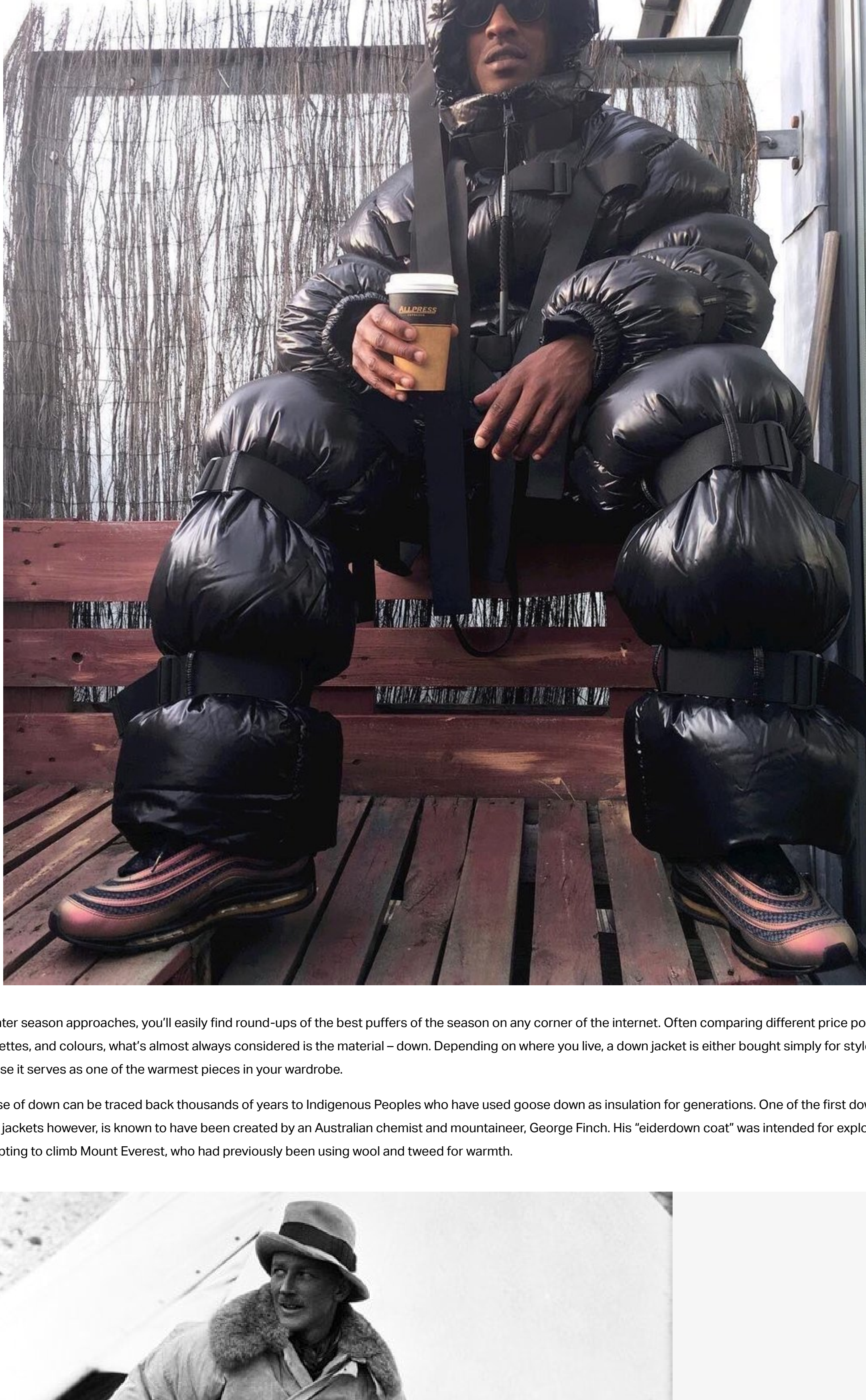


shift materials - Everything you need to know about down

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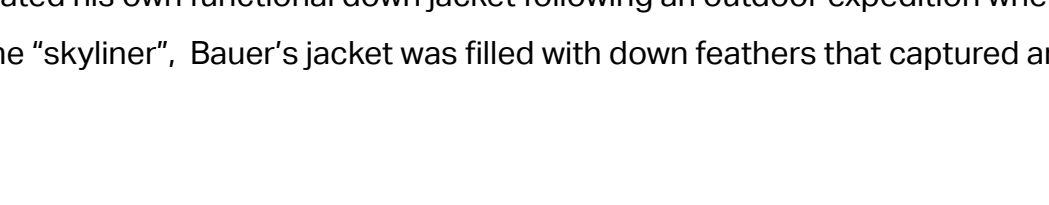


As winter season approaches, you'll easily find round-ups of the best puffers of the season on any corner of the internet. Often comparing different price points, silhouettes, and colours, what's almost always considered is the material – down. Depending on where you live, a down jacket is either bought simply for style or because it serves as one of the warmest pieces in your wardrobe.

