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out by this method of printing, that he commissioned König to make him a double-cylinder machine, which was completed in 1814, and on November 28 of that year a newspaper was for the first time in any country printed by a machine driven by steam-power.

patent. Grudgingly made use of in the Lyons silk-weaving in 1809, it had displaced all the old methods of weaving in 1812. Applied to ribbon-weaving in Coventry in 1823, the Jacquard machine finally displaced the intricate harness of the carpet handloom in 1825.

v In 1818 Edward Cowper invented a flat ink-distributing table, with distributing rollers, forme-inking rollers, and ink-fountain, which he later applied to König's printing-machine. König's single-cylinder press printed one side of the sheet from a flat forme of type; the double cylinder press, both sides of the sheet, but still from a forme or type on a flat bed.

v Until the introduction of the steam-power loom, the Jacquard machine was first operated by hand and then by foot-treadle. The shuttle containing the weft was also passed backwards and forwards by hand; and the Brussels and Velvet wires, inserted under the coloured worsted threads forming the design and colouring, were put in and drawn out by hand.

The analogy between Book Printing and Jacquard Weaving is closer than that between Newspaper Printing and the process of design and colour production by one operation, which is the distinguishing feature of the Jacquard method, and with regard to which the annals of printing have nothing of equal importance to offer, for the time is yet far distant when type printing and the three-colour method of reproducing colour effects can be carried on successfully at one and the same time.

November 28, 1814, the day on which the first newspaper was printed by steam-power, is in my judgment only second in importance to the first use of movable types, for whatever may be said of the literature of the newspaper nowadays, in the early days when freedom from the wear and tear of telegraph and telephone allowed sufficient time for the process of literary incubation, leader-writing was a serious business, and the free dissemination of the well-weighed utterances of men of education and wide literary experience, in close touch with the affairs of the world, cannot fail to have exercised considerable influence upon all capable of reading a paper.

It is a curious coincidence that William Nicholson, in 1790, should have paved the way to the great improvements in printing-machines which culminated in the accomplished fact of newspapers being produced at a price which placed them within the reach of all, on that memorable day, November 28, 1814. It was in 1790 that Joseph Marie Jacquard turned his attention to the machine which made his name famous and his country prosperous; but it was not until 1812 that the complete adoption of his invention simplified and accelerated the production of figured and coloured fabrics to such an

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extent that by 1814 the use of the Jacquard machine for the manufacture of fabrics of all classes of materials enabled France to distribute her Art fabrics over the globe, and in so doing to demonstrate the exceptional gifts for design and colour which she undoubtedly possesses.

Mr. G. Townsend Warner, in a section of *Social England* entitled "Industry Transformed," shows clearly the results arising from the efforts of the handful of men of genius such as Lee, Arkwright, Cartwright, Watt, and Jacquard: "The years 1801 to 1815, in contrast to the latter half of the eighteenth century, are not marked by great names or great inventions. Inventions, indeed, were numerous enough, but they were small inventions, improvements on existing processes. Machinery was applied in all directions, adapted from one trade to another. It became increasingly complex in nature, but it was not novel in principle."

This summing up of the industrial situation arising from the substitution of machine for hand power is illuminating and fertile of suggestion. It is not too much to say that if Printing and Carpet-weaving had both remained at the stage in which they were when steam-power had been applied to the one and the Jacquard process to the other, both arts would have benefited from an aesthetic point of view; the loss would only have been that whereas books, newspapers, and carpets were in 1814 within the reach of thousands, they are in this year, 1909, within the reach of hundreds of thousands, with the inevitable result of the deterioration accompanying "quantity, not quality"; for, however it may be argued that modern processes have only accelerated production, it is undoubtedly true that the constant craving for change and variety has made demands upon the literary man and the artist which can only be fulfilled at the expense either of their brains and constitutions or of the quality of their artistic efforts. It is quite true that the cheapness of knowledge, both literary and artistic, has largely increased the average of those capable of contributing to the enormous demand for a variety ranging from the periods lying between Homer and Darwin—from the famed products of Tyre and the Jacquard carpets of the present day. Quantity has largely superseded quality, not because there is any lack of ability to equal the best that has been achieved in the past, but because the pressure of the age has not left time for that leisurely seeking after perfection which is an essential condition for producing work that will live.

