will auto-populate the "Site name" entry that is in the upper left hand corner of the banner. This is the name that will appear in your document list on your Drive main page.

- The site name - Enter the site name in the upper left hand corner of the banner. This entry was auto-populated by the site title but you can change it. This is the "public" name for your website and the name that Google and other search engines will use to list your site.
- The page title - Enter the page title in the box. This is the title of the individual page and will also be used by search engines to list your site.

Let's say John Smith wants to create a Google site to distribute his books -

- For the site title he decides to use his first and middle initial, the first four letters of his last name and the month of his birth to create an eight character site title. That comes out to be *jbsmit07*.
- For the site name he decides to go with *John Smith Photo Books*.
- For the page title he decides to go with *John Smith's Photography Collected in Books*. Three things to note here -

First, there is no "Save" or "Save as" function as the Google Sites app auto-saves. (So... If you accidentally close the app, there is a power failure or whatever, everything you have done is saved. This function can not be disabled.)

And there are no file extensions. Google Sites handles all of that automatically.

As the appearance of default text may not be what you are looking for, the font, font style and font size can all be adjusted to taste using the popup bar.

Now, on to change the banner image (if you want). Hover your pointer over the banner and you'll see a popup that will allow you to both change the banner image and change the header style.

Assuming you want to change the banner to one of your photographs click on the "Change image" entry and then "Upload" from the drop down box. A standard dialogue opens and you can select the image you want from your computer and upload it. One of the features of Google Sites is an AI function that will adjust the banner for ultimate readability.Although it isn't recommended, this feature can be disabled if desired.

After the "identifiers" and banner are set you are ready to enter content. There are several ways to enter content in Google

Sites but if you are creating a simple “landing page” to distribute your books, use one of the “Content blocks” from the “Insert” panel. Your page should provide a thumbnail photograph, a brief description of the book and a link for the reader to download it.

The Content block layout should be one of the image/text layouts, of course.

Clicking in the object box you can insert the thumbnail you want to use for the description from your Drive folder and in the text box you can enter a title for the section, descriptive text and create a link back to the book. Again, the book file should have been uploaded to the project file in your Drive space. The process of creating a link is actually fairly simple.

The first step is to go to the project folder in your Drive space (they can open in separate tabs in you browser allowing you to work back and forth between the tabs), right click on the file you want to link to and select “Get link” from the popup menu. In the “Share with people and groups” dialogue, click the “Copy link” entry and then, if necessary, change the permissions from “Restricted” to “Anyone with the link”. Next make sure the role is set to “Viewer”. Click “Done”.

Go back to Google Sites. Highlight the text or image you want to use as the link and click the“Insert link” icon from the popup formatting bar. In the popup dialogue paste the link in the “Link” entry and click apply. You’re done.

Just one point to reinforce here… don’t forget to make sure the permissions for the book file in the project folder are set to “Anyone with the link” or no one will be able to access the file from your Google Sites web page.

Continue adding content until you are finished (kind of an obvious thing to say but it has to be said for some reason…). As with the page title, the default text in the sections may not be what you’re looking for so the font, font style and font size can all be adjusted to taste.

After you have all of the content in and you’ve set the appearance to your liking, the final step is to publish the website.

First, click the preview icon in the upper right of the screen. This will show you exactly how your site will appear when it goes live.

Websites produced on Google Sites are responsive to different screen sizes and the icon in the lower right will allow you to view the site as it will appear on a desktop/laptop system, a tablet or on a phone. The blue “X” on the selection bar will return you to the creator page. If you see problems with the layout on any of the three screens you can address them before publishing.

Once everything looks good, simply hit the “Publish” button and, if all is well, your site will be live online waiting for the search engines to find you. When the publish dialogue box appears it will also give you the full URL of the site which you can send to family and friends in addition to discovery by search engines.

If, after initially publishing your site, you need to make changes – add additional content, correct an error, etc. - you simply need to open the website and make the changes. The “Publish” button now has a down arrow that offers several functions including “Review changes and publish”.

Section 2 lite…

For those preferring a lighter touch…

For those wanting a lighter touch than the full page-turning book, a single page, scrolling presentation is an attractive alternative that can be assembled quickly.

Note – We will again be using Google Sites for the example. Initially, the process will be the same as for the book distribution website so there is a bit of a review of that process here.

Google Sites is a fairly straight forward website creator that comes free with your free Google account and can be used to create attractive and functional web pages and websites. Your site is hosted free by Google and can be updated as needed.

If you don't have a Google account you need to create one before you can start using Sites.To sign up for an account go to www.google.com, locate the "Sign In" button in the upper right corner of the page, click it and follow the on-screen prompts to create your account. After creating your account you will have 15gb of disk space in Drive.

If you already have a Google account you might want to consider getting a second one just for photography use.

After logging into your Google account you will notice an icon of 3x3 squares in the upper right of the screen. This icon opens the apps menu. Clicking on the "Drive" icon will open the Google Drive app.

Click the "New" button. From the drop-down menu select "More" and then select "Google Sites" from the fly- out.

When "Google Sites" opens it will present a page with a header, no content and a functions panel on the right. You will have to enter three "identifiers" for the website:

- The site title - Enter the name in the upper left hand corner of the screen. This is the internal (non-public) site "name" for you website that Google will use. This will auto-populate the "Site name" entry that is in the upper left hand corner of the banner.
- The site name - Enter the site name in the upper left hand corner of the banner. This entry was auto-populated by the site title but you can change it. This is the "public" name for your website and the name that Google and other

search engines will use to list your site.

- The page title - Enter the page title in the box. This is the title of the individual page and will also be used by search engines to list your site.

Let's say Joan Smith wants to create a scrollable Google site for her photos -

- For the site title she decides to use her first and middle initial, the first four letters of her last name and the month of her birth to create an eight character site title. That comes out to be *jbsmit08*.
- For the site name she decides to go with the subject of her work which is about a local regional park - *Centennial Regional Park*.
- For the page title she decides on *Walking Through Centennial Regional Park*.

Remember (in no particular order) -

- Google Sites auto-saves to Drive and there are no file extensions visible.
- Font, font style and font size can all be adjusted to taste using the popup bar.
- Both the banner image image and header style can be changed.
- An AI function will adjust the banner for ultimate readability.

Unlike building the landing page where you used a content block layout, for this single page website you will be using the Text box function to insert the text box for the series introduction and the Images function to insert your photographs on the page.

Clicking on the Text box function will allow put a text box on the page under the banner. The temptation is to make this box as big as possible but in order to keep a consistent appearance, it should be no wider than photographs. In reality the text box should be no wider than eight columns and it should be centered on the page.

Insert a spacer. This spacer will insert below the Text box you just used for your introduction. The purpose of the spacer is to introduce some space or "air" between the text and the first photograph. This keeps the designed from looking like you are trying to cram everything in the smallest possible space.

Now click on the Image function. A drop down will indicate you can either “Upload” photographs from your computer, select photographs from your Google Photos account or select from photographs you previously uploaded to Google Drive. After selecting where you are going to source the photograph, select the photograph and a small version will appear on the page below the spacer.

