A STUDY OF DIFFERENT BRANDS OF AUTOMATIC IRONS AND THEIR EFFICIENCY IN COIMBATORE

By

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A Dissertation Submitted to the University of Madras in Partial Fulfilment of the Requirements for the Degree of Master of Science

March, 1972.

ACKNOWLEDGEMENT

The author expresses her deep sense of gratitude to Miss R. Raji, M.S. (Tennesse) Professor, Department of Textiles and Clothing, for her valuable suggestions. The author records her heartfelt thanks to Dr. (Mrs.) Rajammal P. Devadas, M.A., M.Sc., Ph.D. (Ohio State) Principal, Sri Avinashilingam Home Science College, Coimbatore-11, for her help and guidance. The author is immensely thankful to Miss M.R. Kamala M.Sc., Department of Textiles and Clothing, for her valuable guidance and encouragement given throughout the study.

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I. INTRODUCTION

Clothing came into existence from the beginning of human life. The primitive people made their clothing from leaves, barks and skins of animals. Stringing a net work of grass and strips of leaves they covered and decorated their bodies. Man first learned to fasten clothes with thorns and later to sew them together with fish bone as needles, threaded with fine plant fibres (Mauersberger 1947). With the progress of the human race, the textile industry developed and linen, wool, silk and cotton came into use.

The principal purposes of clothing are: protection against heat, cold and external injuries, maintenance of normal body temperature, decency and personal decoration. Clothing is, to borrow Bacon's phrase "for delight, for ornament and for ability." A well dressed person has poise, looks smart and neatly groomed. Psychologically, such a person can move in society without a feeling of inferiority. Being well dressed gives one a feeling of security and at the same time enhances his looks and personal charm.

To be well dressed is not synonymous with extensive expenditure on new clothes or frequent change of dresses.

A little time spent regularly on the care of garments and accessories will contribute much to the well groomed appearance and also add to the life of the garments. The one who is interested in improving her appearance will try to look her best at all times. In order to accomplish this objective one must keep her clothes ready to wear at anytime, to dress quickly without fuss or flurry. Thus the care of clothes helps to improve one's glamour, poise and disposition, (Wingo 1952).

To derive the maximum satisfaction from the money available for clothing, one must know how to select clothing, how to wear clothes properly and how to make them last longer through proper care, (Devadas 1968). Clothes give better service when cared for than when neglected. They should not be allowed to remain dirty. Soiled clothes are the abodes for disease producing micro-organisms. For reasons of health, clothing should be worn clean, changed as often as possible and washed frequently and systmatically. If landering is not done properly, one is liable to be infected from skin diseases.

Laundry is the process by which dirty clothes are made clean and tidy by washing and ironing. Washing is done in different ways according to the material to be

washed. Apart from removing the dust and dirt of the soiled clothes, laundering purges them off the micro-organisms that they may harbour.

Washing and ironing are heavy tasks for the home-makers. This can be lightened by the use of suitable equipment and materials.

For the sake of personal appearance, clothing should be worn neatly pressed or ironed and not wrinkled, crushed or crumpled. A certain amount of stiffness in the washed clothes gives them a smooth glassy surface which is resistant to dirt and dust.

According to the American Home Economics Association (1959), ironing is the process of smoothening out wrinkles or removing moisture by heat, pressure and friction, often with application of moisture or steam. Equipment necessary for ironing are an iron, ironing table or iron stand or asbestos mat on which the hot iron may be placed.

Johnston (1965) opines that irons have come a long way from the sad iron heated on a coal range to the modern electric one and from heat judged by the sizzle produced, when a moistened finger touched a hot iron, to the setting of a temperature control.

As Baragar et al (1946) point out, the electric iron are found in 95 per cent of the homes in United States of

America. Though charcoal iron is the most commonly used iron in India, electric irons are also found today in most of the houses with electricity because of its satisfactory performance and the time and labour it saves.

Selection of the required ironing apparatus will depend on the type of finishing needed, initial cost and running cost. The method of heating the iron will depend upon the resources of the of the household. The reason for using the particular type of iron may vary from family to family.

Modern homemakers are using different types of irons which are light in weight, capable of giving good finish, less tiresome and quicker to come in to use, which makes ironing a comparatively easy task. The purpose of the study is to find out the different brands of automatic irons that are in common use and to compare their efficiency.

II. REVIEW OF LITERATURE

The available literature for this study have been reviewed under the following headings:

1. Need for clothing care
2. Laundering procedure
3. Role of ironing in the process of laundering
4. Types of iron and the method of using
5. Parts of an electric iron
6. Characteristics of a good iron
7. Care and maintenance of irons.

1. Need for Clothing Care:

A clean attractive body deserves clean well kept clothes. If one's clothes are neat, clean and appropriate they can add much to the impression he makes opine, Jones and Burnham (1958). Frequent and prompt washing is desirable in washable fabrics particularly of clothing worn next to the skin. If under garments are not washed soon after their use, the cleaning becomes all the more difficult, resulting in fabric deterioration.

Fabrics should not only be carefully selected but at the same time they should be given proper care through

out their lives. Care of clothes include: 1. Immediate mending when damaged by tearing, 2. Stain removal before washing or further use, 3. Intelligent choice of laundering method for type of fabric, 4. Frequent laundering, 5. Proper pressing and ironing, 6. Frequent brushing and airing of garments and lastly clean storing when not in use - Potter and Corbman (1959).

A torn fabric should be mended before further use. The mended portion will be less noticeable if repaired before the surrounding yarns are further damaged. Stain removal is the next step in the care of clothes. Deulkar (1967) defines stain as a spot or mark of discolouration left on fabrics by the contact and absorption of some foreign substances. According to Hess (1958) stain removal is of daily importance. Success in the removal of stains often depend on immediate action. Baxter and Latzke (1949) state that for deriving maximum satisfaction, cleaning become, necessary depending on the uses to which fabrics are out.

The different cleaning agents and processes have different effects on fibers, feels Devadas (1970). Hence intelligent choice of laundering method for type of fabric is very important to obtain the best results.

Laundering is one of the necessary tasks of the home that must be done regularly, Justin and Rust (1935). There is nothing so discouraging as dingy clothing and nothing so satisfactory as white, clothes that look really white or coloured clothes that are fresh and clean. Frequent laundering with suitable detergents not only provides satisfactory result but also increases the life of garments.

Proper ironing is done to restore fabrics to its original appearance. According to King (1961), the finished result is produced by a carefully controlled combination of temperature, pressure and moisture. This combination differs with each fibre and the good appearance and durability of a garment or article are affected strongly by the method of finishing.

The frequent brushing of garments especially those having napped surgace, removes the kind of dirt that is stored as dust. The accummulation of dirt particles not only soils the fabric but eventually causes deterioration. Potter and Corbman (1959) suggest that clothing that is not in daily use should be protected from deterioration by storage in dust proof containers in which some kind of preventive is used. No useful purpose is served if the garment is stored without careful brushing and airing.

2. Laundering Procedure:

Laundering is the operation involved in restoring soiled clothing or other household fabrics to a clean usuable condition say AHEA (1959). This includes sorting, washing, rinsing, water extraction and ironing. The two processes involved in laundering are: 1. removing the dirt from the clothes and 2. finishing them so that they will obtain a new look, feels Deulkar (196).

The nature of fabric, the kind of dirt and the extent present in the fabric influence the methods used for removing dirt and cleaning the clothes. The dirt that soils the fabric consists of the dust particles which are either on the surface of the fabric or held in the fabric by grease. The loose dust particles may be removed by shaking, brushing or by the action of pedesis in steeping. The essential factors in the process of cleaning therefore, is the use of a grease solvent or absorbent to remove the grease and an application of hard or delicate pressure to remove the dust. Different methods of washing dirty clothes are, hand friction or rubbing, scrubbing by brush, kneading and squeezing and by the use of washing machine says Deulkar (1967).

The arrival of modern fabrics which are easily launderable, the availability of soapless detergents for

various purposes and their suitability for hard and soft water, the new finishes in fabrics reducing the degree of soiling and the need for ironing and the availability of modern labour saving equipment for each stage of the work contribute towards making home laundry work lighter and more enjoyable, opines Davidson (1960).

The essential household equipment for laundering as outlined by Soundararaj (1963) include sinks or tubs and buckets, spoons and containers, washing soaps, materials for stain removal, scrubbing brushes, scrubbing boards, clothes line and racks, iron and ironing board.

3. Role of Ironing in The Process of Laundering:

Clothes after the process of cleaning get creased and need to be straightened to get new appearance. According to Dantyagi (1964), finishing is the process used to straighten the clothes so that the appearance is attractive and neat. The methods used for finishing in laundry are ironing, pressing, steaming, mangling and calendering.

Finishing by pressing according to her is a quick method of finishing lots of present day fabric namely flat articles of daily use like towels, dusters, kitchen clothes and bed linens. The article should be evenly dampened, stretched into shap and folded with right aide

out and pressed with a hot iron over the folds. The iron is pressed, lifted and replaced but not moved on the surface of the material as in theprocess of ironing and this is followed to economize time and labour.

Steaming also can be used for finishing and it consists of allowing the steam to pass through the surface of the cloth especially fabrics with a pile surface to raise and freshen the pile, Dantyagi (1964).

Mangling is a finishing process used only in case of rough articles, when the surface is expected to be neat but not very smooth. This process helps to straighten the threads. The article immediately after washing and before drying is passed through a mangle several times and then put to dry.

Calendering is used in commercial laundries to finish straight pieces of cotton and linen articles such as table cloths, curtains and bedsheets. The process dries up the moisture and the pressure caused by the rotation, irons out the material.

Pollard et al (1964) interprets the term ironing as different from pressing. Clothes that have beenwashed, dried and dampened are ironed. Clothes that are wrinkled from packing or wearing are pressed to restore the original texture of the fabric and to improve their shape.

Ironing is a simple process, feels Star (1956) Basically ironing is nothing more than straightening, threads into place and drying them out at the same time to produce a smooth appearance. Fabrics are woven from

lengthwise and crosswise threads at right angles to each other. In washing, these threads get out of place and ironing is the process by which they are brought back to position.

According to Fitzsimmons and White (1958), ironing is the last step in laundering. They are of the opinion that, fabrics that need ironing must be moist enough to get the smooth surface we want after ironing them. The availability of proper equipment for satisfactory results in ironing and pressing has been emphasized by Chamber and Moulton (1961).

In brief, inorder to give washed clothes a neat, smooth and fresh appearance ironing is very important in the laundering procedure.