For the purpose of concluding my comparison between Printing and Carpet-weaving, I will conceive the art of printing books as it is

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practised in one of the leading establishments in Great Britain, and the art of weaving by the Jacquard system of design and colour production as I know it to be practised in a carpet manufactory offering points of similarity in management and equipment, which place both arts upon an equal footing.

Having asserted that quantity has largely displaced quality, it is only fair to say that the leading printing establishments and carpet manufactories of this and other countries are as capable of producing fine work as at any period following that when art of all kinds was only for the great and wealthy ; it is only a question of cost and time ; the services of experts in any art direction cannot be monopolized for a mere "Thank you," and time must be given to produce fine results.

Premising that in 1857 *The Times* discarded the König printing-machine, adopted one patented by Hoe of New York, and, not satisfied with this, produced one of their own, afterwards called the "Walter Press," the tale of newspaper printing is sufficiently told for my purpose, there being nothing yet in Carpet-weaving to correspond with James Young's type-composing machine of 1842, or with the perfected linotype machine of 1889, which seems to have exhausted all possibilities in the direction of automatic type-composing.

In Carpet-weaving by the Jacquard process, it is sufficient to mention that from its first leaving the hands of Jacquard as a perfected machine it has only been added to in directions not invalidating in the slightest degree Jacquard's original conception of the work the machine had to do. The truth is that Jacquard was a practical weaver himself, and from experience knew exactly what was required to accomplish essentials, beyond which he had no desire to go, knowing full well that the "fancy" contrivances of the theoretical inventor are snares, delusions, and hindrances to the weaver, who has enough to do in closely watching his warp and weft threads, without having to deal with complications which only arise when the inventor is catering for an industry he knows just sufficiently to attain his ends, without simplifying his means.

There is no record that Jacquard improved his machine in any important detail after he had secured his patent, and at the present day little scope is offered to the inventor as regards the machine itself, although it is by no means improbable that some day a system of arranging the punches for stamping the cards will be arrived at, which, worked on the lines of the linotype machine, will save the time and the preliminary expense of providing the "soul" of the Jacquard machine. It has been suggested that Jacquard's merits are

