"So THAT'S why it's called The Old Iron Inn!"

A brief primer on the history and variety of old irons

We have had people stay with us for several days who suddenly smack their foreheads and exclaim, "So THAT'S why it's called the Old Iron Inn!" We thought it was obvious: the house is full of OLD IRONS; you know, those little heavy metal things your grandmother used to take folds and creases out of clothes.

Interestingly, most clothing or pressing iron collectors - at least in our experience - are men, who are apparently attracted by the considerable variety in style and technology. A household of a century or more ago would have had a number of different irons for various types of clothing. In any given period, the irons a household would have had varied considerably with the household's resources and region. These factors, along with the steady introduction of new technologies and marketing, have produced literally tens of thousands of distinctly different irons just in American use, and many times that when the irons of other nations are included.

Beyond the incredible variety, there is a surprising beauty about old irons. These were utilitarian household items, and yet throughout history the iron builders and manufacturers have lavished attention to form as well as function. Irons very commonly have smooth and attractive lines and often sport special details and embellishments. The human urge to build and market "a better mousetrap" has resulted in a seemingly infinite number of clever gadgets to make the iron useful for a wider range of clothing or keep the iron hot without burning the hand.

The Flat Iron

Early flat irons were made by individual blacksmiths and each is unique unto itself. A trained eye can see the human labor that went into this artifact, as the iron in some respect reflected the soul of its maker. The body might show the layers where cooler portions of the raw ore were folded and mixed. The handle is simply a bar of iron, but twisted to provide an ornamentation as well as practical gripping surface. These primitive irons do not have the high values of primitive pine furniture, but there still is a sense of being close to the maker; the artifact serves as a wormhole across time.

With the coming to America of foundries and mass production in the early 1800s, molten iron was simply poured into molds and a handle attached. We lose touch with the individuality of the worker who made the iron, but we can see the mental calculations of the designer or inventor. How can this mundane item produced by the thousands be made more desirable, at less expense?A cross-hatched design might be put on the handle. The bottom has a polish or the top beautifully encased in chrome. A great idea that was patented advertised the iron's design as keeping the handle cool even while the base is hot.

The term "flat iron" usually refers to a single-piece iron intended for general use on clothing. These were heated on the stove or near a fireplace, as they do not have an internal source of heat. Typically, flat irons have a sole of roughly triangular shape, flat at the back, with the other two sides slightly rounded. Other shapes also occur, such as a rounded back or forming a point on both ends. By and large, flat irons rarely have values that exceed $50, and typical irons in good condition sell from $10 to $20.

The flat iron could be an international symbol for drudgery. The iron was heated until very hot, in a workplace that could not have been comfortable. For the most part, the irons were a single piece of metal, with the handle just as hot as the base. The iron was gripped with rags or gloves to keep from burning the hands, but they were never easy to use. Keep in mind that these were used in a time of heavy clothing, without fans or air conditioners, or bug spray, or any artificial light. It must have been hell, by the standards of our day.

Various innovations were tried through the 1800s to create a cooler handle. Some handles included holes or slots to better dissipate the heat. Rare examples in the United States had wood handles and, since the user might not be using the usual gloves, a shield to keep the hand from touching the hot iron. A variety of insulating materials was tried between the base and handle. An example is the Hood soapstone irons, patented in 1867, that have a slab of soapstone between the metal sole and handle. The sole plate on these irons is fairly thin, and we guess that these irons did not hold the heat as well as its all-iron competitors, so the cooler handle came at a cost in efficiency.

The Slug Iron

What are here called slug irons are more typically referred to as "box" irons. We do not believe that the "box" term adequately describes these irons, which are heated by the insertion of a heated metal slug into the body of the iron. Each iron had multiple

slugs, which could be rotated from the source of heat a stove or fireplace - to the iron. The heated slug kept the source of heat close to the sole of the iron and away from the handle, which thus was cooler. The iron commonly had a wood handle, which was also easier on the hands. Slug irons represent the first step in iron evolution above the classic single-piece flatiron.

Most slug irons have a door in the back that can be opened to retrieve the old slug and insert a new, hotter one. The exact nature of the door and opening mechanism varies considerably. Slug irons have a long European history and were used in America in colonial times, but generally saw uncommon use in the United States. There are a very great many kinds of European slug irons, some of them being very fancy and frequently made of brass.