4. Types of Iron and Method of Using:

Iron is the most important pressing tool and should be treated as a treasured possession, says Hillson. According to Agan (1956), Electric irons were developed around 1900 with the invention of electricity.

Electric irons are very popular for domestic work owing to their convenience, cleanliness and low cost of running, state Jackman and Rogers (1954). According to Henney and Byett (1961), there are various types of irons available in the market to meet the requirements of the kind desired such as chareoal irons, flat irons, box irons,

polishing irons, methylated irons, petrol irons and gas irons which are nonelectrical.

Charcoal iron is commonly used in India. It consists of a metal hollow box with a handle at the top and a few pices of live charcoal or coconut shells are placed inside along with some fresh charcoal and then the iron lid is closed. The draught door at the back is left open to allow charcoal to continue to burn and to heat the iron, Henney and Byett (1961). A flat iron is made of heavy cast iron, faced with polished steel, weighing four to five pounds on an average and it is heated either on top of a stove or gas, Dantyagi (1964).

Box iron is hollow, the cavity being filled with a heat bolt or heater. It is clean to use but is not recommended for use as the heating of the bolts breaks up the fire and wastes coal. According to Henney and Byett (1961), polishing irons have a convex base and they are used mainly for polishing collars, shirts and chintz.

Millinery irons have rounded ends to fit them for the particular work. Goffering irons are used for finishing frills. Egg irons are used for drying smocking, close gathering, small sleeves of babies garments and bonnets.

All these should be cleaned after heating, remark Henney and Byett (1961). Punching iron are small round metal knobs used for punching the thick part of lace. Methylated spirit irons, some constructed for use with solid and some with liquid fuel are small, light in weight and not practical for general household ironing.

Petrol irons are heavier than the methylated spirit irons and they are more convenient for household ironing. The petrol is contained at the back of the iron in a reservoir and percolates to a perforated metal tube in the base of iron when it is lighted and gives heat to the base. These irons give continuous heat but are not to be recommended because of the danger attached to lighted petrol, say Henney and Byett (1961).

Gas iron consists of a metal base heated by a gas flame. The gas is conveyed to the iron by a flexible metal tubing from a gas filling where the flow of gas is regulated by a tap. These irons are clean, heat is continuous and easy to regulate.

When electric current is available the use of an electric iron for finishing garments is undoubtedly a wise choice, points out Dantyagi (1964). Barraclough et al view that electric irons are basically electric fires in miniature, employing heating elements which operate at a lower temperature than an electric fire.

Electric irons invented in the early 1900's did eliminate the need for walking from the ironing board to the range to heat the iron, opines Johnston (1965). They were much heavier and operated on a lower wattage than their modern counter-parts.

Various types of non automatic irons, automatic dry and steam irons or combinations of dry and steam irons and ironers by reputable firms are now available. Travel irons both dry and combination are available which weigh less than regular size irons and have handles that fold to make a compact package.

Most regular size electric irons are thermostatically controlled to give different temperature of the sole plate according to dial setting, Ehrenkranz and Inman (1958). Theremostaticclly controled irons are usually rated 1000-1150 watts and are designed for use with 110 - 120 volts alternating current. Regular irons without thermostatic control are rated 500 watts, Owen and Pickford.

Electric ironers that are being manufactured at this time have a motor operated roll and a shoe curved to fit the roll. One or two insulated andthermostatically controlled resistance elements are mounted inside or under the shoe assembly which is mounted above or below the roll, Ehrenkranz and Inman (1958). Worden (1957) feels

that an ironer whether portable, a roll away or one with a furniture look saves time, energy and drudgery.

Whether one has an ironer or not for laundry a hand iron is indispensable say Lewis et al (1961).

5. Parts of an Electric Iron:

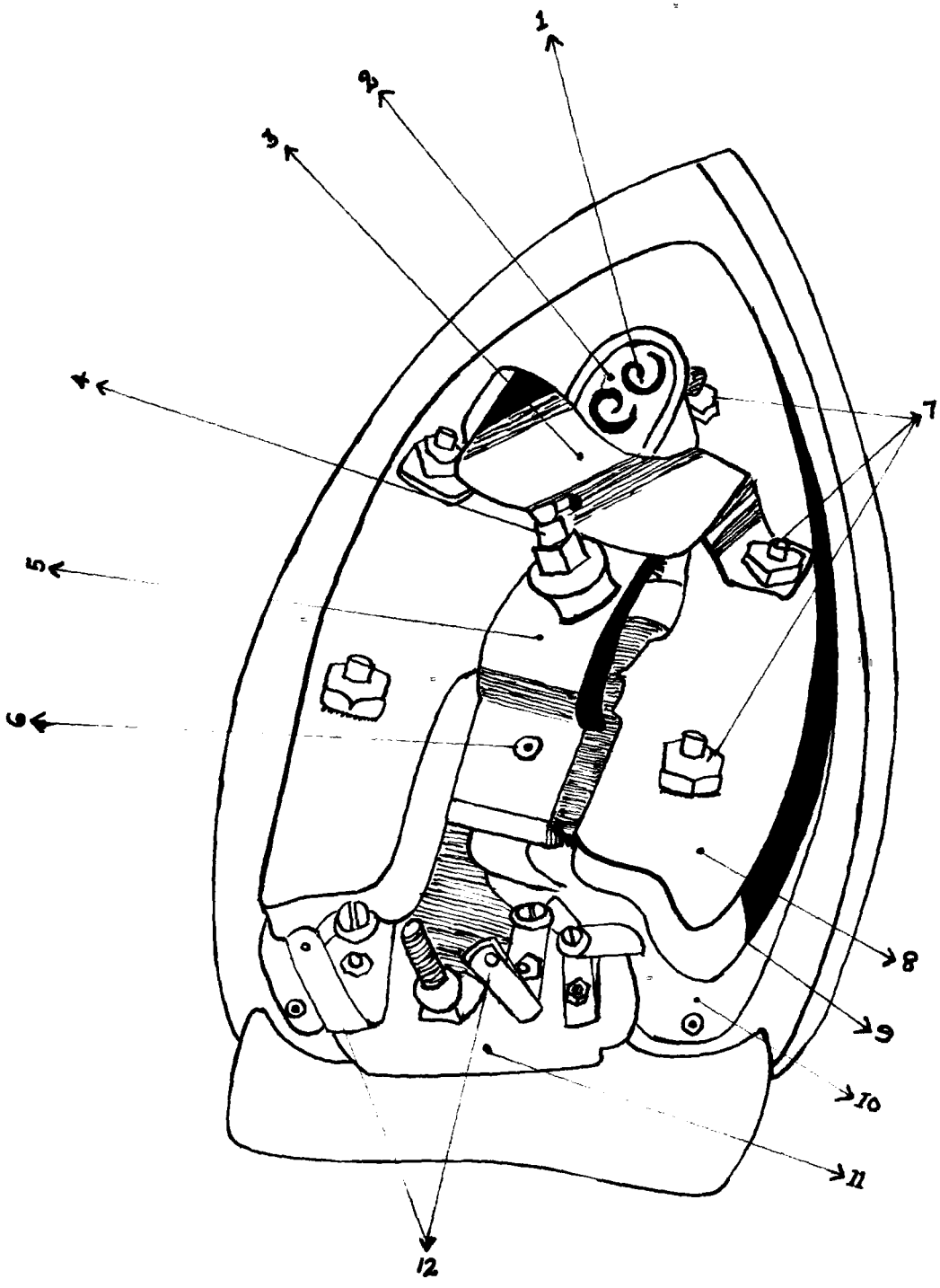
Electric iron as defined by Henney and Byett (1961) is the piece of electrical apparatus used by housewives for laundry work. Modern irons are of good design and balanced. They are obtainable in different weights according to their functions and possess a nickel or chromium plated surface which entails no cleaning.

Henney and Byett (1961) have outlined the construction of an electric iron as follows:

The base of the iron is made of a solid metal which is chromium plated to give a smooth ironing surface. The element is placed immediately above the metal base. It consists of a long thin wire which has high resistance. A press plate which covers the element adds weight to the iron.

The handle is made of non-conducting material and usually has a thermostat, the use of which helps in giving pressure during ironing. The iron is connected to the elctric circuit by means of an unkinkable three core fuse well insulated with rubber and usually covered with cotton or rayon. The iron heats when the switch is on, by the current passing from the main through the wall plug, fuse and connections to the contact pins at the heel of the iron.

A common accident in the case of non automatic iron is fire due to the iron becoming red hot as a result of commission to switch it off. In order to avoid this danger, use of automatic irons is strongly advised and although more expensive in first cost, they last much longer owing to the absence of over heating, state Jackman and Rogers (1954). According to them the partsof an automatic iron include: lamp contact pin, lamp contact insulator, bridge, control spindle, control unit, control unit fitting screw, press-plate fitting nuts, asbestos pad on top of element, element, terminal block and main flex terminals. (Figure I).



1 LAMP CONTACT PIN

2. LAMP CONTACT INSULATOR

3. BRIDGE

4 CONTROL SPINDLE

5 CONTROL UNIT

6. CONTROL UNIT FITTING SCREW

7. PRESS PLATE FITTING NUTS

8 PRESS PLATE

9. ASBESTOS PAD ON TOP OF ELEMENT

10. ELEMENT.

11. TERMINAL BLOCK.

12. MAIN FLEX TERMINALS.

PARTS OF AN AUTOMATIC IRON

Adams (1953) states that the automatic irons employ a sensitive thermostat so that high temperature may be used with complete safety and control, According to Owen and Pickford, thermostatic control is a device by which at a certain pre-determined temperature, the heat breaks the circuit switching off and allowing the apparatus to cool a little.

Vanzante (1964) points out that most irons today are automatically controlled and are either dry irons or more commonly a combination of dry and steam irons. Peet and Thye (1963) are of the opinion that an automatic iron has a heat control, connected to a thermostat in the sole-plate which shuts off the electricity above the desired temperature and turns it on again as the iron cools. Most controls have range of theheat suitable for different types of materials with the scale marked for high, medium, low heat and for off. More commonly the scale will list the names of the fabrics such as rayon, silk, wool, cotton and linen and will sometimes indicate a range of temperature for each fabric. The control is frequently located at the front of the handle where it is easy to see and accessible for manipulation. A control reduces the kilowatt hour consumption by supplying only the heat needed, thus eliminating the fire hazard since the iron cannot reach an excessively

high temperature. This control also greatly lessens the wear on the heating element. According, to Fitzsimmons and White (1958) thermostat, heat regulator and fabric dial are the three most commonly used terms for heat control on such an iron.