Plate XXIII

PLATE XXIII

JACQUARD PRAYER RUG

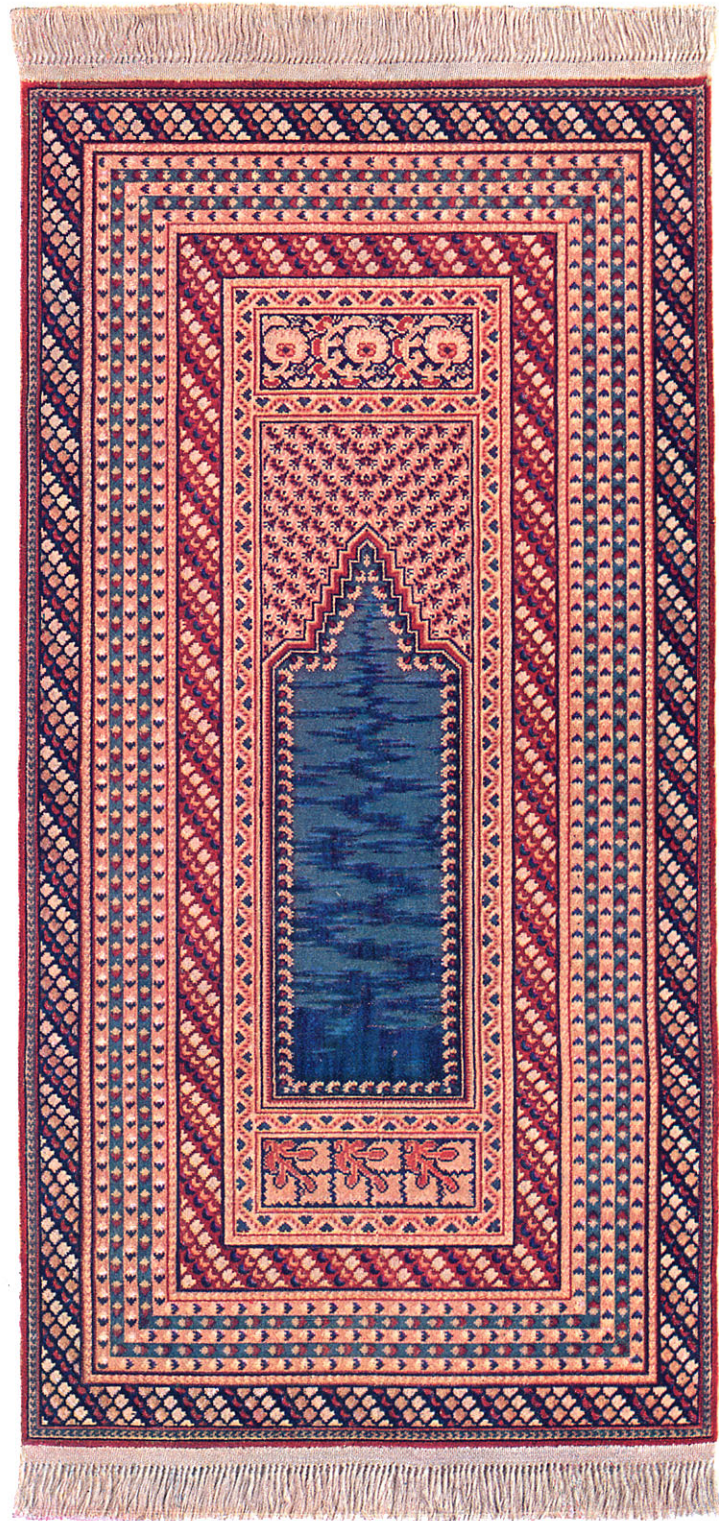
Size 6-0 × 3-0

WARP—10 cords to the inch

WEFT—10 cords to the inch

100 CORDS TO THE SQUARE INCH

(See Analysis)



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only those of the adapter, not the inventor ; but this is just as reasonable as it would be to deprive Watt of the merits of his engine, because he did not *invent* steam. Both men were pioneers in their respective directions, in the sense that they both achieved, for useful and practical results, what had not previous to their efforts been anything more than the far-seeing ideas of a Nicholson, who was the guiding star but “never actually constructed a machine.”

It has already been remarked that the introduction of the Jacquard machine did not dispense with the operations of dividing the warp, passing the shuttle, and inserting and drawing out the wires ; the first of which until the introduction of the steam-power loom in 1851 was done by foot-treadles, while the other operations were by hand. At first the Jacquard machine was worked by hand ; but an ingenious weaver hit upon the idea of turning the cylinder and raising the lash by means of a foot lever, which remained in use until the whole of the operations of weaving were automatically performed by the loom, which now only requires careful watching to see that the worsted, warp, and weft threads remain taut and unbroken, that the wires do not “skip” and cause imperfect work, that the shuttle does not fly out of its box and groove, and finally that the finished carpet does not get doubled round the spiked roller carrying the fabric on to a movable bar immediately below, from which the finished piece is eventually removed. Even his work is measured for the weaver, who beyond arranging his colours in the frames, tying in his warp, filling his shuttle, and wielding the oil-can, is more or less of an automaton, whose services will doubtless be displaced in the near future by a central bureau in each factory, electrically controlling the operations of each individual loom, in the same way as the torpedoes of modern warfare are trained to perform their diabolical evolutions.

In the following table it is presumed that Book Printing and Jacquard Weaving are up-to-date and in full working order:—

BOOK PRINTING AND JACQUARD WEAVING

BOOK PRINTING

w A complete assortment of type of any one particular style is called a “fount,” and may vary in amount to any extent, according as it may be required in large or small quantities.

The different founts of type are arranged in cases, the upper cases containing the capitals and other types less frequently used ; and the

JACQUARD WEAVING

w The corresponding feature to a fount of type is a frame of the coloured worsted threads which form the pile of the carpet. The length of the thread wound on each bobbin regulates the length of the fabric to be woven.

For a five-frame carpet the bobbins of coloured worsted are arranged in

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lower cases containing the smaller letters, stops, numerals, signs, and generally the miscellaneous types constantly required, which consequently have to be "handy" for the compositor.