Many slug irons predate the invention of standardized mass production, so each iron has a certain uniqueness. The brass irons in particular often have a folk art design carved into the body of the iron, and the handles may have interesting shapes or florishes. The body of the iron or the door sometimes includes a date or some personalization, such as the initials of the maker or owner.

Irons with detachable handles

In the middle and late 19th century there arose a wide variety of patents, especially in the Land of Yankee Ingenuity, that would remove the handle from the iron while it was being heated. Early examples consisted of a flat iron with a handle that could be screwed or wedged to the base, though doing this without burning oneself must surely have been a challenge. There were also various means of reducing the handle's connection to the body, while not removing it altogether. None of these devices appear to have worked very well.

In 1870 and 1871 Mrs. Mary Florence Potts patented the elements of her famous "Mrs. Potts' Patent Cold-Handle Sad Iron," with the half-circle wood handle that so many of our guests recall their grandmother as having. This handle was easily attached and unattached, and securely held the iron. It was also brilliantly marketed. Millions were sold, and it may well have been the most recognizable mechanical device of its time. Various manufacturers built these irons under license and after the patent expired they were manufactured everywhere. The last American manufacturer of irons of this design, the Colebrookdale Iron Foundry of Pennsylvania, made these until 1953.

Typically, three bases (sometimes called "shoes") were purchased with one handle. The bases usually were identical, but they might have varied in weight, shape and function. The user would use one of these bases while the other two were heating on the stove. As the one shoe cooled, it could be easily exchanged for a hot one. The set often came with a trivet, which was typically of a flat iron shape and size (the Old Iron Inn has about a hundred trivets of this one shape and size on display). These sets became readily available to anyone in the United States through mail catalogs such as Sears and Roebuck.

The Mrs. Potts type iron with the semicircular handle was readily copied by many manufacturers. Some of these, to avoid patent disputes, made irons of essentially the Mrs. Potts configuration but with different latch mechanisms. While there are many unusual and rare iron designs with detachable handles for the collector to look for, there were three other designs that became major competitors of the Mrs. Potts type: the Sensible, Ober and Asbestos/Dover families.

Sleeve Irons

Sleeve or "flounce" irons were elongated to get into narrow areas, such as pants legs or the spaces between buttons. They are quite common, as every housewife who had several sad irons probably had a sleeve iron among them. This is especially true in the late 1800s, when irons became inexpensive enough that a household could afford such a variety. The sleeve iron was a minor luxury for the woman who likely had few luxuries of any kind. For example, some sleeve irons were given away as business promotions, when the giveaway of a more typical iron would not have had the same effect.

The heyday of the sleeve, however, was fairly short. By and large, all sleeve irons to be found by the collector are either adapted flatirons or have detachable handles. The technologies that replaced these, namely liquid or gas fuel and electricity, did not make sleeve irons. This may have been because the newer technologies were expensive enough to not warrant the expense of additional iron, or it could have been a change in style or expectation that is now lost to us.

Polishing Irons

The style in the mid 1800s required highly starched and stiff shirts, collars and cuffs, especially for men. These would be ironed to a high "polished" or bunished sheen by concentrating a great deal of weight onto the space being ironed. This was more easily done by tailors, with their very heavy irons and the muscles to match, but more

difficult for the housewife who wished to produce that effect. The alternative to the large and heavy irons was smaller irons that had rounded bottoms to concentrate the weight of the iron and ironer.

Specialized polishers had a rounded bottom with a continuous curve, and these were popular in England. Americans typically sought a practical device that could iron and polish as needed. These irons had a flattened bottom but rounded sides or back. Often the polishing portion of the iron was thickened to apply more weight. Mary Ann B. (M.A.B.) Cook of Boston, Massachusetts, patented a shoe-shaped iron in 1844 that was thickest at the front rounded "toe" of the iron. This could be used as a flatiron for general ironing, but polishing could be done by leaning the iron forward to concentrate the whole weight of the iron over a small area. The M.A.B. Cook polisher was sold for several decades.

While the rounded bottom is most characteristic of the general type, some irons had a cross-hatched or textured bottom that would again concentrate the total weight of the iron. By far the most popular of these was patented by Michael Mahony, who owned an architectural works company in Troy, New York. Mahony borrowed on the shape of milliners' shell irons of the day, which had steep sides, a square back and a rounded front. These irons were very popular, and the style was exported to Europe.