Dantyagi (1964) believes that flexless electric irons have the advantage of enabling the worker to iron without interference from the flex. The element in these flexless models is heated by plugging the iron into the heating stand which is connected with the main, thus enabling it to receive the current direct without the use of flex, Each filament should have a pilot lamp, so that the operator knows when the current passes through.

The steam iron usually eliminates the need for dampening or the use of a damp pressing cloth because it emits steam at the ironing surface. As Dantyagi (1964) says, modern steam irons are combination iron that is, they give steam or dry ironing. There are two types of combination steam irons:

1. Kettle type which produces steam by bringing a mass of water to boil just as a tea kettle does.
2. Flash boiler type which makes instantaneous steam when individual drops of water come in contact with a heated chamber.

6. Characteristics of a Good Iron:

Many good irons are in the market. Choice can be made on the basis of personal preference, comfort and convenience state Fitzsimmons and White (1958).

In selecting an iron there are certain key points to be borne in mind. The sole plate should be of aluminium, stainless stel or cast iron or steel plate with chromium and should be smooth and flat without flaw. A good iron has tapering sides with bevelled edges and narrow point to get around buttons and into gathers. Some have special identations on the sides of the soles for ironing under buttoned edges. If the iron is well balanced the point will not dig into the material.

Handle should be heat resistant and should not conduct heat from the iron to the uses hand, says White (1955). It should be of a size and shape convenient to the hand. A properly constructed iron should be insulated so that the heat will be concentrated in the sole plate and the upper surface remains cool. In one iron the upper surface is separated from the main body of the iron by a narrow space through which air is circulated to cool the top. In another the handle is open at the from end. But when used for a long time at the highest temperature even the thermostatically controlled irons become fairly hot all over.

In the case of automatic irons the controls should be easy to read and move with settings for various fabrics and an off position. The setting for each fabric should permit a range of temperature selection for slow, normal or fast ironing and for increasing degrees of wetness, suggests Adams (1953). The cord should be attached in such a way that it is easy for both left and right handed persons to use the iron.

There should be a stable rest position. A heel rest is preferable to a side rest. A heat shield confines heat to the base keeping the heel rest, temperature control knob and handle cool. The maximum temperature for parts of the iron which are likely to be touched by the user is 150° F.

Weight is the significant factor in ironing efficiency says McRobert (1970). An iron should weigh three to four pounds and should have a wattage of about 1000.

Baragar et al (1945) suggest that the heating element and its thermostatic control which constitute the real heart of an electric iron, must be of the best. For effective heat transfer the heating element should be embedded and sealed in the metal of the sole as close as possible to the ironing surface.

A rugged and dependable thermostat for controlling the heat to the required temperature is an absolute necessity. The dependability of a thermostat cannot be determined by its appearance; one has to trust the manufacturer for that.

All irons have a tip up stand, but it is more convenient to use an asbestos pad.

The iron cord needs special attention, opines Vanzante (1964). It should be at least six inches long. It is attached directly to most irons. The wire should be heavy enough to supply 1000 or more watts. Its braid exterior should cover asbestos surrounding two rubber insulated wires. The iron cord must be very pliable because it is subjected to a great deal of twisting.

The place of attachment of the cord to the iron is of much importance, say Ehrenkranz and Inman (1958). A cord attached near or on the right side of the iron is best for ironing from right to left with either hand. One attached at the near or the left side is best for ironing from left to right with the left hand.

7. Care and Maintenace of Irons:

A little planning in the choice and arrangement of ironing equipment will help to get the best results with the least amount of effort, says Spencer.

Inorder to keep an iron in perfect working condition the following points must be carried out from time to time. Ehrenkranz and Inman (1958) feel that they should be used in small appliance circuits whenever possible. Abrasives should not be used on the sole plate. A cloth dipped in sudsy water or beeswax helps to remove starch from the soleplate. But Humphrey is of the opinion that if starch has clung firmly to it, it should be removed by running the iron over a sprinkling of table salt. The iron should be cleaned when it is moderately warm. The cord should be wound loosely around the iron for storage after cooling.

Nothing should be done that will damage the contact pins or the element of an electric iron, say Henney and Byett (1961). The connection should fix firmly on the contact pins so that proper contact is made during ironing. The flex should be free of loopes or kinks during use and no stain should be placed on it, or the fine wires may break near the connection and cause a short circuit, the result of which will be the burning out of the flex at this joint. It is very unwise to have the plug for an electric iron so low that the flex comes from below the workers. The surface of an electric iron is such that it keeps clean with little attention. The current should be switched on, when any

cleansing is needed, the iron heated slightly then the current switched off. The irons should be cleaned with wax or oil and good rubbing. Water should not be allowed to get into the electric connection.

According to Walts and Wines, always the iron should be plugged into wall outlet. We should not use a light socket or ceiling drop cord as it is too small to carry enough current for the iron. An iron should never be left even for a few minutes without being disconnected since this will cause the burning of inner coil and damage the iron.

It should never be overheated dropped or hung, for the vital elements may be harmed, says Humphrey. Always the manufacturer's recommendation should be followed in use and care of iron, say Walts and Wines.

Automatic irons made for *A.C. Current must not be used on @ D.C. current because the automatic control will not function and will burn out on direct current says Agan (1956).

When the iron is not in use it should be allowed to stand up or put on a stand, opines Oerke (1956). Carson (1955) opines that while connecting and disconnecting the iron, only the plug should be held and not the cord.

Unless the iron is defective, the markings on the dial provide the best guide in the case of automatic.

* Alternate Current

@ Direct Current

irons, in setting the control. However, if the iron is dropped or hit sharply against a hard object, the thermostat may be damaged. Then the iron may not heat properly even though the dial is set correctly. It must be repaired in order to have controlled heat again. Hence care should be exercised in using an iron, says Star (1956).

III. EXPERIMENTAL PROCEDURE

The experimental Procedure for this study on the different brands of automatic irons and their efficiency consisted of the following steps.

A. Conducting survey to find out the automatic irons available in the market and commonly used by the homemakers in Coimbatore city.

1. Selection of the sample
2. Selection of the method
3. Conducting the survey:
    a. Shopping survey
    b. Household survey
4. Analysis of data

B. Conducting the experiment:

1. Selection of irons
2. Selection of the materials to be ironed
3. Experiment
    a. Comparison of the physical features of the selected irons
    b. Determination of:
        i. Work done to produce heat
        ii. Temperatur̄d set for cotton, time taken for getting heated and turning cold
        iii. Time taken for dehydration
        iv. Colour transference

c. Evaluation by visual inspection.

e. Evaluation by visual inspection

A. Conducting survey to find out the automatic irons available in the market and commonly used by the homemakers in Coimbatore city.

1. Selection of the sample:

The total number of samples selected for the study included 25 shops and 50 houses in different areas of Coimbatore city. All the 25 shops were found to be dealing with the sale and repair of irons. While selecting the houses, care was taken to see that all the homemakers used automatic irons at home.

2. Selection of the method:

The method selected for collecting data was interview because of its several advantages. It helps to develop good rapport between the interviewer and interviewee. Interview method is considered as the best method of obtaining information, since it allows the interviewer to go behind mere outward behaviour and helps him in studying motivations, emotional responses and social progress, says Rangaswami (1959).

3. Conducting the survey:

In order to gather information regarding the sale of automatic irons in the shops and the ironing practices of the home makers, two different interview schedules

(Appendix I and II) were evolved. The schedule used for market survey included the following details.

a. Name and address of the shop

b. Particulars regarding the automatic irons sold

c. Details regarding the repair of irons

The schedule for household survey included the following details:

a. Name, address and monthly income of the families.

b. Ironing practices of the homemakers

c. Name of the iron possessed and details of the same.

d. Satisfaction and problems faced in using the particular iron.

e. Details regarding the repair of irons, care and maintenance of the irons.

4. Analysis of Data:

The analysis of the consolidated data are given below:

a. Shopping Survey:

The total number of shops surveyed were 25 and it included both supermarket as well as retail shops. The different brands of automatic irons that were sold in different shops are given in Table I.

TABLE I

DIFFERENT BRANDS OF AUTOMATIC IRONS SOLD IN THE MARKET

S.No.	Brand Name	No. of shops
1.	BAJAJ - Auto Standard ..	7
2.	Vijay ..	7
3.	Deson ..	5
4.	Bajaj - Autosuper ..	3
5.	Council ..	3
6.	Renco ..	3
7.	Duke ..	2
8.	Premier ..	1
9.	Kleertone ..	1
10.	Racold ..	1
11.	T.C.C. ..	1
12.	E.M.T. ..	1
13.	Deluxe ..	1
14.	Racmmann ..	1
15.	Prelux ..	1

From table I it is clear that Bajaj autostandard and Vijay irons were sold by the majority of shops that is seven (28 per cent). Deson iron was sold by five (20 per cent) shops. Premier, Kleertone, Racold, T.C.C.,

E.M.T., Deluxe, Racmmann and Prelux were the other irons sold by the shops.

The details regarding the different brands of automatic irons are given below. As regards the size, all irons except Bajaj Autosuper were found to be available in medium size only. Bajaj autosuper iron was available both in large and medium size.

The weight of Bajaj autostandard and Deson were found to be five to seven pounds. Bajaj autosuper iron had a weight range of four to eight pounds. Council and Renco irons weighed five to seven pounds. Duke iron weighed six to seven pounds. Prelux, Premier, Kleertone, Racold, and Vijay weighed five to six pounds while T.C.C. and Racmmann irons weighed less than five pounds. E.M.T. iron weighed more than seven pounds. Hence it is clear that E.M.T. and Bajaj Autosuper irons were the heaviest ones.

While comparing the price of the irons, Premier and Racmmann iron cost Rs. 40 to 50. Deson, Council, Racold, Deluxe and Prelux came under the price range of Rs.50 to 60. The price of the T.C.C. iron was Rs.60 to 70 while kleertone and E.M.T. irons cost above Rs.70. The price of Bajaj Autostandard was Rs.50 to 70, Bajaj autosuper and Vijay Rs.60 to 70. Renco and Duke fell under the price range of Rs. 40 to 60. This reveals that Bajaj autosuper,

Vijajy, Kleertone and E.M.T. were the costliest irons and Renco, Duke, Premier and Racmmann were the cheapest ones.