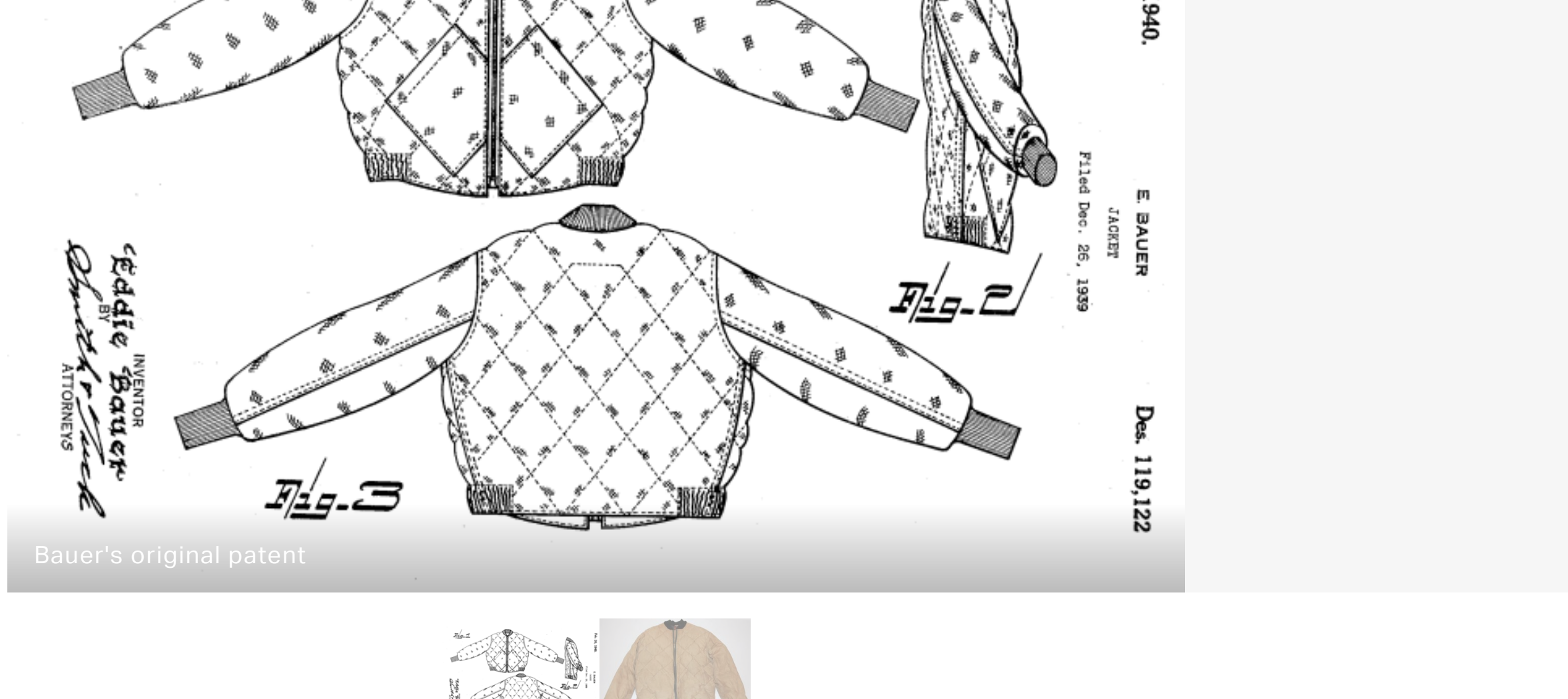
The use of down can be traced back thousands of years to Indigenous Peoples who have used goose down as insulation for generations. One of the first down puffer jackets however, is known to have been created by an Australian chemist and mountaineer, George Finch. His "eiderdown coat" was intended for explorers attempting to climb Mount Everest, who had previously been using wool and tweed for warmth.



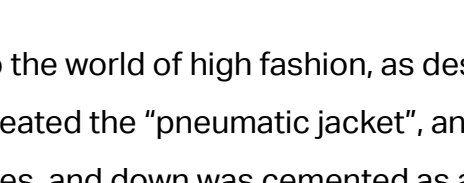
George Finch in the original Eiderdown coat



In 1936, Eddie Bauer created his own functional down jacket following an outdoor expedition where he almost caught hypothermia while using traditional heavy wool garments. Called the "skyliner", Bauer's jacket was filled with down feathers that captured and retained warm air, quilted to offset the bulk.