The next step is to size the photograph. This is done by grabbing the “handle” and dragging it to the right. The temptation is to make the photograph as large as possible but you need to consider that most folks who will be accessing your page will be using monitors with a resolution of 1920x1040 or less so limiting the photograph to no more than eight columns wide is the strong recommendation here (roughly 750 pixels wide). The image will be severely cropped when you do this but the full size can be restored by clicking the “Uncrop” command in the popup tool bar. Center the photograph on the page.

Clicking on the three dots on the right side of the popup tool bar will open a drop down menu that will allow you to enter a caption for the photograph. As with the page title, the default text in the captions may not be what you’re looking for so the font, font style and font size can all be adjusted to taste.

Continue adding content and spacers until you are finished (kind of an obvious thing to say but it has to be said for some reason…). Again, this is a single page website with the photographs and captions falling in place underneath each other.

After you have all of the content in and you’ve set the appearance to your liking, the final step is to publish the website.

First, click the preview icon in the upper right of the screen. This will show you exactly how your site will appear when it goes live. Websites produced on Google Sites are responsive to different screen sizes (desktop, tablet and phone) and the icon in the lower right opens the preview function that will allow you to view the site as it will appear on a desktop/laptop system, a tablet or on a phone. The blue “X” on the selection bar will return you to the creator page.

Once everything looks good, simply hit the “Publish” button and, if all is well, your site will be live online waiting for the search engines to find you. When the publish dialogue box appears it will also give you the full URL of the site which you can send to family and friends in addition to discovery by search engines.

If, after initially publishing your site, you need to make changes simply open the website and make the changes required. The “Publish” button now has a down arrow that offers several functions including “Review changes and publish”.

Section 3 -

Photo Archive, Backup and True Sustainability

Every photographer – be they professional, advanced amateur or dedicated hobbyist – has a body of work. It can be dozens of books, thousands or hundreds of thousands of photographs. That body of work can wind through diverse subjects and genre or it can be narrowed to a distinct specialty. The body of work will show a photographer's development over time – both in subject matter and technical expertise.

But, when viewed as a whole, a photographer's body of work can simply be overwhelming with its thousands, tens of thousands or even hundreds of thousands images.

And this is where an encapsulating archive comes to the fore.

Some folks make the assumption that an archive needs to be every photograph a photographer has ever taken. This save-all approach makes the archiving a lot simpler – open up the archive and stick the next batch of photographs in. The amazingly good – astonishingly bad – massively indifferent… it doesn't matter. Open the archive and stick it in.

If the archive is just for you and nobody else, if there is no thought of sustainability and you maybe have some way of keeping track of the stuff that is in there… great. Go for it… keep sticking the stuff in.

But…

…if the intention is to create a sustainable archive – one that will last 25, 50 or 100 years into the future – the goal has to be to create a well organized and coherent archive. Make no mistake, this archive is not to replace your website where things can come and go in an instant or where you have to tailor the content to create a commercial portfolio.

This archive is to present a well thought out and representative reflection of your work.

The unfortunate reality is that a lot of folks start with how the archive will be saved rather than what is to be archived.

Obviously, the place to start the archival process is picking the stuff to be included. This is a very personal process and

there are a number of different approaches to selecting the material. What is offered here is but one suggestion.

The very first step for creating an archive is to gather all of the material – or at least figure out where all of it is. If you are a photographer who has some sort of central location for storing your work and parceling it out from there, you're lucky. You can avoid the sometimes all-consuming search. If not, you have any number of places to look. These can be on your…

- Desktop
- Laptop
- Tablet
- Phone
- Accessory Hard Drives
- Cloud storage accounts
- Cloud-based file backup services
- Facebook, Instagram, etc., accounts
- Flickr, 500px, SmugMug, etc., accounts
- Prints you have made…

In reality, there are any number of places where photographs can stored.

The next question, now that you found all of the stuff, is what to do with it to start organizing the selection process for the archive. Hint — if you have a central location you can simply start reviewing… if you don't have a central location, maybe now is the time to set one up and then start reviewing!

What follows assumes a central location…

Be warned that even with this central location it is not the quick and easy process that some have suggested can be accomplished over “a rainy weekend”.

As you start going through the photographs broad organizing categories should start to suggest themselves.

Books you have finished is a major, right-off-the-top, category.

Other categories could include family portraits, vacations, sports, etc. Still other categories could be personal projects that have been completed, photography done as part of your work, photography that resulted in publication, etc.

The idea of categories is wide open and limited only by your work and imagination. The only caveat is not to make too many categories – the idea here is to narrow the archival collection down to the photographs that best encapsulate your body of work.

Now that you have your categories it’s time to clump!

Clumping is a term some archivists use to describe the process of broadly organizing the material. Right up front you should know this is not a perfect process – sometimes the material overlaps two or three clumps, sometimes there is no real clump for something, sometimes the clump is a little too broad. The point here… don’t expect it to be a cut-and-dried process like sorting nuts and bolts by size.

Some folks might argue that the best way to archive photographs is to print everything you want the archive to include. While that may be true in the abstract, the reality of archival printing and storage certainly raises a number of issues.

- Archival printing gets extremely expensive when you have a large number of prints to make.

- Archives that contain even a moderate number of physical prints require a significant allocation of specialized storage space {read: flat files).

- Archive storage for physical prints demands a highly controlled environment (light, temperature, humidity, etc.).

- Archiving with physical prints severely limits access and portability.

• While experts in print longevity claim that a properly made archival inkjet print can last ‘a hundred years or more in a controlled environment’, there is also a lot of evidence that it will last just 10 or 15 years (if that).

Some argue the digital approach is fraught with its own set of issues.

• Hardware used for digital archiving today may not be compatible with future systems.

• Hardware used to store the archive may fail at some point in the future.

• Software needed to view the archive may not be available on future systems.

• File formats used for digital archiving today may not be compatible with future systems.

• There is more chance of user error with digital archiving systems that may erase the entire archive.

While there are risks and pitfalls with both approaches to archiving, it would certainly seem the digital system has the advantage especially when looking well into the future.

We assume using a digital approach…

If you have room on your desktop/laptop hard drive you can create a folder for the archive and then create sub-folders for each of the categories you are going to use.

If you don’t have room, pick up an external drive. External USB hard drives are inexpensive, easy to come by (think Amazon, Walmart, BigW, Argos, etc.) and will run on Windows, Linux and Mac. They can be used effectively for clumping. As you will be using this drive only for clumping (right now, at least) you can simply create the folders for your categories in the root of the drive.

After you create the folders, you are going to start going through your photos selecting the ones you want to consider for the archive. Remember this is a process to encapsulate your body of work – it is not the entire thing. Think of your entire body of work as “the library” and the archive as “the special editions room”.

As you go through this first pass of the photographs, you are looking for photographs you think might be included in the archive. As you find photographs you want to consider for the archive, copy – yes, COPY – them into the appropriate category folder. And be aware that it doesn't make any difference what file format they are in at this point – raw, tiff, bmp, jpeg, whatever. We'll deal with file formats for sustainability later.