The material used for the base of the irons was chromium plated cast iron in the case of all the irons except Vijay and Council where nickel was used. Handle was made of bakelite in the case of all the fifteen irons.

The watts of all the irons were 750 except Vijay and Deson irons in which the wattage ranged from 450 to 1000.

The voltage of all the irons was found to be 230 to 250 except Vijay iron in which the voltage varied from 220 to 250.

All the irons available in the selected shops were found to be guaranteed for one year only.

The labels on most of the irons included watts, volts, weight and make. Only Deson had a label stating the care and directions for use of the iron in addition to the general information.

Only 52 per cent of the shops were dealing with the repair of irons and the common defects found were damaging of the element, breaking of regulator knob and fusing of bulb due to careless handling. These defects were found to be rectified by replacing the necessary parts.

b. Household Survey:

Among the total fifty families surveyed the monthly

income range of Sixtyfour per cent of the families were found to be Rs.500 to 1000. The income of the rest of the families ranged from Rs.1001 to 7000 per month.

Cent per cent of the families ironed their garments at home using automatic irons. Regarding the method of ironing, ninety eight per cent of the homemakers moistened cotton material before ironing while two per cent did not; Eight per cent of the home makers moistened silk also before ironing. Only two per cent were found to be moistening terrycott before ironing. The reason given by the homemakers for dampening the material before ironing was to get a good finished appearance in the case of cotton and silk. They were of the opinion that there was no need to moisten the synthetics before ironing.

62 per cent of the homemakers used automatic irons made in India and the rest used irons made in other countries. The following table shows the different brands of irons used by the selected homemakers and their price.

TABLE II

DIFFERENT BRANDS OF AUTOMATIC IRONS USED BY THE HOMEMAKERS

S.No.	Name of the Iron	Make	Price Range in Rs.
1.	BAJAJ - Auto Standard	India	130-150
2.	VIJAY	India	30-90
3.	DESON	India	50-60
4.	PRELUX	India	50-60
5.	PRELECT	India	60-70
6.	GENERAL ELECTRIC COMPANY (G.E.C.)	India	60-150
7.	KLERTONE	India	70
8.	COUNCIL	India	50-60
9.	DUKE	India	40-60
10.	RACMMANN	India	40-50
11.	RACOLD	India	50-60
12.	MERRIT	India	30-120
13.	WESTINGHOUSE	United States of America (U.S.A)	100-150
14.	SINGER	United States of America	90-190
15.	HIS MASTER'S VOICE (H.M.V)	England	70
16.	MURPHY-RICHARDS	England	130-150
17.	PHILIPS	Germany	60-90
18.	GROSSAG	Germany	30-60

Table II reveals that irons like Bajaj-auto Standard, Vijay, Deson, Prelux, Prelect, G.E.C., Kleertone, Council, Duke, Raemmann, Racold and Merrit which were made in India, were in common use. The foreign irons used by the homemakers included Westinghouse and Singer made in United States of America, H.M.V. and Morphy Richards made in England, Philips and Grossag made in Germany.

Hence it could be concluded that a wide variety of irons have been used by the homemakers. The survey revealed that among the 18, Vijay, Bajaj-auto Standard, G.E.C. Morphy Richards, H.M.V., Prelux, Westinghouse, Deson and Prelect were the most commonly used irons.

As regards the price range of the different brands of irons, the price of Morphy Richards and Westinghouse ranged from Rs.130 to 150. Bajaj-autostandard. Vijay and Kleertone Rs.30 to 90. The price of G.E.C. iron ranged from Rs.50-120. Grossag, Council, Duke, Raemmann, Racold and Deson irons cost Rs.30-60. The price of Philips iron ranged from Rs.60-90. Merrit iron cost Rs.30-120. Singer iron cost Rs.90-190. The price of Prelux iron ranged from Rs.50-60, while Prelect and H.M.V. irons cost Rs.60-70. Hence it is clear that Morphy Richards was the costliest iron among those used by the homemakers.

Regarding the weight of the automatic irons, all the irons weighed four to ten pounds except Raemmann iron which weighed 30 pounds.

The reasons given by 96 per cent of the homemakers for using the particular brand were convenience and durability. The remaining four per cent of the home makers used the particular iron becuase they got it as a present.

90 per cent of the homemakers were satisfied with their irons, while 10 per cent were not. They had to get their irons repaired frequently and in spite of that, they were not able to use the iron.

28 per cent of them got their irons repaired. All the homemakers got their irons repaired in the shop except eight per cent who got it repaired at home.

The defects were found commonly with regard to bulb, element and wire. Handle and regulator got spoiled very rarely due to careless handling. Each time to repair the irons, the maximum money spent was Rs. 25 and the minimum was Rs.2/-.

Regarding the care and maintenance of the iron, only six per cent of them used asbestos mat to keep the hot iron. 50 per cent wiped the iron with cotton after each use and stored in the cardboard box.

B. Conducting the Experiment:

1. Selection of irons:

The irons selected for the study included Vijay, Bajaj-autostandard, General Electric Company (G.E.C.), Murphy Richards,

His Master's Voice (H.M.V.), Prelux, Westing House, Deson and Prelect because they were found to be most commonly used by the homemakers.

2. Selection of the material:

The material selected for the experiment was both white and coloured cotton because of its several advantages. According to Evans (1949), cotton responds well to laundering, withstands rather high temperature, considerably more resistant to heat than wool or silk and scorches at high temperature. Hess (1958) is of the opinion that cotton is the one fiber that will withstand much rough handling, high temperature and boiling water.

3. Experiment:

a. Comparison of the Physical features of the irons:

The physical features of the irons were first noted by the investigator. They included weight of the irons, position of the heat resistant knob and dial, position of pilot lamp, shape of handle, shape of the levelled edge of the base, thumb rest, hand grip, covering of the cord, condition of the sole plate, type of stand, distance from the top of iron to handle and ease of handling the iron.

b. Determination of:

i. Work done to produce heat:

In order to determine the heat produced, first the wattage of each iron was noted and the current consumed was found out using the formula $\frac{W}{V}$ as stated by Owen and Pickford, where W stands for watts and V for volts which was maintained constant. The resistance of the coil present in each iron was found using Ohm's Law which states that $R = \frac{E}{C}$ where R stands for resistance, E for volts and C for current; Ouseph et al (1965).

The heat developed by the different irons was found out using Joule's Law which states that $H = \frac{C^2 Rt}{J}$ calories, where H stands for heat, C for current, R for resistance, t for time and J for the mechanical equivalent of heat in Joules per calorie which is a constant. (4.2), Savarimuthu et al (1967).

PLATE 1

VOLTAGE STABILIZER

Preparation For the Experiment:

Before starting the experiment, the supply of voltage was maintained constant (230) using an automatic voltage stabilizer, which is shown in Plate I. According to Stiel (1933), if voltage is not maintained constant, the consequence is, increased current consumption and therefore over loading of the motors. If voltage variations are frequent occurence or the net work potentials is in a continual state of unrest, Stiel (1933) feels that it is necessary to install self regulating induction regulators which automatically maintain a steady voltage.

Before starting the experiment, each material was spread on the ironing board and dampened evenly by spraying water with the help of a sprayer. Care was taken to spray equal amount of water on all the samples. The dampened material was then folded eight times and kept under a weight of six pounds for three minutes. By this the investigator was able to make sure that all the samples were creased uniformly. After three minutes the sample was opened out and ironed with a particular iron to remove the creases. The same procedure was followed for all the samples with great care.

The automatic irons which were used for the experiment were compared in terms of the performance of each iron.

The various factors taken into consideration for the comparative purpose included, the time taken for getting heated, maximum temperature reached when the pilot light went off, time taken for turning cold, time taken for dehydration and colour transference on dry and wet pressing.

ii. Temperature, Time taken for getting heated and turning cold:

In order to decide the time taken for getting heated, the indicator on the dial was adjusted to cotton and the irons were allowed to get heated. The time was noted when the bulb went off on reaching the suitable temperature. Immediately the temperature was noted by keeping the thermometer bulb on the centre of the sole plate. After ironing the material, the irons were allowed to turn cold and the time taken for turning cold was noted.

iii. Time taken for dehydration:

To determine the time taken for dehydration, pieces of 8" x 8" size were cut from the same cotton material and immersed in water. After two minutes they were squeezed well to remove the excess water. Each piece was ironed by one particular iron till the material dried. The time was noted simultaneously.

iv. Colour transference:

To note the colour change or colour transference, on ironing with different irons, by both dry and wet methods, coloured and white materials of the size that is 6" x 3"

were taken as samples. They were joined at one side. For wet pressing the sample was completely wetted and the excess water was squeezed out. Then it was pressed with the hot iron for 30 seconds. The colour transference on the white material was noted. The same procedure was followed for all the irons. In the case of dry pressing, the materials sewn were pressed with the hot iron for 30 seconds without wetting. Colour transference was noted.

C. Evaluation by visual inspection:

The ironed samples were evaluated by visual inspection using a proforma which is given in Appendix No:III. The factors considered for evaluation included finished appearance, removal of crease, glaze and discolouration. A panel of 20 judges evaluated the samples after comparing them with the original. The judges were asked to evaluate the finished appearance, lack of crease, and glaze as follows: excellent, good, average, poor and very poor. They evaluated discolouration as very much, much, little, very little and nil.

The evaluation done by the different judges were rated using a score card given in Appendix No:IV. Since the maximum marks that a judge could give for each factor was five, it was estimated that the panel of judges

(20) could give only 400 marks*(5 x 4 x 20) at the most for each iron. Keeping this in mind the percentage marks were found out for each iron.

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* 5 = Maximum mark that a factor could attain

4 = Total number of factors

20 = Total number of judges.

IV. RESULTS AND DISCUSSION

The results of the study are discussed under the following headings:

A. Physical Characteristics of the Selected Irons:

1. Weight
2. Position of the heat resistant knob and dial
3. Position of pilot lamp
4. Shape of handle
5. Shape of the levelled edge of the base
6. Thumb rest
7. Hand grip
8. Covering of the cord
9. Condition of the soleplate
10. Type of stand
11. Distance from top of iron to handle
12. Ease of handling

B. Work done to Produce Heat in Selected Irons

C. Performance of Irons

1. Temperature and time taken for heating and cooling of irons
2. Time taken for dehydration
3. Colour transference on dry and wet pressing
4. General appearance of the ironed samples

D. Evaluation by Visual Inspection.

A. Physical Characteristics of the Selected Irons:

As regards the weight of the selected irons, all except Westinghouse, Prelux and G.E.C. weighed five pounds. The weight of Westinghouse, Prelux and G.E.C. irons were found to be four five and six pounds respectively.