The individual type is a piece of metal about an inch long, the letter or sign to be printed being in relief on one end; a notch or "nick" upon the lower end of each type bar enables the compositor to arrange his types by the feel; this nick, and the letter or sign, face the compositor, who by constant familiarity and the guiding nick can handle the type right side up or upside down indifferently.

The varieties of types the compositor has to handle is in marked contrast to the single Jacquard stamping punch, which is invariably of one pattern.

* The compositor, having his "copy" before him, arranges the types in a setting-stick, a narrow metal tray, with a thin lower rim the depth of which allows the head of the type to project; and with a stronger rim on the right-hand side, to resist the pressure of a movable bar, regulated by a screw, to enable it to be fixed according to the width of the page to be set up. The types are arranged in the stick, type by type, and from left to right, the nick facing upwards, so that the matter set up is upside down until transferred to the galley.

When the setting-stick is full, the type is transferred to a galley—a brass tray with wooden sides, corresponding with the size of the page to be set up—and the operation of transferring the type from setting-stick to galley frame is continued until the galley is full. This galley when filled contains matter in one column, and the types are kept together by means of wedges driven in against the sides. It will be readily understood that, being a flat movable tray, when the type is in position, with the letters upside down, as it comes from the setting-stick, the reversal of the galley

five separate frames, one above the other. The top frame generally contains the colour forming the ground or main colour of the carpet; the second frame, the lightest colour; the third, the darkest; while the fourth and fifth frames contain the assorted coloured threads which are used in "chintz" effects, and in Oriental colourings when the colouring demands variety. The mixed colours are arranged in the lower frames, as being more convenient for the weaver to handle, and arrange his bobbins.

The punches used in stamping the cards are plain round bars of steel, the lower end having a groove with sharp edges to cut the card, and the upper end a head, to keep it in the stamping plate, and to offer resistance to the pressure used when the operation of stamping is in progress.

* The stamper, having her coloured design paper before her, arranges the punches in a perforated metal plate, with handles, which corresponds to the setting-stick. The method of arranging the punches differs entirely from that of setting type; but the misplacement of a single punch causes a defect in design and colouring. The cards to be stamped, which have been numbered 1 and up, according to the length of the design, are placed one by one in a strong metal box with a movable bottom; a strong hinged plate encloses the card between the two plates, which have perforations corresponding with the stamping-plate. The punches being arranged in the stamping-plate, this is placed immediately over the two plates referred to, a strong metal plate slides over the stamping-box, pressure is exercised by machinery *from below*, by means of an eccentric wheel; the card is stamped, and when all are done, they are ready for lacing.

It is a curious coincidence that the stamper does her work from the design paper upside down, the number on each card being on the left. When the card is laced, this number is on

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shows the type ready for printing. A first rough proof is now taken from the type in the galley, by means of a hand-press. A trained proof-reader carefully looks over this to note any errors made by the compositor; a second or a third proof may be taken in the same way for complicated matter or an exacting author; and finally a "clean" proof is taken, for the author to overlook and make further suggestions, which each time results in the operation of proof-taking, until each page of matter is perfect. This operation of taking proofs corresponds with the Jacquard making of trials, dealt with under z.

When the author has been at last satisfied, the type is taken from the galleys and arranged in pages. This operation requires the greatest dexterity and nicety in the handling of the two or three thousand separate types making a page, the number, of course, varying according to the size of the book. Any failure to keep the mass of type firmly in hand while transferring from galley to chase results in "printer's pie," the unlucky compositor having to do his work all over again, a penalty little short of being condemned to the "Galleys," from which fact the galley-tray into which the type is placed for proofs takes its name. The pages are finally locked up by means of wedges in the iron chases (French *châsse*, a frame) or "formes," also from the French.

y The basis of calculation for arriving at the number of pages to be arranged for in the completed book is that the average length of a word is equal to five small "n's" placed together. It will be understood that after averaging the author's copy, on the basis of the number of separate words contained in the work, a calculation averaging each word as being equal to five small n's gives the resulting size of the book, according to the size of the page.

As a matter of interesting comparison between Book Printing and

the right-hand side, and also when placed upon the Jacquard cylinder for weaving.