Consider these as the images you'll come back to later. You're not making final decisions right now. And yes, you will find more photos than you truly need at this stage of the game.

As you are going through all of this work, depending on the size of your collection you may need to take a break every so often just to make sure you are staying fresh and keeping your focus on selecting the most appropriate photos for your archive. Nothing is worse than allowing yourself to get to the point where you just want to get to the end – this is supposed to be both thoughtful and enjoyable! Between the first and second passes through the photographs definitely take a break.

The second pass will go through the photographs you have already selected but this will be the pass that either determines the final content of the archive or narrows it further for a third pass. Again, you are looking for images that encapsulate your body of work.

Here is the important distinction between the first pass and subsequent passes through the photographs — in the first pass, you are adding photographs to the categories… adding the photographs that you think are important enough to be included. Once you have all of these in their categories, you will use the later passes to go through and remove the photographs that just don't quite make the grade. Unlike editing photos for a book where the first pass is exclusive and the later passes are inclusive, for archiving, the first pass is inclusive and the later passes are exclusive.

But don't get so obsessed with getting the "perfect" encapsulating archive that you keep going through the work. Realize there is an end goal for all of this – setting up the working archive.

The reason for going through all of the selection process for the photographs is really very simple. It is a courtesy for those who may access it.

There is no limit on the number of photographs you can put in an archive but remember the object is to encapsulate your body of work and not to overwhelm those who may access it. We have all seen websites where the photographer has

posted dozens of – say portraits – that all have a very similar appearance albeit with slight variations in pose with absolutely no explanation of the intent at all. The work may be technically impressive but… one certainly gets the impression the photographer is simply out to overwhelm us.

If you have physical prints with no associated digital file, you should really scan them.

Back-in-the-day there was a significant difference between a “professional” scanner and a “home” scanner. Those differences are not so pronounced anymore and, with a bit of care and paying attention to settings, a home scanner or the scanner in an all-in-one printer can give quite acceptable results.

The focus of Photography (Fully Realized) is the creation of photography books and there is no question that all of the books you create should be archived. You don’t need to archive the work product (all of the things that went into developing the book) for the book, but the book itself should be archived.

So the “why” and “what” parts of archiving have been answered… now come the “when” and “how” parts.

When to archive may seem like keen perception of the obvious. Simply, files you are archiving should be ones that are both “finished” and rise to that “encapsulates” level.

The problem here is that this level of evaluation usually can’t be done right away. You should allow a period of time to lapse before looking at work to archive. Reviewing new material to include in the archive every six months or so is probably an adequate time line.

The one exception to this is for books you have finished and published – copies should be archived as soon as they are done.

Some may argue that they regularly reevaluate their work and sometimes reprocess images in light of new photographic “sensibilities”. If that is true then those files are not ones that can be said to encapsulate your work. Others may argue further that photography is a medium of ongoing “growth and change” and one must “keep current” to keep one’s work “relevant”. That argues more for dedication to the process of photography rather than telling the subject’s story. It makes the photograph more about the photographer’s skills than the subject.

The “when” to archive is actually simple when compared to the how – and this is where the discussion of file formats enters the picture.

For books you have created, the “how” is astonishingly easy. Archive the Portable Document Format (.pdf) files the books are published in. PDF is the format of choice for current use and for file sustainability well into the future.

There are a couple of considerations for sustainable book archiving here – the book should be saved as a PDF 1.7 with no external resources (links) – no external audio or video files, no links to external web sites etc. - and they should be saved in the sRGB color space. Another important point here is to make sure the fonts used in the book are embedded in the file.

Some may argue for using the PDF/A2 format which is designed for archival use and based on PDF 1.7 but this format is not widely available in commercial software yet. And some may argue for the cmyk color space, the book production described in Photography (Fully Realized) is not intended for commercial printing but, rest assured, the vast majority of commercial digital printers are sRGB capable.

While the file format selection for book production is astonishingly straight forward - .pdf is the choice – the choice for photographs is still a source of some contention and confusion.

If your archive is purely personal with no other expectations, you can use any file format you want. Period. End of story…

…but if you are hoping to create a sustainable archive accessible to others you will want to consider the following -

There is no way to predict what computer or imaging systems will look like 25, 50 or 100 years in the future. They may be all internet based. Or maybe not. They may be virtual reflective data transmission based (whatever that is). Maybe not. They may be some form of organic artificial-intelligence based technology. Or not.

When considering the file format to use for archiving, the goal is really to create as sustainable an archive as possible. Sustainability means that the archive will be viable/usable/accessible over time.

This demands that the format chosen for archiving:

- must be an open standard and

- must be optimized for photographic reproduction and
- must be well supported and well documented in the public sphere and
- must have a long and extremely stable development history and
- must be universally accepted and
- the biggest requirement for sustainably archiving photographs is that the photographs must be ready for use as archived.

In reality all of these requirements leave only two file formats- the JPEG and the TIFF.

Some may still argue that camera raw files are the best to archive but these files are proprietary, subject to the whims of the various manufacturers and don't meet most of the requirements for sustainability as stated above. Most importantly, camera raw files are not ready for use as archived.

It is strongly recommended you save your photographs in both JPEG and TIFF formats.

For JPEG archiving it is recommended that you save the photograph full size, at a quality of 100, with the photometric set to the YCbCr color space and with the Huffman table optimized. This will give you a relatively large jpeg file but remember that this file is intended for archival use and not for distribution in a production environment. The goal here is to have as much data as possible in the archive file.

This may not be in your normal workflow but these files are going for archiving and not a production environment.

Saving the image as a TIFF file for archiving is considerably simpler. When saving the image as a TIFF, save it as a 24-bit file. Make sure it is uncompressed and the photometric is set to the sRGB color space. Again, this may not be in your normal workflow but these files are going for archiving and not a production environment.

The final consideration is the naming of the folders and the photographs for the archive. And again this recommendation is based on preparing a sustainable archive.

If your archive design is to have the images in category-based folders those folders should have an explicit and descriptive name that can't be mistaken for any other in the archive. And the same is true for the photographs within the folders. These names are not cryptic, 'cutesy' or 'creative' but very matter-of-fact specific.

For example — a folder with photographs of a vacation to the family reunion in Davenport, IA, could be named "2018 vacation to July family reunion at Uncle Jacob's farm Davenport IA". The names of the photographs in the folder would be similar in their specificity. "Molly and Billy Jackson (cousins) winning three legged race on Saturday". You don't need to restate any information from the folder name as we assume the activity was at the 2018 family reunion.

Note that for both Windows and Mac computers there is a 255 character file name limit that includes the full path. For the example above, if stored on a Windows machine, the path would look something like "C:\Users\user_ name\Pictures\archive\trips\2018 vacation to July family reunion at Uncle Jacob's farm Davenport IA\Molly and Billy Jackson (cousins) winning the three legged race on Saturday.jpg". This would appear to be an unusually long path to most folks but it is only 193 characters long so it fits in the requirements. The requirements for Linux-based computers allows for considerably longer full paths.