The heat controlling knob was located at the front end of the iron in all cases except Westinghouse where it was located at the centre. The controls in irons like Westinghouse, Prelux, G.E.C., Bajaj Auto standard and Vijay had settings for various fabrics like Linen, Cotton, Wool, Silk and Rayon. There were also markings for low and high temperature. Prelect and Morphy Richards had no settings for wool. Deson iron not only failed to have settings for wool but also for low temperature.

The pilot lamp was found inside the dial in the case of Vijay iron. There was no pilot lamp in Westinghouse but it gave a click sound in reaching the suitable temperature. All the other irons had the Pilot lamp at the base of the iron in the left hand side of the handle.

All irons except Westinghouse had closed handle. It was open-ended in the case of Westinghouse. The distance

from top iron to handle was found to be two inches in all irons except Vijay and Prelux. The distance in the case of Vijay iron was only 1.9 inches where as it was 2.2 inches in the case of Prelux iron. All irons had tapering sides with bevelled edges. The tip of the base was more pointed in Westinghouse when compared with those of others. The sole plate was found to be in good condition in all irons. It was also very smooth. None of the irons except Westinghouse had hand grip or thumb rest. All irons had a heel rest.

B. Work Done to Produce Heat in the Selected Irons:

The watts, current consumption and resistance offered by the coil are given in Table III.

TABLE III

WORK DONE TO PRODUCE HEAT

S.No.	Name of Irons	Work Done		
		Watts	Current in Amperes	Resistance in Ohms.
1.	Westinghouse	1000	4.3	52.9
2.	G.E.C.	1000	4.3	53.2
3.	Vijay	450	1.9	121.0
4.	H.M.V.	745	3.2	71.8
5.	Prelect	700	3.04	70.6
6.	Deson	750	3.2	71.8
7.	Bajaj Auto-standard	750	3.2	71.8
8.	Prelux	750	3.2	71.8
9.	Morphy Richards	630	2.7	85.1

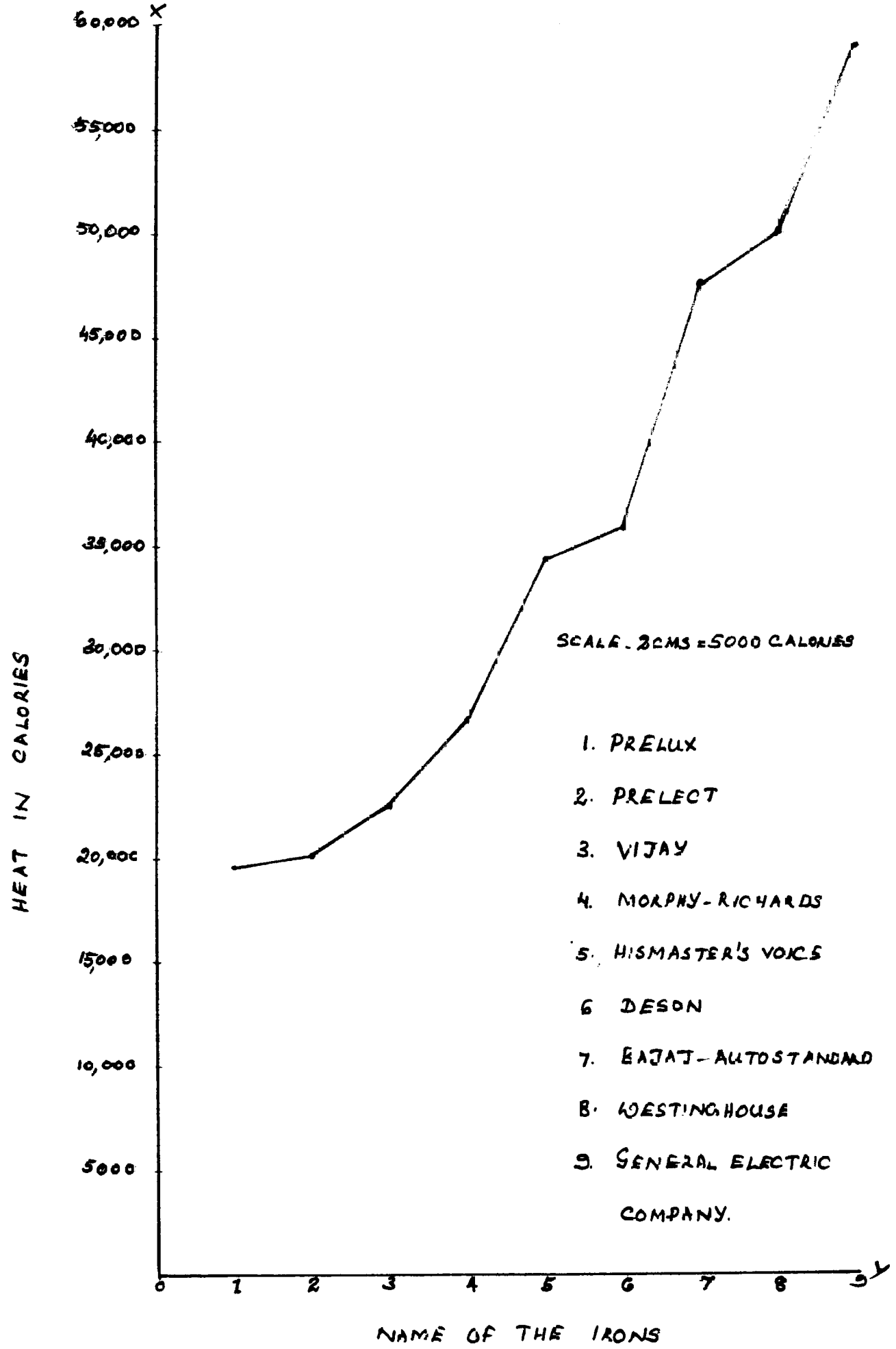
From Table III it is evident that the wattage of Westinghouse and G.E.C. were 1000. The wattage of Vijay and Morphy Richards were 450 and 630 respectively. The wattage of all theother irons fell under the range of 700 to 750.

The current consumption was very high in the case of Westinghouse and G.E.C. (4.3 amperes). Vijay and Morphy Richards consumed 1.9 and 2.7 amperes respectively. All the other irons except Prelect consumed 3.2 amperes. The current consumption in the case of Prelect wasonly 3.04 amperes.

As regards resistance, Vijay iron offered the maximum resistance of 121 Ohms. Morphy Richards and Prelect came next. The lowest resistance was offered by Westinghouse and G.E.C.

FIGURE 2.

AMOUNT OF HEAT PRODUCED



The amount of heat produced by different irons is presented in Table IV and figure 2.

TABLE IV

AMOUNT OF HEAT PRODUCED

S.No.	Name of Irons		Heat produced in calories
1.	G.E.C.	..	55476
2.	Westinghouse	..	50000
3.	Bajaj Auto standard	..	47500
4.	Deson	..	36051
5.	H.M.V.	..	34234
6.	Morphy Richards	..	27000
7.	Vijay	..	22500
8.	Prelect	..	20000
9.	Prelux	..	19642

Table IV clearly reveals that G.E.C. produced the maximum calories of heat. Westinghouse and Bajaj Auto standard produced 50000 and 47500 calories respectively. Heat developed in the case of Prelux iron was very low (19642 calories).

C. Performance of Irons:

1. Teperature, time taken for heating and cooling of Irons

The reading shown by the thermometer on reaching the temperature set for cotton, time taken for attaining this temperature and turning cold are shown in Table V, figure 3 and 4.

TABLE V

TEMPERATURE AND TIME TAKEN FOR HEATING AND COOLING OF IRONS

S.No.	Name of the Iron	Temperature	Time taken for Getting heated Min. Sec.	Time taken for Turning cold Hours. Min.
1.	Prelect	148°F	2 - 00	1 - 50
2.	G.E.C.	170°F	3 - 53	2 - 40
3.	Prelux	175°F	1 - 50	3 - 30
4.	Vijay	185°F	3 - 30	1 - 45
5.	Morphy Richards	195°F	3 - 00	1 - 35
6.	Westinghouse	190°F	3 - 30	2 - 00
7.	H.M.V.	200°F	3 - 13	3 - 00
8.	Deson	205°F	3 - 22	2 - 00
9.	Bajaj Auto standard	235°F	4 - 26	2 - 25

From table V, Figure 3 and 4 it is clear that Bajaj Autostandard had taken the maximum time that is four minutes and twentysix seconds to get heated. The temperature attained was found to be 235°F which was greater than the temperature of all the other irons. The time taken for turning cold was two hours and twentyfive minutes. The thermometer reading in the case of Deson and H.M.V. were 205° and 200°F. The time taken to get heated in the case of Deson and H.M.V. were three minutes and twenty two seconds and three minutes and 13 seconds respectively. The temperature of Morphy Richards,

FIGURE 3.