After the whole of the cards required to form the design have been stamped according to number, the stamper's work is ended. The number of cards required for each design as much depends upon the size and length of the pattern as the amount of type depends upon the size of the page and the number of pages in a book. There cannot be less than 4, 6, or 8 cards required to go once round a square, hexagonal, or octagonal Jacquard cylinder, while as many as 10,806 cards were required for the Jacquard reproduction of the Ardebil Carpet, illustrated in colour in this volume.

The cards being stamped, the lacer has to do her work, which consists in lacing or sewing the cards together in a continuous chain. This at one time was done by hand; but the same work is now performed by an ingenious machine. The method of preparing the cards for the Jacquard cylinder varies according to the principle upon which the Jacquard is worked, some cards being "wired," or fastened together by wires, the whole width of the cards required to comprise the full width of the fabric. In other systems, each row of cards (as noted in the next section) is separate and distinct from the others required for the various widths of the fabric.

y The basis of calculation for arriving at the designed and coloured area of a carpet is the single spot or "cord" of colour, which corresponds with the Oriental hand-knot; the term "cord" is used whether referring to the warp or to the weft. A row of cords from edge to edge of the width of the fabric is called a "lash"; the row of similar cords the length of the fabric is called a "course"; and in calculating area, the number of cords in the lash and course, multiplied together, gives the aggregate cords in the square. For instance, the Ardebil Jacquard repro-

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Carpet-weaving of any description, assuming a page of type of the size of this volume contains 2500 separate type letters per page, this number divided into the number of cords in the Ardebil Jacquard reproduction, viz. 1,383,168, gives a handsome book containing 553 closely-printed pages. To place this comparison on a proper basis, it may be said that the designed, coloured, and stamped pattern, which is revealed to the eye instantaneously, is equal to a thick volume of 553 pages, to arrive at the contents of which the book has to be supported in the hand, and the pages turned over one by one, from beginning to end. It is not perhaps to be wondered at that the Orientals, who are not great readers, prefer the luxury of reclining upon a carpet of artistic suggestion, and lazily reading the verses from the Koran woven thereon.

- z In transferring the type from the galleys to the chases, the most important operation is arranging or "imposing" the pages of type, so that when the printed sheets are folded, the numbered pages follow one another in due order, upon which the sequence of the printed matter depends. It will be understood that in the same way that the misplacement of a single type causes a mistake, so the imposing of a page of type in the wrong position upsets the sequence of the pages, necessitating the whole double sheet being printed over again, or if patched, the disturbance of the folded order of the sheets.

The type is arranged in the chases, and the sheet folded, according to the size of the book. Bearing in mind that each sheet is printed on *both* sides, that is, on the inside and the outside of the sheet, the following particulars give some of the standard sizes:—

Elephant.—In this size each side of the sheet has only one page printed thereon. An example of this unusually large size is found in the Vienna Carpet Book, in which the type is arranged in double columns. It will be understood that in the case

duction already referred to has 1801 cords in the length, and 768 in the width, or 1,383,168 cords of colour are required to form the complete carpet, which is equal to the same number of hand-tied knots.

Upon the same basis of calculation, if the original Ardebil Carpet were reproduced upon the lines of the smaller carpet above referred to, which measures 15-3 × 6-9, as against the original 34-6 × 17-6, the number of separate cords of colour required to complete the larger size of carpet would be 8,111,334, which, compared with the 33,037,200 hand-tied knots in the Persian masterpiece, offers a useful idea of the fineness of the Oriental fabric, which is four times as fine as the Jacquard masterpiece, of the same design and colouring, whether the size of that illustrated by Plate III, or of the original.

- z The cards having been laced in their proper order, according to the numbers written on each card by the stamper, the chain of cards is taken to the loom, placed round the Jacquard cylinder, and the ends are laced together, forming a continuous row, which automatically repeats the pattern, until the fabric is woven the required length. The misplacement of a single card causes a fault in the fabric which can only be rectified if noticed at once, in which case the fabric can be unwoven, the cards unlaced and put in their proper order; otherwise the portion wrongly woven is completely spoiled.