If your archive design is to simply put all of the photographs in a single folder (not recommended, however) all the photographs of a particular category area should have a common prefix. For example names of the photographs above could be prefixed "family reunion-07-18 Davenport IA_" . This will allow all of the photos from the same category to be listed in the same place in the archive directory.

So now the only thing left to do is actually put the archive together. If your archive design is using category folders you can simply put all of the appropriately named folders in one master folder. If your archive design calls for all photographs in one folder you can put them in that master folder.

Now the question is where to put (store) the archive. The temptation, of course is to keep a copy on your computer which is fine as long as that is not the only location.

It is strongly recommended that you save your archive in at least two different places apart from your computer — a removable USB hard drive being one place and an online location being the second.

Regarding the USB hard drive:

First of all, you don't need a huge drive. For example, if you have saved 200 images in your archive as both tif files and RGB jpegs you might need 40gb to 50gb of drive space. And while it might be tempting to try and get away with using a flash drive, don't. For sustainability you will want to use an external hard drive.

(A suggestion – You might want to clean off the drive you used for clumping and use it.)

To assure the most compatibility into the future, it is recommended you use the FAT32 file system for this drive. Whether Windows, Mac or Linux… all can read FAT32. This file system has been around for quite awhile and, with its broad acceptance, seems unlikely it will fall into disuse.

There are concerns voiced about the longevity of hard drives and critics have all the horror stories about a brand new drive failing 17 days after it was purchased, losing all of the irreplaceable family photographs that were put on it.

The usual specification for hard drive longevity is MTBF or Mean Time Between Failure. Some manufacturers claim an MTBF rating of 50,000 hours. Others claim 30,000 hours. Some web hosting companies, where hard drives are running constantly, use a three-year replacement cycle or approximately 26,200 hours.

Lets assume you archive data monthly (probably far too frequently but its good for the numbers here as an example) and the drive you use is in operation for four hours a month. Even at the lowest MTBF rating, assuming you take reasonable care of the drive and don't use it to drive nails or scoop out dirt to plant your tomatoes, the drive will last more than 500 years in theory.

While we certainly don't know what the state of computing or imaging will be in 25 or 50 years, it would seem logical to assume that whatever the technology is, it will still be able to read a USB interfaced hard drive. Some may argue that the floppy disk and the zip drive have died but it certainly appears that with the universal acceptance of both USB technology and hard drive technology, they will continue on well into the future.

There are any number of sites online where you can store your archive. Some are fee-based while others are free. Some have generous storage limits while others are more restrictive. Some are designed for public display while others aren't.

Some have ads on their pages while others are advertising free. Some support both tiff and jpeg files while others support only jpeg.

Up front, the recommendation here for online archive storage is with a reliable, free service that guarantees you can use the account “as long as you want it”, gives sufficient space for the current archive and for future additions. But most free services have fairly restrictive storage capacities of 2gb to 5gb or are limited to certain uses (mobile back up, etc.). This would mean pairing down the archive, storing only JPEG files or both.

Remember that creating an archive is not a one time effort. You may not make contributions frequently but you do have to keep putting important material that you want to preserve into the archive.

Your archive is, after all, a part of your legacy, a part of what you will leave to those who come after you. It is important that your legacy be both as complete as possible and reflect what you feel is important.

Setting up a backup

We have all heard the horror stories about photographers who have lost volumes of work and possibly their entire collection to some disaster. These stories usually center on a hard drive failure as the reason for the data loss. Fires and floods are also mentioned but the hard drive is the usually-cited culprit. While the moral of these stories is always the need to make frequent and complete backups, the rational is as flawed as the advice is sound.

Very simply, hard drives don’t fail nearly as often as the hysterics would have you believe. Something less than 1.3% of hard drives actually fail (Source: Backblaze). When a drive does fail, the reasons fall into one of six general categories (Source: Stellar Data Recovery):

- firmware updating related (generally a power failure during upgrade)
- power related (unreliable power source either from the wall plug or the power supply)
- heat related (improper ventilation)
- mechanical failure (something breaks internally in the drive likely due to physical abuse)

- file corruption (malicious applications, faulty applications or virus infection)
- human error (almost anything else).

While a disk failure due to any of the above would be a catastrophic loss and represent sufficient reason to back up your data it is certainly not the only or the primary reason.

More than likely a full backup of you photographs would be used for recovery from accidental loss (you delete something by accident) or processing recovery (processing a particular photograph has simply gone way off the rails and the only answer is to start over).

First, doing a backup is far different from doing an archive.

An archive is designed to encapsulate your best and most important work. It is intended to be the well-curated collection of work you consider to be important, significant and want to see available for 25, 50 or 100 years into the future. The archive represents the finished work, not simply a collection of everything you have done.

A backup is where you store a second or third copy of everything – the good, the bad and the ugly – just in case something goes wrong. Think of your backup as an insurance policy. You hope you never need it, but it's nice to have it if you do.

There are a number of different schemes to create a backup system and the one recommended here is the 2-1-1 system which is a modification of the 3-2-1 system.

In the 3-2-1 system you have three copies of the photograph. The "first" copy is the active copy (the copy you are working on/using). The "second" and "third" copies are the backups. One of the backup copies is stored locally but on a removable USB (or similar) drive or on a network attached storage drive. The second backup copy is stored off site somewhere.

The 2-1-1 system is a modification of the above in that it concentrates on backing up data locally and puts far less emphasis on the cloud-based backup.

Usually the first backup copy is not a real problem as it is done using an independent drive.

It is recommended that you use a network attached storage device or ‘NAS box’ as your primary backup drive. A NAS box is always available. It is neither plugged into or unplugged from your desktop or laptop as it's accessed through your network's router. Most cable or DSL modems have a four-port router built in that allows you to hardwire the network attached storage system to your modem.

Using the network attached storage system is fairly straightforward. Under the administrator’s login, usually accessed through your web browser, you simply create the folders – referred to here as network shares – that correspond to how you want to backup your files and than map those shares on your desktop or laptop. The shares are treated like local drives on your computer and you can move photographs into and out of the shares at will. Beyond that, you can create folders inside the shares that reflect the organization in your main filing system. (It sounds a lot more complicated than it really is!)

The great thing about using a network attached storage device is that it is totally independent of your desktop or laptop. Most NAS boxes have a Linux-based operating system so even if your desktop or laptop completely dies, all of your data is safely stored, waiting for you to either fix the problem or replace your computer.

The key here is use a quality unit from a reliable manufacturer. The prices of single-drive network attached storage devices from many manufacturers have fallen over the past several years.

For even more data security you can use a network attached storage device that is a RAID array. These systems are considerably more expensive but they offer considerably more data protection automatically.

RAID is an acronym for Redundant Array of Independent Disks. With a RAID array you use two or more drives. The system is redundant as anything you put on the system is automatically and instantaneously duplicated (or mirrored) as a backup.

RAID systems come in different levels.

In RAID 1 the capacity of the drives used is divided in half. If you use two one-terabyte drives in the system the capacity is not two terabytes because in a RAID 1 array there is a primary drive which is used to store your backup data and a secondary drive to back up everything on the primary drive. If one drive goes down your data is protected because it's

duplicated. In effect you get an automatic backup of your primary backup drive.