TEMPERATURE AND TIME TAKEN FOR HEATING

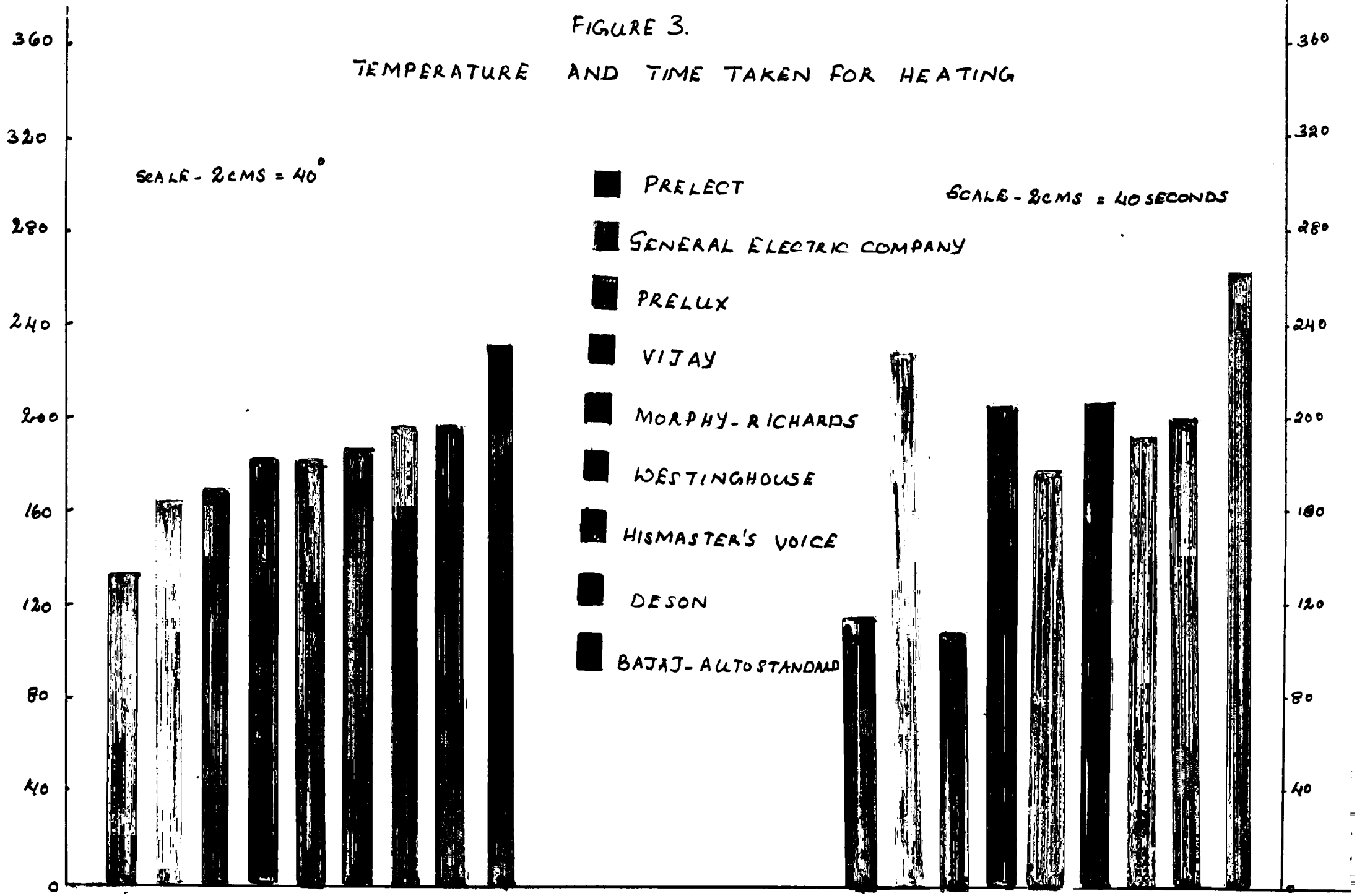
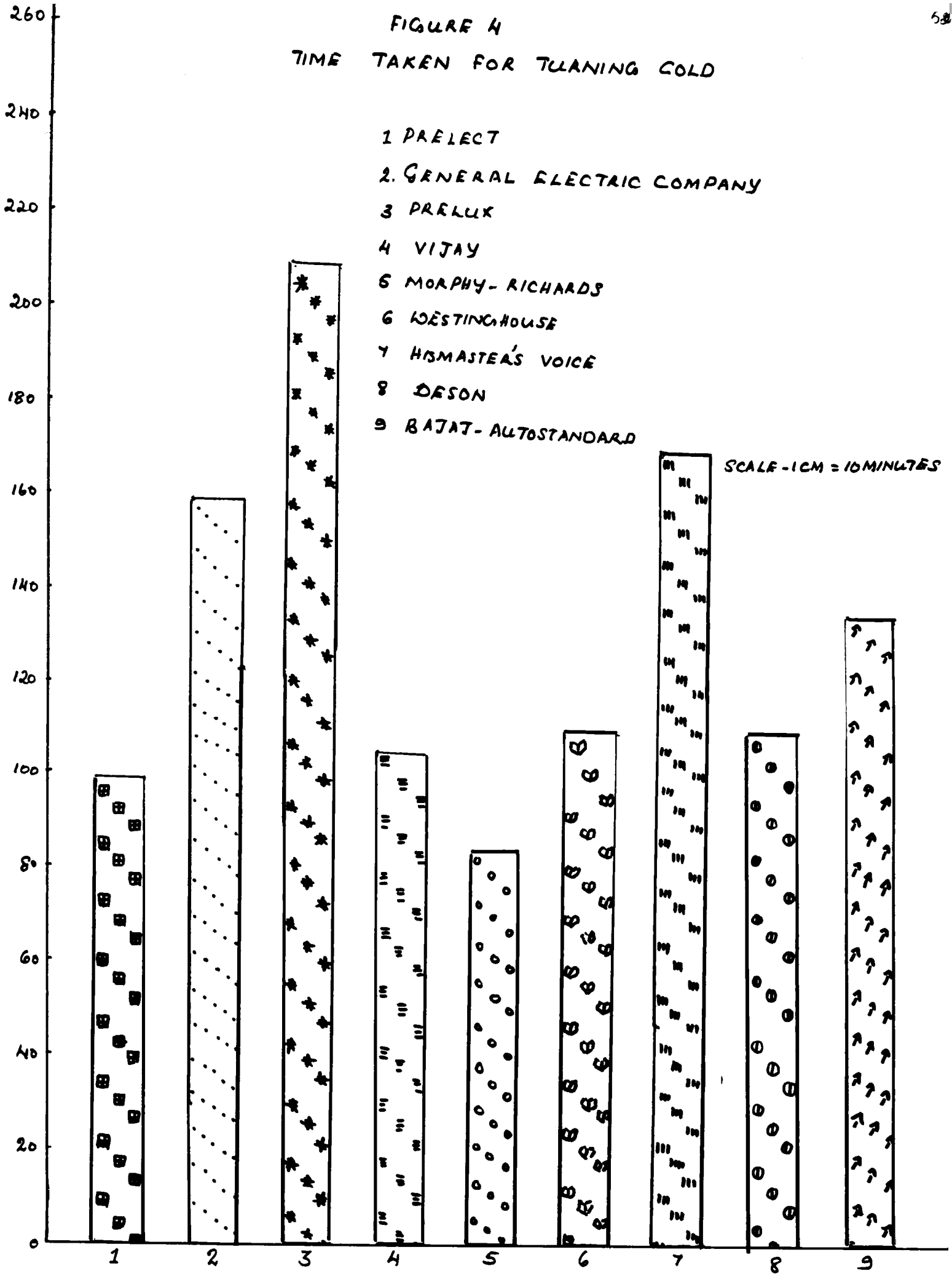


FIGURE 4

TIME TAKEN FOR TUANING COLD



Vijay and Westinghouse irons were 185°F and 190°F respectively. The time taken by Vijay and Westinghouse irons for reaching the particular temperature were three minutes. The time taken for turning cold were one hour and thirty five minutes, one hour and forty five minutes and two hours in the case of Morphy Richards, Vijay and Westinghouse irons respectively. While there was not much difference in the temperature attained by Prelux and G.E.C. irons there was difference in the time taken for getting heated. While Prelux iron took one minute and fifty seconds to attain 175°F, the G.E.C. iron took three minutes and fifty three seconds to attain 170°F. The time taken for cooling was three hours and thirty minutes and two hours and forty minutes in the case of Prelux and G.E.C. irons respectively. Prelect iron had attained the minimum temperature that is 148°F. The time taken for getting heated and turning cold were found to be two minutes and two hours and fifty minutes respectively.

Hence it is clear that the temperature set for cotton by the manufacturers for different irons are different. No two irons are set for the same temperature. The fact that Prelux iron had taken a very short time (one minute and fifty seconds) and a long time to turn cold reveals the capacity of the iron to retain its heat. While getting heated Prelux iron might not have emitted its heat; where as the others might have emitted and

hence taken a longer time to get heated when compared to that of Prelux. Dut to the same fact they have turned cold more quickly than Prelux.

The fact that G.E.C. had taken a longer time than all the others except Bajaj may be due to the difference in the weight of the irons. As discussed under Physical characteristics, G.E.C. was the heaviest of all the selected irons.

By comparing factors like resistance of the coil, heat produced and time taken for getting heated which are given in Tables III, IV and V respectively it could be concluded that G.E.C. produced the maximum heat because the resistence offered by the coil is only 53.2 ohms. In spite of the low resistance Westinghouse has developed only 50,000 calories which is lower than the one produced by G.E.C. This may be due to the slight variation in the time taken by the two irons for getting heated.

Though the resistance offered by Bajaj, Deson, H.M.V. and Prelux are same, variation has been found in the amount of heat produced. This may also be due to the variation in the time taken for attaining the temperature set for cotton. The effect of time and the resistance of the coil are also seen in the case of Morphy Richards and Vijay irons. Hence it is obvious that the resistance of the coil and time have a great role to play in determining the

heat produced by an iron.

2. Time Taken for Dehydration:

The time taken for dehydrating the wetted samples are given in Table VI and Figure 5.

TABLE VI

TIME TAKEN BY IRONS FOR DEHYDRATING THE WET SAMPLES

S.No.	Name of the iron		Time taken for dehydration (in seconds)
1.	Prelect	..	47
2.	G.E.C.	..	39
3.	Prelux	..	37
4.	Morphy Richards	..	27
5.	Deson	..	23
6.	Vijay	..	22
7.	H.M.V.	..	21
8.	Bajaj	..	20
9.	Westinghouse	..	13