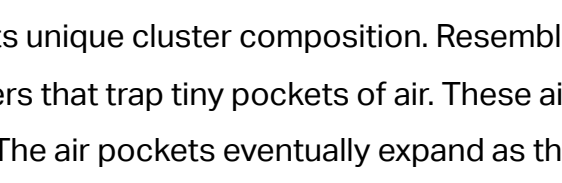
Bauer's original patent



The puffer jacket would soon find its way into the world of high fashion, as designers reinterpreted the performance tool as a fashion statement. Only a year after Bauer's invention designer Charles James created the "pneumatic jacket", and in 1973 Norma Kamali created the "sleeping bag coat". By the 1990s, Princess Diana had worn a down jacket on the ski slopes, and down was cemented as a status symbol for the affluent, carried forward by Hip-Hop that decade.



Charles James' pneumatic jacket



While many brands have elevated the down puffer over the years, there is more to consider than just design and warmth when it comes to the highly insulating material. We've created a comprehensive profile on everything you need to know about down – give it a read before considering whether a brand-new puffer is the right choice for you this winter, whether you're designing or buying.

The Material

Down is a tight insulating layer of feathers trapped underneath the exterior feathers of a bird. Known as nature's insulator, it's one of the most effective ways of keeping warm. While down and feathers are found in the same animals, typically a goose or a duck, down is not to be confused with normal feathers. Feathers serve as the outer layer of many waterfowl while down fibers are layered beneath.

What makes down a superior material is its unique cluster composition. Resembling a white dandelion, down clusters are roughly the size of a small coin and are made up of thousands of overlapping fibers that trap tiny pockets of air. These air pockets, known as 'plumules' give the down the resiliency to compress into a small shape and fluff back up soon after. The air pockets eventually expand as they warm up by absorbing body heat, yet still maintain the necessary airflow to prevent overheating. If down happens to get wet however, its ability to insulate drastically decreases. While there are varying aspects of down jackets, key indicators of a jacket's warmth include its fill power, fill weight, and technical construction.



Feather

Down Cluster

Fill Power

Fill power, in other words a jacket's fluffiness, determines the quality of the down in a jacket. Measured by the ratio between the number of cubic inches that one ounce of down will fill, fill power essentially indicates the size of the down clusters. Therefore, a larger bird will have large down clusters that take up more space – or have a better loft – and yield a high fill power. For instance, a fill power of 700 means one ounce of 700 fill power takes up 700 cubic inches. A higher fill power can make a down jacket more desirable as it results in a much lighter, compressible jacket as less down is required to efficiently trap and retain warmth.



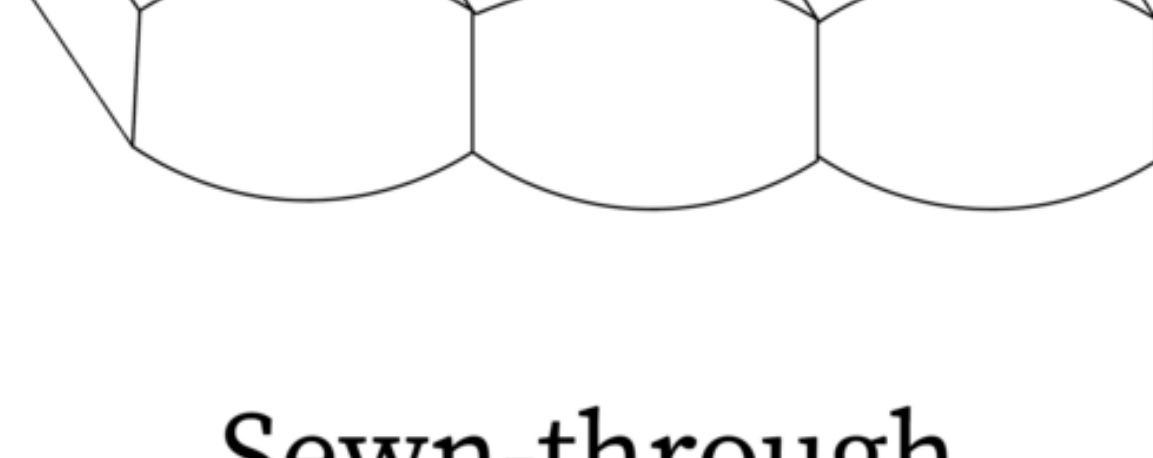
Fill Weight

Fill weight is a measure that indicates the quantity of down filled inside a jacket in grams. While fill power can indicate the quality of the down, it is important to be wary of the fill weight as both calculations can result in a very different jacket. A jacket with a 700 fill power and 100 grams of down will be more light-weight and warmer than a jacket with 400 fill power and 100 grams of down. Although many down jackets will not share the fill weight, it essentially means that more grams of down will result in a warmer jacket.