In a RAID 5 system you get the same level of data protection and, because you use four (or more) drives you get more storage capacity. Raid 5 is also a faster system that RAID 1.

Short of a full RAID system, you can use a USB hard drive that will plug into your desktop or laptop and create a second backup of your data. That is the NAS box (attached by an Ethernet connection) will hold one backup which will be the "primary" backup and the portable USB hard drive (attached by a USB cable) will hold another.

Using a program like SyncFolders to synchronize files across your drives, you can write both backups at the same time and assure that all your backups are both current and identical. The USB drive can then be unplugged and stored safely.

Some may complain that this leaves out the online storage component but one of the attributes of a backup system that is astonishingly downplayed is the need for accessibility. Both the network attached storage system and the USB drive are local and, by definition, the most accessible. Depending on the capacity of both the NAS box and the USB drive – four terabytes is recommended for both – you can have considerable storage capacity.

The second and third most cited reasons for backup are fire and flood so one of the best ways to deal with that is keeping the USB drive in a small fire-resistant and water resistant safe.

But if the 3-2-1 approach is more appealing to you remember this comes with an off site storage component.

Granted you could rent a bank safe deposit box and keep a drive there. Or you could keep it at your office. Or you could ask your sister-in-law to store it at her house. But none of these solutions allow you to backup on an as-needed basis, which would certainly defeat the needed accessibility. Whenever you want to perform a backup, you would have to go get the drive from wherever it is, do your backup and then return it.

The answer in the 3-2-1 system then is seemingly simple – backup online.

There are as many recommended online storage services as there are sites recommending them so you will have to shop around for the one that meets your needs. There are six areas you need to evaluate when looking for an online backup service:

- Space: the service should offer enough storage to keep all of your photos in one place over the years.
- Ease of use: You need to be able to upload photos to the service quickly and easily.
- Upload system: some services have a separate application to sync your backups and handle uploads.
- Search features: Finding photos by date, tag or other criteria should be easy to do.
- Restrictions: some services restrict file type, file size, etc.
- And finally, you should evaluate the cost of the service.

When designing a backup plan that includes an online component, you should look at several services, read the reviews and compare terms of service. There are a couple of truly free services out there but again they come with a host of CC&R's (conditions, covenants and restrictions). If you don't mind the restrictions imposed by using a particular service, go for it!

But don't look for the perfect online storage system. It simply doesn't exist. Select the best one for your needs.There are some practical considerations for online backup, especially if you backup a significant number of photographs at a time.

The other consideration is downloading time. If your internet connection is 8 an mb/sec DSL, you can be waiting 35 seconds for the file to download under ideal circumstances. At 100 mb/sec you are a bit better off at 2.8 seconds. The referenced times above assume you have a good quality internet connection. If you don't, times can be considerably longer and there is always the possibility the your connection can drop mid-transaction.

But beyond the quality and speed of your internet service are the bandwidth issues that can crop up. This is not so much a concern on the download side if you are just doing one or two files at a time but they can really play havoc on the upload side. Limited (capitated) bandwidth can slow your speeds to a crawl or can invoke use charges from your provider.

Another consideration over the long haul are price increases. With significant amounts of bandwidth used in uploading files some internet service providers may consider you a commercial user and charge you accordingly. And your online storage site is certainly not a guaranteed price for life.

But let's not forget the invisible elephant-in-the-room in all of this – security. Data breaches are happening more frequently than ever. According to Statista there were more than 1800 data breaches in 2022 impacting more than 420 million people. That is almost five successful breaches a day. And while folks may not be interested in your photographs, they may be interested in other information about you – after all, you pay with your credit card, bank card or PayPal account.

And more concerning from this perspective are denial of service attacks. According to Microsoft Security there were no fewer than 520,000 denial of service attacks in 2022. They may not be attacking you but you certainly could get caught in the digital crossfire.

In operation, backing up your photos should be a simple and regular part of your working process and should not require an inordinate amount of time. There is really no excuse for becoming that photographer who lost everything!

The Theory Behind This

The photography-as-art question has been discussed, debated, argued – and, yes, proselytized – for more than 100 years without a clear resolution. At the slightest suggestion that maybe there is some room for disagreement, the yes-it's-art brigade launches into full attack mode with a take-no-prisoners approach. The no-it's-not group generally doesn't offer much of anything in response so as not to keep what they see as pointless fulmination continuing until the end of time.

But, just perhaps, the problem isn't so much with the answer as it is with the question…

We live in a world of classification. Everything has to be put in a defining container – left/right, car/truck, health food/ junk food – you get the idea. So rather than assuming photography–as–art and arguing from the assumption, perhaps we need to re-frame the question by asking what photography truly is and what art truly is.

For the purpose of this discussion we need to go to the root or essence of both art and photography. Often, when we boil complex or emotionally charged issues to their essence the realities and/or resolutions become astonishingly clear.

Unlike photography which has a relatively simple and well-agreed definition – *Creating images by capturing reflected light using a camera*(-common) - art has a number of wide-ranging definitions. It seems one of the best and most encompassing is - *The expression or application of creative skill and imagination, typically in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotional power* (-Oxford Languages) Some definitions of art use the same or similar language but add the qualifier by the application of the hand.

The important part of this definition comes in the last dozen words *producing works to be appreciated primarily for their beauty or emotional power.*

Based on this, art is concerned with the creation of aesthetic objects and, at its root, is inherently representative and interpretive while photography, which is directly creating images of a subject by using reflected light is, at its root, inherently declarative and specific.

In artistic production, the artist creates a representation of a subject. Regardless of how "accurate" the rendering of the

subject, it is still a rendering by the artist and not a view of the actual subject or object used as a model during the production of the work.

When the artist is creating a painting of a landscape, for example, he or she can choose to eliminate or add elements to the painting as the work is being created. In essence, this capacity allows the artist to render (represent) the scene as he or she wills it to be (interpretation). When painting a portrait, the artist can change the background, add or eliminate jewelry, change the color of clothing the subject is wearing, etc., again while the work is being created and again this is the ability to represent and interpret that is inherent in art.

And in this the artist transforms the canvas, paper, cloth, etc., being used for the rendering into the aesthetic object or the "work appreciated primarily for (its) beauty or emotional power".

Conversely, the photographer does not have the same ability. He or she can certainly select the scene being rendered but as the image is being created elements can neither be added or eliminated, colors can not be changed, etc. It should be noted here that some camera manufacturers have included the capacity to adjust both the white balance and image color temperature in some camera models. This capability is significantly different from being able to change a portrait sitters shirt color from red to green as the photograph is being taken.

In the photograph, the photographer creates (declares) an exact image of the subject and the presentation is that of the specific object or scene photographed and none other.

The argument could be made — and has been made – that image post-processing can handle all of those "needs" for artistic representation and interpretation but to do so would alter the photograph to the point that it is no longer the scene selected.

The other argument that could be made — and has been made – is that the image that comes from the camera is the digital version of a negative, especially if that image is in one of the many camera raw formats available. While this may be a superficially passable argument it spectacularly falls apart when one considers the reality that even the raw file is a positive. In its original presentation from the camera it may be a poor quality photograph of the scene selected from the standpoint of photographic conventions but it is a positive and not a negative.