FIGURE 5

TIME TAKEN FOR DEHYDRATION

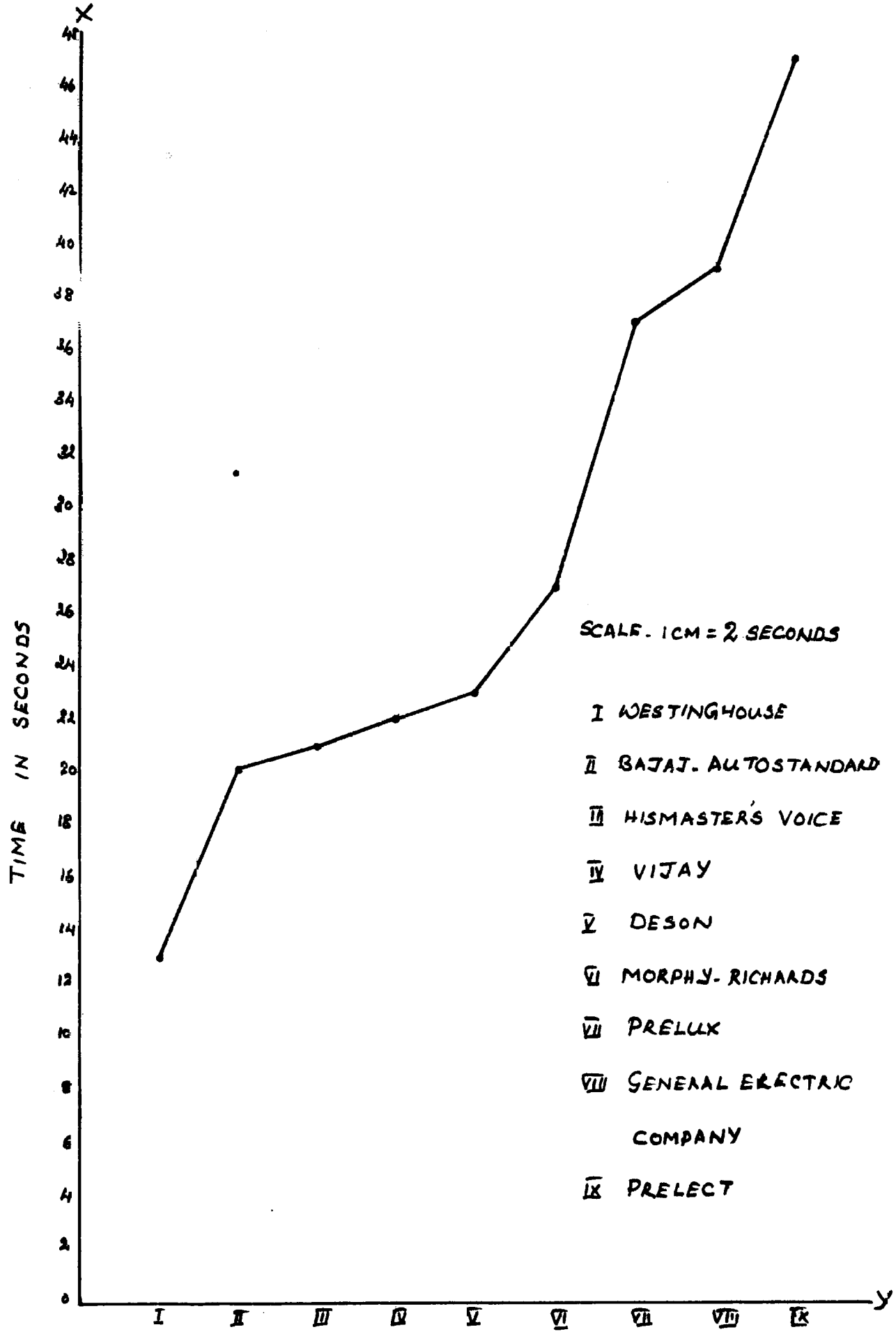


Table VI and Figure 5 reveals the fact that Prelect had taken a longer time than the other irons for dehydration that is forty seven seconds. The G.E.C. and Prelux irons took 39 and 37 seconds respectively. Morphy Richards took 39 and 37 seconds respectively. Morphy Richards took 27 seconds. 20 to 23 seconds were the time taken by Bajaj Auto standard, H.M.V., Vijay and Deson irons.

Hence it could be concluded that Prelect had taken maximum time for dehydration because the temperature set for cotton is very low (148°F). Bajaj Auto standard, because of the high temperature (235°F) had taken only 20 seconds. Westinghouse in spite of the moderate temperature (190°F) had taken only 13 seconds for dehydration.

3. Colour Transference on Dry and Wet Pressing:

On dry and wet pressing, there was no colour transference in the case of the materials ironed with Prelux Vijay, Prelect and Morphy Richards irons. The dry pressed samples showed no colour transference on ironing with irons like Prelux, G.E.C., Deson and Bajaj Auto standard irons. The wet pressed samples in the case of Prelux and G.E.C. were found to be very dull in appearance though there was no colour transference. Slight colour transference was seen in the materials ironed with Bajaj Autostandard iron. The samples wet pressed with Deson iron clearly showed

the colour transference, The dry and wet pressed samples of Westinghouse iron revealed the maximum colour transference. Next to Westinghouse, H.M.V. iron transferred more colour on dry and wet pressing.

D. Evaluation by Visual Inspection:

General Appearance of the Ironed Samples:

The finished appearance of the samples ironed with different irons, as evaluated by the judges by visual inspection are presented in Table VII A.

TABLE VII A

FINISHED APPEARANCE OF THE SAMPLES

S.No.	Name of the irons	Excellent	Good	Average	Poor	Very poor
1.	Deson	12	5	3	-	-
2.	Morphy Richards	9	6	5	-	-
3.	Prelect	2	10	8	-	-
4.	H.M.V.	2	16	1	1	-
5.	Westinghouse	9	10	1	-	-
6.	Prelux	12	6	2	-	-
7.	G.E.C.	1	6	10	3	-
8.	Bajaj Autostandard	3	9	7	1	-
9.	Vijay	10	8	2	-	-

From Table VII A it is clear that out of the 20 judges, 12 had considered the finished appearance of the samples ironed with Deson and Prelux irons as excellent. The sample ironed with Vijay iron was excellent according to 10 judges.

H.M.V. sample was good according to 16 judges. Prelect and Westinghouse were given the second place by 10 judges. Bajaj Autostandard was considered to be good by eight judges.

G.E.C. sample was rated as average by 10 judges. The samples of Prelect and Bajaj Autostandard were average in general appearance according to eight and seven judges respectively. While three judges felt that G.E.C. sample was poor in appearance, one felt that the samples of Bajaj Autostandard and H.M.V. as poor. None of the samples were considered to be very poor by any of the judges.

Absence of crease:

The evaluation done by the judges with regard to the removal of crease is illustrated in table VII B.

Those samples which were completely free from crease were rated as excellent, those with very little crease as good and those with little crease as average. Samples which showed more crease were rated as poor and very poor depending on the amount of crease present.

TABLE VII B

ABSENCE OF CREASE IN THE IRONED SAMPLES

S.No.	Name of the Irons	Absence of crease				
		Excellent	Good	Average	Poor	Very poor
1.	Deson	5	10	5	-	-
2.	Morphy Richards	4	13	3	-	-
3.	Prelect	1	5	14	-	-
4.	H.M.V.	1	10	9	-	-
5.	Westinghouse	6	12	2	-	-
6.	Prelux	4	13	2	1	-
7.	G.E.C.	-	1	14	5	-
8.	Bajaj Autostandard	1	5	11	3	-
9.	Vijay	1	12	6	1	-

Table VII B reveals that the sample ironed with Westinghouse was completely free from creases and was considered to be excellent by six judges. Five felt that the sample of Deson iron was excellent. Morphy Richards and Prelux were given the next place by four judges.

According to 13 judges Morphy Richards and Prelux samples were good as regards removal of crease and Westinghouse and Vijay were considered to be good by 12 judges. The samples of Deson and H.M.V irons were good according to 10 judges.

Fourteen judges were of the opinion that the samples of Prelect and G.E.C. irons were slightly creased and hence they rated the samples as average. Eleven and nine judges felt that the samples of Bajaj Autostandard and H.M.V. were average. The samples of G.E.C. and Bajaj Autostandard were poor according to five and three judges respectively. None of the samples were rated very poor by any of the judges.

Glaze of the Ironed Samples:

The glaze of the ironed samples are presented in Table VII C.

TABLE VII C

GLAZE OF IRONED SAMPLES

S.No.	Name of the Irons	Glaze				
		Excellent	Good	Average	Poor	Very poor
1.	Deson	-	8	12	-	-
2.	Morphy Richards	-	10	8	2	-
3.	Prelect	-	5	14	1	-
4.	H.M.V.	2	10	8	-	-
5.	Westinghouse	3	10	7	-	-
6.	Prelux	3	10	7	-	-
7.	G.E.C.	-	2	16	2	-
8.	Bajaj Autostandard	1	8	9	2	-
9.	Vijay	3	2	11	-	1

From table VII C, it is obvious that the sample of Westinghouse, Prelux and Vijay and excellent glaze according to three judges. The glaze of Morphy Richards, H.M.V., Westinghouse and Prelux samples were considered to be good, by 10 judges each. Eight felt that Deson and Bajaj Autostandard samples were good. According to 16, 14 and 12 judges the samples of G.E.C. Prelect and Deson had average glaze respectively.

Discolouration in the Ironed Samples:

The discolouration of the samples as evaluated by the judges are given in Table VII D.