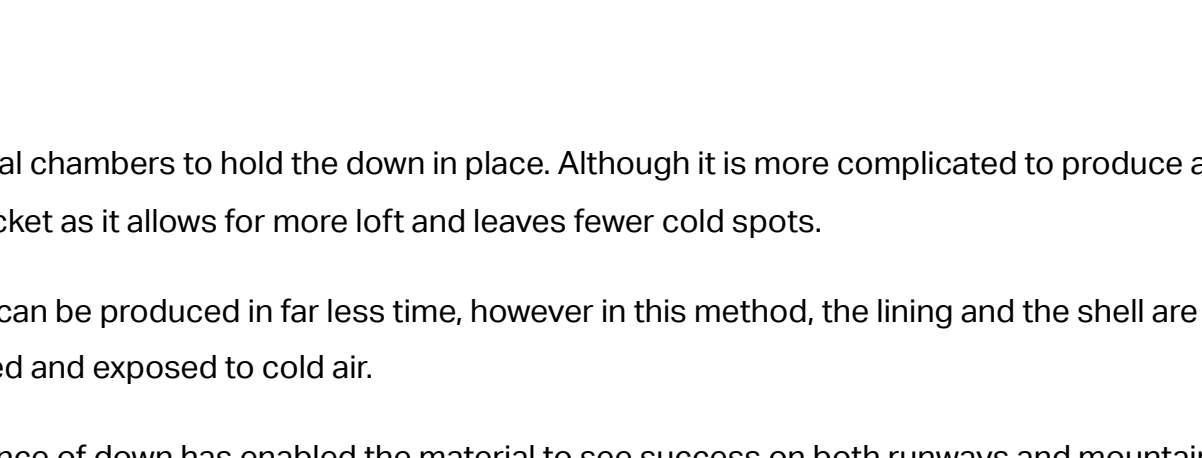
Technical Construction

The technical construction is another element that affects the effectiveness of the down in a particular jacket. A down jacket is typically composed of chambers which hold the down in place and prevent it from slipping through the inner and outer layers. The chambers are either created through a "box-baffle" construction or "stitch-through" construction method.

Box baffle



Sewn-through



Box-baffle construction builds in horizontal chambers to hold the down in place. Although it is more complicated to produce and has a higher price-point, box-baffle construction results in a warmer jacket as it allows for more loft and leaves fewer cold spots.

The stitch-through construction method can be produced in far less time, however in this method, the lining and the shell are sewn together to create separate baffles, which leaves certain areas pinched and exposed to cold air.

The versatility and unparalleled performance of down has allowed the material to see success on both runways and mountaintops. Warmth, weight, and comfort are just a few of the reasons consumers are quick to neglect the high price point and opt for a down-filled coat.

Downsides of Down

While understanding the physical make-up of a down jacket is important, another layer to think about is the source of the down itself. Regions with a significantly cold climate, including Poland, Siberia, and Canada allow for a better goose farming environment as the geese have well-developed down. However, while purchasing down from these regions might guarantee you a warm product, there is no guarantee that the down-removal process is an ethical one.

Much of the controversy around down fill comes from animal cruelty groups like PETA. Due to the increasing demand for low-cost down jackets, the supply chain has become convoluted to the point where much of the down in the industry is reportedly sourced from live plucking, a process done without anesthetic. In most cases, whether a bird is slaughtered before, during the process or as a result of it, down is a product of cruelty. A process similar to the mining of 'blood' diamonds, despite guarantees and organizations built for purpose, most 'ethical' down is still sourced using the methods as contractors sub-contract to cheaper producers.

When made responsibly and worn for its intended purpose, we love a down jacket at whether. But we also urge consumers to take more responsibility over purchasing choices and look into getting the right jacket for your needs- It's worth considering against what you really need a down ski jacket for the 3 minutes outside your car.

Below, we've outlined a few brands that offer vegan or synthetic materials in their winter coats that emulate down:

Find a list of brands below that offer vegan or synthetic materials that emulate down:

- Matt & Nat: Vegan brand
- The North Face: Uses thermoBall insulated jackets made of synthetic balls
- Columbia: Uses proprietary synthetic down
- UNIQLO: Will collect used Ultra Light Down items from customers to be re-used
- ReDown: Recycles used down and feathers
- Alternative insulating technologies: Primaloft (Patagonia), Thinsulate (Carhartt), Polartec (The North Face), Climashield (Arc'teryx)

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