The photographer may try to extrapolate an "every-man" or universal concept from a particular image but the reality is

that such a concept does not flow from the specific image itself. The image is always declaring a unique and individual subject or scene.

Writing fits here as it, too, is declarative and specific. And we know this from reading.

When we are reading – it doesn't matter if it's a newspaper, a physical book or a digital magazine – we do not "appreciate" the text itself for beauty or emotional power. It certainly makes little fundamental difference whether the text is handwritten or set in the New Century Schoolbook typeface. We appreciate the text that we are reading for the information it is communicating to us. It makes no difference if the text is part of a work of fiction or non-fiction – the importance is the information imparted.

The words used to give us the information create a specific description of a specific subject and impart a specific message or specific information. This is regardless of where the words are used – be they in a textbook used for education, a novel used for pleasure reading or a newspaper reporting the events of the day.

Art is about aesthetic objects while both photography and writing are about telling the story of the subject. None are superior to the other. They are simply different.

In fairness, we have a long history of folks trying to define photography as art. Whatever the justification or the rationale, it still holds that if there is no representation and interpretation, it simply isn't art and again, this is about as judgmental as saying that if the game has four bases in a diamond pattern it isn't football.

Often the definition of art will be turned into more of a description as the elements of color, line, shape and texture are added. Some go even further adding form, space and value to the description.

The description of art now reads - *The expression or application of creative skill and imagination, typically in a visual form such as painting or sculpture, using color, line, shape, texture, form, space and value in producing works to be appreciated primarily for their beauty or emotional power.*

This description expands the concept of creating an aesthetic object, enhancing the representative and interpretive aspects of art but doesn't include the declarative and specific aspects of photography.

To give a similar expansion to the definition of photography, taking it to the description level, we would need to add the

concept of the light captured being reflected by an existing physical subject. So the description would now read - *Photography is the method of recording the image of an object through the action of light or related radiation on light-sensitive material.* (-Britanica)

This enhanced description of photography solidifies the declarative and specific aspects - *recording the image of an object* - while being silent on the representative and interpretive aspects needed for the creation of art.

There are several seemingly popular ways to try and circumvent this essential reality – and don't forget this is a discussion of the essences as originally produced.

The first is simply adding a qualifier such as "artistic" or "fine art" to the word photography in the belief that simply changing the name will make it so. And while some may believe this re branding, it is simply that – re branding. This is similar to major film manufacturers re-branding their products – the film was the same as before just the name, the box and the sales pitch were different.

The second circumvention is to evaluate the work based on the set of commonly accepted conventions including exposure, color, print quality, focus, tonal; balance, etc., with nothing more than a nod to content. While these characteristics are more definable and measurable than simple re-branding, they simply do not get past the representative and interpretive tests. And evaluating photography based solely on the conventions – focus, exposure, color, etc., is like evaluating a book based on paper stock, type face and binding type.

And finally there is the all-embracing, all-inclusive, blanket circumvention of "intent". That is "I created this fine-art photograph to have it appreciated for its beauty and emotional impact and to have this fine-art photograph certify my fine-art bona-fides." Of course the concepts here are (first) if I say it enough times it will be true and (second) the actual ideas of "fine art" and "fine art bona-fides" are so ambiguous and poorly understood that just about anything along these lines will suffice as an unarguable defense. And yet, it is still lacking the fundamentals of the representative and interpretive needed for true art.

So if photography is not art, what is it?

Well, first of all it is photography but beyond that it is a form of writing.

Over the past 40 years or so, significant advances in how we communicate have shown photography to be a form of

language and the photograph to be the written expression of that language.

For years we have divided the ability to communicate into two broad categories – verbal expression and written expression. The verbal side of the equation covers the ability to speak and listen – to use verbal signs (words, inflection, volume, etc.) to transmit meaning from one person to another. The written expression side uses graphic signs (letters, symbols, images, etc.) to transmit meaning.

Written expression is also a way to record and transmit verbal expression – think sending a text message or an email instead of making a (voice) phone call – now think about how many times you have opted to send a photograph in that text or email because it was a more accurate expression of the subject than a purely textual based communication. If these two points are taken together, it's clear that photography is not only a language but is also a form of writing.

It's important to note here that textually based expression relies on signs that are words and symbols to express content while photographic (written) expression relies on signs that are objects to express content.

The language of photography involves effectively aligning the signs (objects) within the defined frame so the photographer can effectively express (encode) the purpose of the photograph and enable the reader (viewer) to understand (decode) the photograph's meaning.

When we speak or write we use specific words to get our meaning across (semantics). And then there is a logical sequence to those words – one after another – to get our meaning across (syntax). And finally there is the understanding of those words based on the context in which they were spoken or written and in which they was heard or read (pragmatics).

In photography, the semantics and the pragmatics are essentially the same as in verbal and written expression – we include specific objects in the frame and the understanding of the photograph is based on the context of both the photographer and the reader (viewer).

The difference comes in the syntax. In verbal and textual communication words are presented as a sequence, one after another, while the information in the photograph is presented in its entirety. This difference demands the photographer construct the syntactical structure which defines the meaning of the photograph.

What this fluidity shows is that the photographer encodes the photograph with a particular meaning as it is being created and the reader decodes that meaning within his or her particular context.

In order to refine the meaning of the individual photograph further, the photographer may provide additional photographs, as a writer may provide additional paragraphs, which mutually refine each other and refine the overall encoded meaning. And this mutual refinement is a natural part of the language of photography.

So rather than the representation and interpretation of art, in photography we have the semantics, syntax and pragmatics of writing. These are essentially the declarative and specific aspects of the medium.

The concept of photography as art has been around in one form or another almost since the introduction of the medium and was heavily advanced after the introduction of the "hand camera" in the very late 1800s when professional photographers saw their incomes and standing threatened. One of the leaders of that movement, Alfred Stieglitz, used his magazine "Camera Notes" to proselytize the art position and help gain acceptance for photography.

But in 1923, Stieglitz wrote, "My photographs look like photographs and they therefore can't be considered art."He never tried to cover up or explain the change in his thinking but it was clear there was a significant rethinking of his earlier position.

Even a dramatic change of heart by one of photography's king-makers couldn't turn the momentum of the photography-as-art movement around and the impression has remained unchanged.

But…

With today's advances in photography we see more and more that the true essence of the medium is not in the art world but in the realm writing.

It's (Really) Not About Art… Reading Photographs

With photography akin to writing it seems we have to change the way we consume photographs. Bluntly, we need to read them and not simply view them.

With the development of the "photography-as-art" movement almost 130 years ago — or maybe even a bit before that — we began treating photographs the same way we treated paintings – after all both went in a frame or were pasted to a board, both hung on a wall, both were hawked in galleries or ritzy private salons. We were viewing photographs the same way we were viewing paintings (and we keep doing that for some reason!).

But photographs are not the same as paintings and the way we consume them has to be different. We need to stop viewing photographs and start reading them for the subject's story. Viewing is, by its nature, far more passive than reading. When we read we are actively engaged with the material at hand.