TABLE VII D

DISCOLOURATION IN THE IRONED SAMPLES

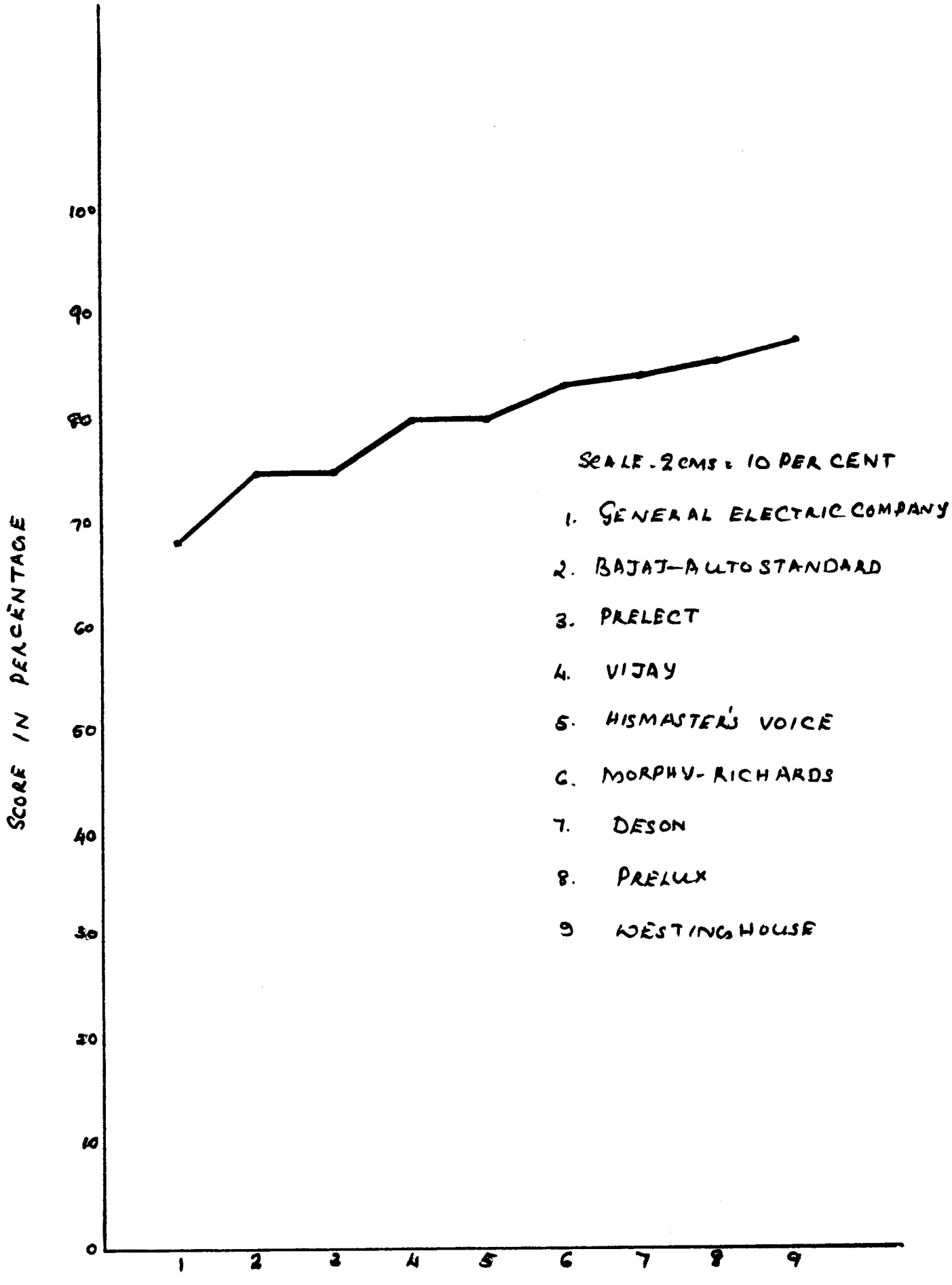
S.No.	Name of the Irons	Discolouration				
		Very much	Much	Little	Very little	Nil
1.	Deson	-	-	-	2	18
2.	Morphy Richards	-	-	-	3	17
3.	Prelect	-	-	-	4	16
4.	H.M.V.	-	-	-	6	14
5.	Westinghouse	-	-	-	2	18
6.	Prelux	-	-	-	3	17
7.	G.E.C.	-	-	-	8	12
8.	Bajaj Autostandard	-	-	-	8	12
9.	Vijay	-	-	-	1	19

The VII D illustrates that 19 judges felt that there was no discolouration in the samples ironed with vijay iron and according to 18 judges, in samples ironed with Deson and Westinghouse irons. 17 were of the opinion that the samples were not discoloured on ironing with Morphy Richards and Prelect irons while 12 with Bajaj Auto standard and G.E.C. Eight judges found very little discolouration in G.E.C. and Bajaj Autostandard samples very little discolouration was found in H.M.V. and Prelect samples by six and four judges respectively.

On the whole it could be concluded that there was no remarkable discolouration in the samples ironed with different irons.

FIGURE - C.

SCORE OBTAINED BY THE DIFFERENT IRONS



Rating of the Evaluated Samples:

The total marks scored by different irons after evaluation are shown in Table VIII and figure 6.

TABLE VIII

SCORE OBTAINED BY THE DIFFERENT IRONS

S.No.	Name of the Irons	Maximum marks scored	Per-cent-age	Rank award-ed
1.	Deson	334	83.85	III
2.	Morphy - Richards	330	82.5	IV
3.	Prelect	301	75.31	VII
4.	H.M.V.	319	79.8	V
5.	Westinghouse	346	86.5	I
6.	Prelux	343	85.8	II
7.	G.E.C.	273	68.3	IX
8.	Bajaj Autostandard	298	74.5	VII
9.	Vijay	318	79.5	VI

From Table VIII and Figure 6 it is obvious that Westinghouse iron scored the highest mark 86.5 per cent and hence ranked first in performance. Prelux with 85.8 per cent marks got the second place and the third place was

given to Deson iron which got 83.8 per cent marks. Morphy Richards, H.M.V. and Vijay were given the fourth, fifth and sixth places with 82.5, 79.8 and 79.5 per cent marks respectively. The marks obtained by Prelect and Bajaj Autostandard were 75.3 and 74.5 per cent respectively. Hence they were given seventh and eighth places. Since G.E.C. iron got only 68.3 marks it was given the last place.

V. SUMMARY AND CONCLUSION

The aim of the study was to compare the efficiency of different brandsoof automatic irons. Using two different interview schedules information was collected regarding the different automatic irons available in the market and commonly used by the home makers in Coimbatore city. The home makers were found to use 18 different brands of automatic irons. Out of the 18 irons, the most commonly used nine irons namely Prelux, General Electric Company (G.E.C.), Bajaj Auto standard, Vijay, Deson, Morphy Richards, His Master's Voice (H.M.V.), Westinghouse and Prelect were selected for the study. Evaluation in terms of physical characteristics revealed slight difference in the weights of irons. While G.E.C. and Westinghouse weighed five and six pounds respectively, the weight of all the other irons were five pounds which was found to be the convenient weight for handling.

The experiment conducted with reference to the performance of the irons proved that the time taken by Prelux iron to attain the temperature set for cotton was very short. But it retained its heat for a long time and hence took longer time than others to turn cold. Vijay, Prelect, Morphy Richards and Prelux showed no colour

transference on dry and wet pressing.

When the visual inspection done by the judges were evaluated and rated, Prelux scored 86 per cent marks which was almost same as that scored by Westinghouse. The marks obtained by all the other irons were lesser than that of Prelux and Westinghouse.

Since Prelux got heated quickly and retained heat for a long time and also showed no colour transference on dry and wet pressing, it could be concluded that Prelux is the best among all the selected irons.

Westinghouse which had taken moderate time for getting heated and turning cold can be ranked next to Prelux. It had not only scored the maximum marks but also had the additional features like open handle with handgrip and thumb rest. The iron was also very light in weight. The only disadvantage was that it transfered maximum amount of colour on dry and wet pressing.

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APPENDICES

APPENDIX No:I

SRI AVINASHILINGAM HOME SCIENCE COLLEGE
COIMBATORE - 11.

INTERVIEW SCHEDULE TO ELICIT INFORMATION REGARDING THE AUTOMATIC IRONS USED IN THE HOUSEHOLDS

Sl. No:

Date :

1. Name of the home maker:

2. Address:

3. Income per month: Rs.

4. a. Do you iron your garments at home?

Yes ☐ No ☐

b. If yes, give the details:

Materials	Moistened Before Ironing		Reasons
	Yes	No	

5. Give the details of the iron that you use:

Name of the Iron	Time of purchase	Length of use	Make	Cost	Weight	Reasons for using the particular iron

6. a. Are you satisfied with the iron that you are using?

Yes ☐ No ☐

b. If no, state your problems in using the iron

7. a. Have you got your irons repaired?

Yes ☐ No ☐

b. If yes, mention the frequency

8. Give the details of repairing under the following headings:

a. Place of repairing:

b. Common defects found:

c. Charges for repairing:

9. What precautions do you follow regarding the care and maintenance of iron?

a. While using: (1)

(2)

(3)

b. While storing: (1)

(2)

(3)

APPENDIX No. II

SRI AVINASHILINGAM HOME SCIENCE COLLEGE
COIMBATORE 11

INTERVIEW SCHEDULE TO ELICIT INFORMATION REGARDING THE AUTOMATIC IRONS AVAILABLE IN THE MARKET

Sl. No:

Date :

1. Name of the shop:

2. Address:

3. Give the details of the iron in the table given below:

Brand Name	Size	Weight lbs	Cost Rs.	Material used			Watts	Volts	Guarantee	Details given in the label
				Base	Handle	Others				

4 a. Do you repair irons?

Yes ☐ No ☐

b. If yes, give the following details:

Name of the iron	Defects Found	Means of rectifying

APPENDIX No. III

PROFORMA FOR EVALUATION - VISUAL INSPECTION

S. No.	Irons	FINISHED APPEARANCE					ABSENCE OF CREASE					GLAZE					DISCOLOURATION				
		Excellent	Good	Average	Poor	Very poor	Excellent	Good	Average	Poor	Very poor	Excellent	Good	Average	Poor	Very poor	Very much	Much	Little	Very little	Nil
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10.																					

APPENDIX No. IV A.

SRI AVINASHILINGAM HOME SCIENCE COLLEGE
COIMBATORE 11

SCORE CARD

MAXIMUM MARKS AWARDED FOR EVALUATION

Finished Appearance Absence of Crease Glaze		Excellent	- 5
		Good	- 4
		Average	- 3
		Poor	- 2
		Very Poor	- 1
Discolouration	-	Nil	- 5
		Very Little	- 4
		Little	- 3
		Much	- 2
		Very Much	- 1

APPENDIX IV B.

SRI AVINASHILINGAM HOME SCIENCE COLLEGE

COIMBATORE 11

MARKS SCORED BY THE IRONS

S. No.	Name of the Irons	FINISHED APPEARANCE					LACK OF CREASE					GLAZE					DISCOLOURATION					Maximum marks Obtained
		Excellent	Good	Average	Poor	Very Poor	Excellent	Good	Average	Poor	Very Poor	Excellent	Good	Average	Poor	Very Poor	Very Much	Much	Little	Very Little	Nil	
1.	Deson	60	20	9	-	-	25	30	15	-	-	-	32	36	-	-	-	-	-	8	90	335
2.	Morphy Richards	45	24	15	-	-	20	52	9	-	-	-	49	24	4	-	-	-	-	12	85	330
3.	Prelect	10	40	24	-	-	5	20	42	-	-	-	20	42	2	-	-	-	-	16	80	301
4.	His Master's Voice (H.M.V.)	10	64	3	2	-	5	40	27	-	-	10	40	24	-	-	-	-	-	24	70	319
5.	Westinghouse	45	40	3	-	-	30	48	6	-	-	15	40	21	-	-	-	-	-	8	90	346
6.	Prelux	60	24	6	-	-	20	52	6	2	-	15	40	21	-	-	-	-	-	12	85	343
7.	General Electric Company (G.E.C)	5	24	30	6	-	-	4	52	10	-	-	8	48	4	-	-	-	-	32	60	273
8.	Bajaj - Auto-standard	15	36	21	2	-	5	20	33	6	-	5	32	27	4	-	-	-	-	32	60	298
9.	Vijay	50	32	6	-	-	5	48	18	-	-	15	48	12	-	-	-	-	-	4	95	318