Some more typical flat irons or irons with detachable handles included a rounded back for polishing any rough spots. These rounded portions are commonly found on Mrs. Potts irons, and indeed in a set of three often one iron has a rounded point while the other irons are flat across the entire extent of the bottom. Enterprise Mfg. Co., which marketed the Mrs. Potts cold handle, also sold the one-piece "Star" iron with a similar shaped semicircular handle made of iron and perforated by holes. Within the iron was some insulating material patented by Arthur Y. Hubbell in 1867 that was advertised as able to reduce the flow of heat to the handle; the holes in the handle were also supposed to help dissipate the heat. This iron is also commonly found in antique shops, and, like the Mahonys, typically sells for about $20.

Hat Irons

In the past 200 years our society has fallen into and out of love with fancy hats. Until the early 1800s hats in America were unusual, and most fancy hats were imported and expensive. American manufacture of silk and soft felt hats began in the 1830s and 40s. In the Victorian era and until the middle of the 20th century, hats were one of many articles of clothing that immediately indicated its wearer's societal status.

The fancier hats were expensive, not only to buy but also to maintain. A gust of wind or a bit of rain were all it took to send the hat back to the hatter to be, well, ironed. What we call hat irons were used both for the making and the remaking of hats. A hat was not something that was simply purchased and then worn until it was thrown away. It would be maintained and reconditioned by a hatter much as the shoes of the time were repaired by the cobbler. Indeed, there was quite an industry in those days of reconditioning old hats for resale.

A hat is distinguished from a cap or bonnet by having a continuous brim around the crown. It can have many different curves and parts, each of which requires its own smoothing device. The beaver and felt hats of the early and middle 19th century had an essentially flat brim. Later in that century, the brim became more curved and styles such as the derby developed that had a complex curled edge, which required specialized irons. The round sides and crest of the crown required additional irons. The result is an enormous variety of hatters irons, a group worthy of collecting in their own right.

Goffering Irons

Goffering irons are one of the oldest iron groups, going back to before the Elizabethan Era in England. They consist of a heated metal "lug" at the end of a rod. As understood by collectors, the words "goffering iron" typically refers to a two part device, with the lug inserted into a tube, known as a "barrel." However, the lug, or "poking stick" preceded the barrel by perhaps a couple of centuries.

Goffers are part of a broad family of irons used for very fancy collars, bonnets and lacework trims of many kinds from about the year 1500 to 1900. A modern example is the ruffled cloth still seen in the front of tuxedo shirts, although that frill is sewn onto the shirt rather than ironed. In the time of Elizabethan England, high fashion meant ruffed collars worn by both sexes. Think of Sir Walter Raleigh. These were very expensive in their day and were assembled using wood elements to form the loops of the fabric. The cloth itself was highly starched to hold the shape. After being worn, the heated metal poking sticks were inserted into the folds to remove wrinkles.

The high ruffs went in and out of style over the years, but there was always a need for fancy ruffles in the costumes of very high society, and irons that could produce that effect persisted in one form or another. The lug and barrel combination was well established by the late 1700s and from this time through the Victorian era there were

some very fancy goffering irons produced that are true works of art. Less expensive goffers were made in the foundries of England and can be seen in catalogs into the very early 20th century. Some of the fancy goffering irons had multiple barrels, although these are also faked for the unwary collector. Other devices that took the appearance of tongs or swissors were made. These various implements ultimately led to the quintessential American fluting iron.

Fluting Irons

This is the favorite group of many iron collectors. Fluting irons are unusual, diverse, and generally uncommon enough to keep the collector always on the search. While the antecedents of the fluting irons developed in Europe, it was in America that this group came into full, though brief, flower. Many American inventors and manufacturers produced a bewildering assortment of odd and clever designs. The fluters are perhaps the only major American group that is intensely sought after by European collectors.

The fluting irons were in their own time often referred to as "crimping" and "pleating," irons and it is useful to include these terms when doing internet searches for fluters. While all these terms refer to a corrugated or ruffled design that would be pressed into the cloth, the words have now come to be used differently. Crimper devices were also used for making fancy patterns on pies and closing the ends of shotgun shells, and it is convenient to not have that term also applied to fluting irons. Pleater is a term that is now generally restricted to a device that allows folds to be sewn into garments. The term fluting or fluter is now generally restricted to those lacework of the sleeves and collars of Victorian dress.