The first operation when the cards are in position on the Jacquard is to make a pattern, which discloses any defect either in the stamping or the lacing of the cards. Unless a serious defect necessitates stamping an entire card afresh, the "corrector," or man who has charge of the card department, punches a hole by hand where required, or arranges for a blank, to operate the needle, by filling in a hole. The next process is a full pattern to gauge the general effect of the design and colouring; this generally necessitates some slight alteration in the

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of this and similar books no folding is required.

Folio.—Two pages of type appear on each side of the sheet, or four pages on each sheet, which is folded once. The Shakespeare Folio of 1623 well illustrates this size of book.

Quarto or 4to.—Four pages of type appear on each side of the sheet, or eight pages in all. The sheet is folded twice. This and the following sizes are sufficiently familiar.

Octavo or 8vo.—In this size there are eight pages of type upon each side of the sheet, or sixteen pages in all. The sheet is folded three times.

16mo.—Sixteen pages of type are printed on each side of the sheet in this size, and the full sheet, printed on both sides, and folded four times, contains thirty-two pages of printed matter.

According to a well-known book of reference, the sizes of printing papers range from "Post," measuring $19\frac{1}{2} \times 15\frac{1}{2}$ inches, to "Double Royal," having a surface of 40×25 inches, so it will be seen that there is latitude in both directions, from a size of book largely exceeding the *Elephant* referred to in the table, down to one the size of a postage-stamp.

An important feature in printing and binding is the "signature," a letter, or figure, printed on each *sheet*, which not only indicates the number of times the sheet has been folded, and consequently the size of the book, but also affords a sure guide to the sequence of the pages, and would serve, if any author desired, to avoid the aesthetic disfigurement of pages caused by numbering them. Early printed books only bore the "signature," which was therefore of the first importance, and is the only means by which the integrity of an old book can be ascertained, outside the reading matter, which to an amateur in any case is extremely puzzling.

After the sheets are printed and folded, as explained, the next process is the binding, previous to which the folded sheets have to be sewn together.

design, and consequently in the cards, to improve the balance of the design or colouring, or both. A final or "clean" pattern is then woven for careful examination, and if approved, the pattern is passed for weaving goods.

As a rule, when a set of cards are on the loom for what is known as "pattern-trying," a number of trials in various effects of colour are made, and the great advantage of the Jacquard system of weaving is that the Jacquard requires no alteration whatever for the process, any new coloured threads required being placed in the frames, the threads passed through the eyelets in the lash cords, during which process the cards remain upon the cylinder and the whole Jacquard apparatus remains untouched.

The standard of measurement in Jacquard goods as to width is 9 inches, or a quarter of a yard, 2-4 meaning 18 inches wide; 3-4—the standard width—27 inches wide; 4-4, 36 inches, or 3 feet; and so on up to 16-4, or 12 feet wide.

The number of rows, or chains of cards, depends upon the width of the carpet, as the following table will show:—

2-4	2 rows of cards.
3-4	2 "
4-4	3 "
5-4	4 "
6-4	4 "
7-4	5 "
8-4	6 "
9-4	6 "
16-4	11 "

It will be seen that the same number of rows of cards are required for two different widths, the reason being that "half-cards" are not made use of, it being necessary to have the complete card with the large holes punched at the sides, to fit on the pegs of the Jacquard cylinder, which keeps the chain of cards in position, and helps to turn them over when the cylinder revolves.

It will be understood that in a width of fabric requiring several rows

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There is a correspondence in this to the process of "sewing" or making up a Jacquard carpet, made in various widths. It does not necessarily follow that a printing establishment also does the binding, which indeed is a separate and distinct process, just as much as the making up of a carpet, both requiring expert handling.

After any particular book is printed, the chases containing the type are stored for the next "edition." This sometimes having an uncomfortable habit of being deferred, in entire disregard of the merits of the work, the printer has to wait events with all the patience he can muster, which means keeping "locked up," in a double sense, both his type and his capital. The forty to fifty tons of type a large printing establishment has to "tie up" for an indefinite time is a serious matter for any but a very large concern, in which the resources in all directions are equal to any strain imposed upon them.

It will be understood that when author and printer have given up all hope of a book being in such demand as to require a second edition, a decision has to be come to as to breaking up the type in the chases and "distributing" it, as the term is, after which it can be used again for as many other separate works as may be called for in each particular fount of type.