It doesn't make any difference if it's a text book for school, a newspaper reporting the events of the day or a novel we're reading for pleasure. It doesn't matter if it's text-based, image-based or a mix of both. When we read we are actively pursuing the information contained. And, when we start reading photographs, we stop being "viewers" and we become readers.

Because of the normalization of viewing photographs, we generally begin with an evaluation of the overall conventions… that is how does the image "look". Does it conform to current "sensibilities". Sometimes there's a cursory mention of "the scene" or the composition of the photograph but generally we are more concerned with the appearance of the work than the information contained.

And this leads to the non-specific comments of "nice capture", "very nice", "beautiful view", "great work" or similar broad, nonspecific affectations of approval. More often than not, the appreciation of the work stops there. Whether a simple or complex image, much of the time it boils down to summing up the photograph as a "pretty picture" and then moving on to the next.

Obviously, this is not where the understanding of the photograph should end or, realistically, even start.

It needs to be stated clearly that what follows is not a formal assessment of the photograph but rather a way to read the subject's story as it's being told by the photographer.

The place to start reading the photograph is in determining the subject. This is the "what-it's-about" determination, the "what's-the-substance" judgment. Once we have the subject we look for the supporting details that flesh out that subject.

Just as it is for the author of a text-based work, the photographer's responsibility is to give us, the readers, the syntactic structure necessary to understand the work. There was (and maybe there still is) a movement in photography to allow the reader to determine the meaning of the photograph. This wholly undermines the photographer's view of the subject and basically reduces the photograph to an empty vessel.

Sometimes the syntactic structure is completely contained in the photograph allowing the image to "stand alone". We get

this structure not only in the clear and unambiguous declaration of the subject but in the clarity and relevance of the supporting details and their relationship to the subject. These elements become clear as we read through the photograph. We get this level of structure sometimes.

But then sometimes the photograph doesn't supply the entire syntactic structure and needs a bit of help in the form of an explanatory title or a short caption. Again… sometimes.

Of course here we have the strongest possible expression of the subject's story. The photographs and the text work together, providing the reader with as complete a perspective as possible.

Unfortunately, more often than not, the structure is simply not addressed and we are left to guess at the purpose of the photograph. The ultimate conclusion of this guessing game is "okay, it's a pretty picture… moving on".

The next area of consideration for reading the photograph is it's context. This is sometimes included and is probably the most important bit of information outside the syntactic structure. But the photographer has to give this to us – we can't just divine it out of thin air. Sometimes the photographer will state the reason or reasons for making a particular photograph or a particular series of photographs. This is like having the introduction of a book opening things up for us.

Other times, unfortunately, a photographer will use the "context" to explain how hard it was the get the image, how far he or she had to walk, that they battled the elements or what they carried in their camera bag. Then there are times the photographer might simply indicate the photograph was taken to test some new technique, a new camera, a new lighting system or some accessory. None of these truly contextualize the photograph nor are they extremely helpful in reading the photograph.

Sometimes analysis of the composition is included as part of reading the photograph but, in reality, the composition is part of determining the relationship between the subject of the photograph and the supporting details.

Materials and processes used in making the photograph may be important for an archival study of a photograph but if you are trying to read an image on line it's usually next to impossible to determine either. The photographer may list the make and model of the camera used and even less often list the software used to process the image but that makes little difference to the content or context of the photograph.

It would seem the only time materials and process would impact the reading of currently produced work is if the

photographer is using one of the historical processes – carbon printing, platinum or palladium printing, gum bichromate printing, etc. And then both the process and why it was selected would rank with context.

Again, this is not a formal assessment of the photograph but rather a way to read the subject's story as it is being told by the photographer. Very simply, the more complete the information we have, the more complete the story is.

Appendix

Full mock-up of a book set in landscape orientation with production notes.

Book Title Block … Book Title Block

Author/Photographer Byline

The cover photograph is sized to 6” x 4.5” and centered both horizontally and vertically. The book title is set in 28pt Arial is centered on the page and is aligned with the top margin The byline is approximately centered between the bottom of the photograph and the bottom margin.

Sample Copyright/Permissions page.

Work Title Goes Here
Copyright Year here © author
Legal and techie stuff

This page includes the statement of copyright ownership and the permissions for use of the work by the end user. It also contains recommendations for printing and binding the high resolution version of the work.

The Essay

This is the Essay Cover Page - the words“The Essay” are in 24pt Arial. The text box is centered horizontally and vertically. The essay, which follows, covers the next four pages and was inserted using the software’s “Autofill” feature. The text was written in another program, saved as plain text, and entered here using copy and paste. The essay title is set in 24pt Arial and the byline is set in16pt Arial. The body of the essay is set in 12pt Arial.

Obviously this page is not necessary if your book design calls for a one page introduction rather than an essay.

The fill text used here are the opening paragraphs of “The War of the Worlds” by H.G.Wells.

Essay Title … Essay Title

Author/photographer Byline

No one would have believed in the last years of the nineteenth century that this world was being watched keenly and closely by intelligence greater than man's and yet as mortal as his own; that as men busied themselves about their various concerns they were scrutinized and studied, perhaps almost as narrowly as a man with a microscope might scrutinize the transient creatures that swarm and multiply in a drop of water.

This photograph and caption was designed to have text wrapped around it. After placement, a text box was drawn and this text inserted. Text wrap was set to 0.15 in. The caption is offset from the main text by italic.

With infinite complacency men went to and fro over this globe about their little affairs, serene in their assurance of their empire over matter. It is possible that the infusoria under the microscope do the same. No one gave a thought to the older worlds of space as sources of human danger, or thought of them only to dismiss the idea of life upon them as impossible or improbable. It is curious to recall some of the mental habits of those departed days. At most terrestrial men fancied there might be other men upon Mars, perhaps inferior to themselves and ready to welcome a missionary enterprise. Yet across the gulf of space, minds that are to our minds as ours are to those of the beasts that perish, intellects vast and cool and unsympathetic, regarded this earth with envious eyes, and slowly and surely drew their plans against us. And early in the twentieth century came the great disillusionment.

The planet Mars, I scarcely need remind the reader, revolves about the sun at a mean distance of 140,000,000 miles, and the light and heat it receives from the sun is barely half of that received by this world. It must be, if the nebular hypothesis has any truth, older than our world; and long before this earth ceased to be molten, life upon its surface must have begun its course. The fact that it is scarcely one seventh of the volume of the earth must have accelerated its cooling to the temperature at which life could begin. It has air and water and all that is necessary for the support of animated existence.

Yet so vain is man, and so blinded by his vanity, that no writer, up to the very end of the nineteenth century, expressed any idea that intelligent life might have developed there far, or indeed at all, beyond its earthly level. Nor was it generally understood that since Mars is older than our earth, with scarcely a quarter of the superficial area and remoter from

the sun, it necessarily follows that it is not only more distant from time's beginning but nearer its end.