The fluting iron had a long genesis in Europe, but the classic fluting designs began in England in the mid-1800s. Two fairly large gears made of iron or more likely, brass were stacked and supported by a metal frame that included springs or other devices to control the pressure and spacing between the rollers. The British fluting machines were fairly large, usually over a foot tall, and had rollers that extended to one side beyond the frame. These became popular as the Victorian propensity for ever more fanciness developed in about the 1850s.

With the end of the American Civil War in 1865, metal manufacturers were searching for new and more peaceful products. A surge of patent applications for improvements on the English fluting irons resulted in the first American fluting irons in about 1866. At least 135 fluting iron patents were granted in the 15 years from 1866 to 1880.

During this interval, a wide variety of designs were marketed. The "golden age of fluting irons" appears to have ended abruptly after 1880, although they were still marketed into the early 20th century.

The fluting irons can be divided into two basic groups: hand and machine fluters.

The hand fluters were simple devices that consisted of a usually flat corrugated plate that used either a stove or an enclosed slug for heat. Above the base fluter plate was a curved plate or cylinder that would be rocked or moved across the base. By far the most common of the hand fluters was the Geneva, patented in 1866, manufactured by the William H. Howell Co., of Geneva, Illinois. The bottom of the base shows the patent date and the instructions HEAT THIS. The fluter plate and roller were made of white zinc alloy to reduce corrosion. This fluting iron was sold in considerable numbers over the next several decades and good specimens are now worth about $35.

During the heyday of hand fluters, many companies were designing and manufacturing "machine" fluters. These are reminiscent of the old washing machines that incorporated rollers for wringing out the water. The machine fluter designs consisted of two hollow brass rollers that were heated by the insertion of elongate slugs. One of the rollers could be turned by a crank. These fluters were generally mounted on a base that could be clamped to a table. They were usually decorated with painted bright stripes, stencil designs and decals.

Foremost among the machine fluter manufacturers was the American Machine Company, of Philadelphia, which was one of the co-owners of the Mrs. Potts cold handled patent. These carried names such as "American," "Crown," "Eagle," "Penn," "Star" and "Susan B. Knox." In general, they are similar in construction, with large bases and, except for the Eagle, a C-shaped clamp to keep the fluter from sliding on the table. These irons typically now sell for $100 - $200 if there is good stenciling and original paint.

Coal Irons

The flat and slug irons used an external stove or fireplace for heat. The next evolutionary step in making the iron more convenient was to put the fireplace into the iron. These are commonly referred to a coal (or charcoal) irons, but irons of this general group used a wide range of burnables, including coal, wood, embers, charcoal and solid pellets of various compositions. Whatever the source of heat, the morphology of the iron was essentially the same: a large size with a body made of thin

metal and vents to allow for the passage of air. These were commonly constructed of many pieces by craftsmen and invariably included wood handles.

These irons have a surprisingly long history. We are uncertain when the first coal irons were made, but they were fairly common in Europe by the late 1700s. Their use in Europe and the United States continued well into the 20th century, and they are still used in South America and Africa. (A word to the wise: many of the more simple coal iron designs to be found in antique shops today are imported from South America. We have found these on a few occasions where the shop owner swore that they were "just found in an old barn nearby. "Ahem.)

The early coal irons were made from thin sheets of iron (or some iron alloy) or brass that were riveted together. These irons are handmade, and commonly include cutout ornamentations along the sides of the body. Starting in the mid-1800s, foundries made coal irons that consisted of a cast base and top. These two pieces are connected by a hinge, usually at the back of the iron, and a latch at the front.

In 1852, Nicholas Taliaferro and William D. Cummings, both of Kentucky, patented a design that had a chimney at the front and the lid held in place by a pin which, when removed, allowed the top to be completely removed from the bottom. These were manufactured in large number by Bless and Drake Company, of Newark, NJ. Later Bless and Drake irons included a steel shield that protected the hand from being burned by the hot lid. Once the patent expired [in ?], this style was produced by many manufacturers into the early 1900s.