It is hard to fix a limit of durability for type, which, being of metal and "hard-faced," should almost last for ever. The first type cast in England was by William Caslon in 1720, and his famous founts of type are in use now in many directions. John Baskerville of Birmingham (1706-1775) also cast, and used in the series of works issued by him, a leaner-faced type, which had in its time a great vogue, the first important classical work of the fifty-five printed by him being a fine quarto Virgil, issued in 1757. Baskerville's printing plant was purchased in 1779 by the great French author Beaumarchais, who used it for the first complete edition

of cards, the misplacement of an entire row would be fatal; to guard against this, each row is lettered A and up, to Z if need be; this letter also shows where each row of cards begins its particular part in the completed design. It will be seen that this card "signature" is of equal importance with the sheet signature in printing.

The process of manufacture is the same for carpets woven in breadths, and in one width, without seam, or "seamless," as they are called. When carpets are woven in breadths, the next process is the "making up," or fitting to any particular-sized room, the term for which is "planning," which is either done by a firm exclusively devoted to this class of work, just the same as a binder, or, in the case of the large retail carpet houses, in their own planning-rooms, which require a large unbroken floor space and an expert staff of planners and sewers. Few manufacturers do more than have a sufficient staff of planners and sewers to oblige customers who do not possess a planning-room.

Any large Jacquard carpet manufactory has anything up to 12,000 sets of paper designs, which can be manufactured in any of the numerous fabrics which the Jacquard machine will produce. It would be impossible to have all these designs represented by cards for weaving them, for it must be remembered that each body has its border; and in addition to this, stairs of various widths up to 12 feet wide to "match," as it is called. In the same way, therefore, as the printer has to distribute his type, the Jacquard manufacturer has to *destroy* his cards, either to make room for new cards or when the cards are worn out by constant use. When once destroyed, the whole process of stamping and lacing has to be gone over again, as already explained. At a rough guess, anything over a hundred tons of stamped cards have to be kept constantly in stock, for the repetition of any particular width of any particular design which may be asked for.

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of Voltaire's *Works*, which is known from the small German town it was printed at as the Kehl Edition. Issued in 1785, this fine edition of the most remarkable of the French writers was therefore very happily printed by English machines, and from types designed and founded in England by John Baskerville; and by reason probably of the strong feeling still existing against Voltaire's writings, in spite of his death in 1778, the edition in question was printed at the small town of Kehl in the Duchy of Baden. Thus, very happily, England, France, and Germany have been associated in literature, and may yet be in other more far-reaching directions, for as "Art has no Nationality," its influence may extend the saying to "Civilization has no Nationality."

It only remains to say that both William Caslon and John Baskerville were born in Worcestershire, which therefore has the honour of having produced the first Englishman capable of competing with the foreign type-founders, and the Englishman who not only designed and founded his type, but issued books to the world, one of which Macaulay, speaking of the great Virgil before mentioned, said "was the first of those magnificent editions which went forth to astonish all the librarians of Europe."

Incidentally, the county in which Caslon and Baskerville were born adjoins the county in which Shakespeare was born, and for many years lived, and in which he died—as happy a conjunction of events as those recorded in a previous paragraph.

I close this brief account of some of the processes of printing with the assertion that the Carpet, Music, and the Book are the three greatest civilizing forces in the World, and that the greatest of these is the "WORD."

As a last coincidence between book printing and Jacquard carpet-weaving, in the same way as a printer can vary the matter or "colour" of his page when the type is distributed, so a set of Jacquard cards, when once stamped, can be used for any variety of colouring under the sun, which colouring depends entirely upon the arrangement of the bobbins of coloured worsted in the frames. It may not be inappropriate to record here what is called a "plant" or "plant-slip," which is woven after each colouring of a pattern, whether such pattern is for the preliminary pattern only or being made for goods. Obviously this plant-slip cannot be woven before the stamping and lacing of the cards has been done, for which reason it has not been mentioned before, although it may be recorded here that the frames of colours for producing the first pattern of a new design are arranged by means of a *paper* plant prepared by the artist.