The secular cooling that must someday overtake our planet has already gone far indeed with our neighbour. Its physical condition is still largely a mystery, but we know now that even in its equatorial region the midday temperature barely approaches that of our coldest winter. Its air is much more attenuated than ours, its oceans have shrunk until they cover but a third of its surface, and as its slow seasons change huge snowcaps gather and melt about either pole and periodically inundate its temperate zones. That last stage of exhaustion, which to us is still incredibly remote, has become a present-day problem for the inhabitants of Mars. The immediate pressure of necessity has brightened their intellects, enlarged their powers, and hardened their hearts. And looking across space with instruments, and intelligences such as we have scarcely dreamed of, they see, at its nearest distance only35,000,000 of miles sun ward of them, a morning star of hope, our own warmer planet, green with vegetation and grey with water, with a cloudy atmosphere eloquent of fertility, with glimpses through its drifting cloud wisps of broad stretches of populous country and narrow, navy-crowded seas.

And we men, the creatures who inhabit this earth, must be to them at least as alien and lowly as are the monkeys and lemurs to us. The intellectual side of man already admits that life is an incessant struggle for existence, and it would seem that this too is the belief of the minds upon Mars. Their world is far gone in its cooling and this world is still crowded with life, but crowded only with what they regard as inferior animals. To carry warfare sun ward is, indeed, their only escape from the destruction that, generation after generation, creeps upon them.

And before we judge of them too harshly we must remember what ruthless and utter destruction our own species has wrought, not only upon animals, such as the vanished bison and the dodo, but upon its inferior races. The Tasmanians, in spite of their human likeness, were entirely swept out of existence in a war of extermination waged by European immigrants, in the space of fifty years. Are we such apostles of mercy as to complain if the Martians warred in the same spirit?

The Martians seem to have calculated their descent with amazing ubtlety—their mathematical learning is evidently far in excess of ours—and to have carried out their preparations with a well-nigh perfect unanimity. Had our instruments permitted it, we might have seen the gathering trouble far back in the nineteenth century. Men like Schiaparelli watched the red planet—it is odd, by-the-bye, that for countless centuries Mars has been the star of war—but failed to interpret the fluctuating appearances of the markings they mapped so well. All that time the Martians must have been getting ready.

During the opposition of 1894 a great light was seen on the illuminated part of the disk, first at the Lick Observatory, then by Perrotin of Nice, and then by other observers. English readers heard of it first in he issue of _Nature_ dated August 2. I am inclined to think that this blaze may have been the casting of the

huge gun, in the vast pit sunk into their planet, from which their shots were fired at us. Peculiar markings, as yet unexplained, were seen near the site of that outbreak during the next two oppositions.

The storm burst upon us six years ago now. As Mars approached opposition, Lavelle of Java set the wires of the astronomical exchange palpitating with the amazing intelligence of a huge outbreak of incandescent gas upon the planet. It had occurred towards midnight of the twelfth; and the spectroscope, to which he had at once resorted, indicated a mass of flaming gas, chiefly hydrogen, moving with an enormous velocity towards this earth. This jet of fire had become invisible about a quarter past twelve. He compared it to a colossa puff of flame suddenly and violently squirted out of the planet, “as flaming gases rushed out of a gun.”

A singularly appropriate phrase it proved. Yet the next day there was nothing of this in the papers except a little note in the _Daily Telegraph_, and the world went in ignorance of one of the gravest dangers that ever threatened the human race. I might not have heard of the eruption at all had I not met Ogilvy, the well-known astronomer, at Ottershaw. He was immensely excited at the news, and in the excess of his feelings invited me up to take a turn with him that night in a scrutiny of the red planet.

In spite of all that has happened since, I still remember that vigil very distinctly: the black and silent observatory, the shadowed lantern throwing a feeble glow upon the floor in the corner, the steady ticking of the clockwork of the telescope, the little slit in the roof—an oblong profundity with the stardust streaked across it. Ogilvy moved about, invisible but audible. Looking through the telescope, one saw a circle of deep blue and the little round planet swimming in the field. It seemed such a little thing, so bright and small and still, faintly marked with transverse stripes, and slightly flattened from the perfect round. But so little it was, so silvery warm—a pin’s head of light! It was as if it quivered, but really this was the telescope vibrating with the activity of the clockwork that kept the planet in view.

As I watched, the planet seemed to grow larger and smaller and to advance and recede, but that was simply that my eye was tired. Forty millions of miles it was from us—more than forty millions of miles of void. Few people realise the immensity of vacancy in which the dust of the material universe swims.

Near it in the field, I remember, were three faint points of light, three telescopic stars infinitely remote, and all around it was the unfathomable darkness of empty space. You know how that blackness looks on a frosty starlight night. In a telescope it seems far profounder. And invisible to me because it was so remote and small, flying swiftly and steadily towards me across that incredible distance, drawing nearer every minute by so many thousands of miles, came the Thing they were sending us, the Thing that was to bring so much struggle and calamity and death to the earth. I never dreamed of it then as I watched; no one on earth dreamed of that unerring missile.

That night, too, there was another jetting out of gas from the distant planet. I saw it. A reddish flash at the

edge, the slightest projection of the outline just as the chronometer struck midnight; and at that I told Ogilvy and he took my place. The night was warm and I was thirsty, and I went stretching my legs clumsily and feeling my way in the darkness, to the little table where the siphon stood, while Ogilvy exclaimed at the streamer of gas that came out towards us.

That night another invisible missile started on its way to the earth from Mars, just a second or so under twenty-four hours after the first one. I remember how I sat on the table there in the blackness, with patches of green and crimson swimming before my eyes. I wished I had a light to smoke by, little suspecting the meaning of the minute gleam I had seen and all that it would presently bring me. Ogilvy watched till one, and then gave it up; and we lit the lantern and walked over to his house. Down below in the darkness were Ottershaw and Chertsey and all their hundreds of people, sleeping in peace.

He was full of speculation that night about the condition of Mars, and scoffed at the vulgar idea of its having inhabitants who were signalling us. His idea was that meteorites might be falling in a heavy shower upon the planet, or that a huge volcanic explosion was in progress. He pointed out to me how unlikely it was that organic evolution had taken the same direction in the two adjacent planets.

The Photographs

This is the Photographs Cover Page - the words “The Photographs” are in 24pt Arial and the text box is centered horizontally and vertically. The captions for the photographs, which are up to two lines and approximately 35 - 40 words are set in 12pt Arial.

\While many programs have crop tools, it is always the best idea to resize each image to the final use size in whatever processing software you use. That way it will be shown at 100% of the intended size.

The text box for the caption is drawn from the bottom of the image to the bottom margin. This two line caption comfortably allows approximately 36 to 40 words when set in12pt Arial typeface.

Alignment of the caption is critical so centering the caption in the text box using the vertical alignment control keeps the caption from running into the bottom of the photograph as either a one line or a two line caption .

Centering a single line caption allows a bit more “air” between the image and the text but isn’t objectionable.

If your design calls for hairlining your photographs - adding a 1pt border around the image defining its size and separating it from the page - it should be added during your processing before placing it on the page.

In reality all photos should be hairlined with a 1pt black border before doing the final sizing in your processing software as it will increase the size of the image slightly which can throw off a precision design.