Fuel Irons

There has been an enormous variety of irons designed to burn liquid or natural gas in all of its various chemistries, including alcohol, kerosene, gasoline, acetylene, naphtha, propane or other combustibles. Some early fuel irons may have burned whale oil. The earliest patents for fuel irons date to the 1850s but they do not come into fairly common use until the 1870s and 80s. These early irons were difficult to use, but so were their flat iron and coal iron competition. New burner technologies and better fuels created a considerable one is careful not to use the word "explosive" expansion of the use of these irons, and the number of manufacturers that built them.

The development of the fuel iron in the early 19th century basically parallels that of the electric irons. The later examples were made of similar materials with extensive use of chrome and they soon took on streamlined and modernistic shapes. Each often

advertised itself as safer than the other. That fuel irons were hazardous is evident in the specimens with burned and melted handles that are frequently seen in antique shops, but let us not forget that worn and frayed electrical wires were responsible for many house fires and some housewife electrocutions. Fuel irons may well have been the safer option, for at least a while. By the 1940s, with the electrical grid extending further into the rural areas, the fuel irons began to loose ground to their competition, and many of the major fuel-iron manufacturers were closing their doors by about 1950.

The wide diversity among the fuel irons make it difficult to provide an adequate summary. Here, we will mention three basic groups: 1) irons that burn a liquid combustible and have a fuel tank; 2) irons that burn natural gas and have an internal burner; and 3) irons that burn natural gas but have an external burner that serves as a stand.

Interest in the fuel irons has increased considerably in recent years, and the value of a less common iron in excellent condition can be well over a hundred dollars. Fuel irons in their original boxes, often including pump, funnel, wrench, lighter, instructions and parts list are not uncommon. The liquid fuel irons also commonly included a light weight pressed steel trivet. These irons did not often have the heavier cast iron trivet that was commonly included with the natural gas irons.

The most common gasoline irons with tanks were made by the Coleman Company, best known today as the manufacturer of lanterns and camping equipment. Altogether, the company probably sold more than a million gasoline irons, of about thirty basic models. Coleman irons continued to be manufactured in the United until the early 1960s and in Canada until about 1985.

A mistake that is often made by the novice is to buy a fuel iron that is lacking the internal heater and tank. These were designed to be easily separated from the rest of the iron for preheating or maintenance. Our first iron, by the way, was a liquid gasoline iron missing its tank, purchased by Kevin in an antique shop in Missouri during a family vacation in about 1967. Its scorched wooden handle is a startling reminder of the danger women of previous eras regularly faced doing household chores.

Electric Irons

To put electric irons in an historical context, Thomas Edison's first successful test of

an incandescent light bulb was on October 22, 1879. Before the end of that year, Edison made a public demonstration of the new technology in his laboratory in Menlo Park, New Jersey. Edison then worked to develop a practical electricity distribution system, which he demonstrated in September, 1882, with an electricity generating station that supplied power to several city blocks around the Pearl Street Station in lower Manhattan. After the light bulb, the second patented device to be powered by electricity was a pressing iron. This patent was applied for by Henry W. Seeley in December, 1881, and awarded six months later.

Early electric pressing irons were far from practical devices that could be sold commercially. A resistant wire within the iron would heat metal elements, but this heat was typically not evenly spread across the sole. There was no method of adjusting the heat. The user would plug in the iron until it was hot enough, then unplug it for use. Since utility outlets were usually unavailable, the electric cord would often end in a ceramic plug that could be screwed into a light socket. The cords frayed with use and people were electrocuted by their friendly electric flat iron. These irons could also cause house fires.

During the 1920s and 30s, irons developed a streamlined styling, with a teardrop-shaped body that extended beyond the back of the soleplate. The use of Bakelite resulted in single-piece handles shaped to the contours of the hand, and added to the curved design of the iron. The Bakelite handles include red, orange or amber colors. Some of the irons of this period show the influence of contemporary Art Deco, with parallel lines and overstated geometric ornamentation. By the 1930s, the irons look far more like the fastest aluminum airplanes and race cars of that time than the irons of earlier days. These irons are highly collectible, both as irons and examples of cutting-edge industrial design.

Two new innovations the thermostat and steam were incorporated into irons in the years before World War II. The thermostat finally allowed the user to adjust the temperature of the iron. The manufacturers, such as American Beauty, Hotpoint, Sunbeam or General Electric added an adjustment knob beneath the handle without otherwise changing their well established designs. While steam was introduced at about the same time as the thermostat, it would not be until the post-war era that steam irons became common. The early steam irons were basically enclosed kettles of boiling water. The vapor softens the cloth fibers and aids in smoothing out the wrinkles. Steam irons are easily recognized by having higher sides with consequently less streamlined shapes and the holes in the soleplate by which the vapor left the iron.

Tailor Irons

Tailor irons (also known as laundry irons) have an especially long and colorful history. These irons originally were long and narrow to be used by tailors for pressing the seams together during the making of clothes. These were often called "goose" irons in the old days because of the goose-neck shape of the handles made by the blacksmith. By the way, the plural for goose here is "gooses," not "geese" look it up sometime in a good dictionary.

In England in the 1500s, a slang word for a tailor iron was "weasel." In those days, the tailors were frequently itinerant, going door to door to do the ironing for a middle-class family, to save the hauling of laundry about town. As a convenience for the tailor, a household would usually have a goose iron near the fireplace so the tailor would not have to carry one of these large irons very often 20 pounds of more from house to house. This helps explain why these irons are rather common.

If the household was facing a bad time financially, and something had to be pawned ("popped" in the Cockney slang of the day) to raise a little money, the iron kept for the convenience of the tailor might well be the first thing to go, which sheds a new light on the words in this very old children's song:

> Penny for a spool of thread
> Penny for a needle
> That's where the money goes
> POP goes the WEASEL!

Because the tailor irons have an ancient history, it is not unusual to find primitive irons that show the blacksmith's craft. These irons typically were long and narrow. They were large and interesting enough to be retained as weights, doorstops or curiosities long after their use as irons was over. Smaller primitive irons have not survived as readily many were likely used a playthings by children and lost in the woods and so the blacksmith geese are practically the only ancient irons remaining of America's early history.

As the popularity of ironed clothing developed in the 1700s and 1800s the tailor irons grew larger and wider, but still retained the blocky shape of their antecedents. The tailors were quick to take advantage of new technologies, particularly for the irons they used in their shop/laundry. Often, the new ideas embraced by the tailors were

further developed in the laundries and later adapted for household use. Consequently, there are quite a variety of coal, slug, gasoline, natural gas and electric tailor irons, and some of the earliest irons in each of the categories are tailors.

By the way, our 17th American president was a tailor, and a couple of the irons that Andrew Johnson used professionally can be viewed at his house in Greenville, Tennessee.

Travel Irons

The travel irons are of the opposite end of the spectrum from the tailor irons, but are a similarly large and various group that embrace many technologies. The traveling businessman for most were men in those days of the 1800s usually traveled with a valet, who would among many other duties take the dirty clothing to a laundry for cleaning and ironing. A fancy motel might also have a laundry service for travelers. By the early 1900s, cost-cutting competition had largely dispensed with the traveling companion-valet, and the businessman was on his own, and perhaps not staying in a fancier motel. He was doing his own ironing.

Traveling irons of the late 1800s and early 1900s were usually no different than those of the household, except that they came in a small case complete with handle. The case might include extra parts or attachments, fuel if needed, and perhaps even a small ironing board. The case, however, took significant space and the iron was heavy. As the 1900s developed, many companies marketed compact and specialized irons for the person who was traveling light. These typically used liquid fuel or electricity, but have an astonishing number of clever ways to reduce the space and weight.

Many of the liquid fuel traveling irons would easily disassemble to fit in a small traveling case that would be about the size of a book. The case might include an iron body and detachable handle, a separate heating element, stand and a small can for fuel. The iron could often be held upside down by the stand so the sole could double as a hotplate for cooking. The electric traveling irons were more often carried as a single piece, though some had removable or folding handles for compactness. Electrical outlets were not common in hotel rooms of the early 1900s, so the cord often terminated in a plug that could be screwed into the overhead light fixture. The case that housed the iron would commonly include clothes pins and other useful accouterments.

Conclusion

The diversity and development of technologies associated with one of the most mundane household tasks ironing is so interesting because it mirrors the social history of women, the importance of skilled craftsmen giving way to mass industrialization, the explosion of ingenuity and excitement of the Victorian period, to the complete electricification of the industrialized world. The "common" iron is really a remarkable thing, and its importance and impact on the modern world makes it an endlessly appealing item to collect.