After the completion of each order, whether for bulk or a special quantity for some particular purpose, the last work of the weaver and the Jacquard apparatus is to weave this "plant," which serves as an exact record of the design, colouring, and quality of the pattern or goods it is connected with, particulars of all of which and the date are attached to each slip.

The cards have to be stamped for the plant slip, and are placed on the cylinder after the design set of cards have been taken off. The slip shows 3 to 4 inches of the pattern, one lash of the four lower frames, and two lashes to denote the upper or ground frame.

Until destroyed from time to time, a million of these "plants" will accumulate, each recording its distinct design, colouring, and quality. Truly a "Garden for the Gods."

The block-book marked the transition from the fine old hand-printed and illuminated manuscripts which were produced in comparative abundance up to the close of the Middle Ages, to the time when the invention of movable type clearly showed types

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fully equal to the best hand-work, and consequently artistically pleasing to the eye and restful to the mind, and, the supply being unlimited, the death-knell of hand-work from a purely utilitarian point of view was sounded once and for all. It is not to be supposed that the art of illumination as an art for the wealthy patron, the natural outlet for the man of genius inclined that way, and perhaps the hobby of the talented amateur, died entirely upon the introduction of printing. The reverse, indeed, in some directions was the case ; but it was "Art for Art's sake," and as usually happens when this is so, there was little room for the practice of the art with those to whom making a living was the first consideration.

As an illustration of the fact that true Art can survive the most cruel strokes of fortune, the exquisite work of the famous calligrapher Nicolas Jarry can be mentioned as equalling, if not surpassing, anything of the kind done at any period of the art. When the splendid Hamilton pictures, books, and manuscripts were disposed of in 1883-1884, the whole collection of manuscripts was purchased by the Prussian Government for the Berlin Museum, for the sum of £70,000, or the exact sum paid by the British Government in 1885 for the Marlborough Raphael, "Ansidei Madonna," and £2000 less than the preposterous ransom by which the Norfolk Holbein, "Princess Christina of Denmark, widow of Francisco Sforza, Duke of Milan," was saved to the nation in June 1909.

Amongst the collection which thus passed from this country to the enterprising and artistic nation whose agents never seem to lose an opportunity of acquiring anything unique and priceless, were three small Prayer-Books, written and illuminated by Jarry in 1650, 1652, and 1663. He is spoken of in Bouillet's *Dictionnaire Universel d'Histoire et de Géographie* as having been born in Paris towards the year 1620 (date of death unknown), and is described as "Writer and Copier of Music" to King Louis XIV. ; he may also be regarded as the last of the great calligraphists.

Reference has already been made to William Blake's drawings to the *Book of Job*, 1825, and at the same sale at which the volume realized the enormous sum of £5600 (at the sale of original productions of Blake, the property of the Earl of Crewe, March 30, 1903) were other written and illuminated manuscripts, all exhibiting the unique style of the poet-artist. It is well known that the late William Morris was in his early artistic life attracted by the arts of writing and illumination, as indeed he was by anything medieval ; in the Easter Art Annual of *The Art Journal*, Extra Number, 1899, are three specimens of his work, reproduced by permission of Lady

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Burne-Jones. These examples bring the art up to the close of the nineteenth century ; but again, charming as it is—and the delightful work of Miss Florence Kingsford for Mr. St. John Hornby's "Ashdene Press" has still to be mentioned—the art has long ceased to be the necessity it was before the introduction of the wood-block and the movable types.

The fineness of the dividing-line between handwriting and the first beginnings of the printed book is shown by the fact that there is still a moot point as to whether the wood-block or movable type was responsible for breaking through the traditions of the calligraphist. The probability seems to rest with the wood-block ; but there is so much to be said on both sides, the matter can well be left to experts.

After this further mention of the arts of the calligraphist and illuminator, the stage seems to have arrived when a fresh comparison can fairly be drawn between these arts and the art of the Oriental carpet-weaver, of which latter the Ardebil Carpet is a unique illustration, from the fact that in its general style of design it has distinctly the suggestion of having at least been inspired from the Koran, and was very probably designed by the Court artist of the period from one of the fine illuminated manuscripts in the royal collection. In considering the difference in the materials used in exhibiting the respective merits of the arts named, the balance of credit is largely on the side of the carpet, which at every step of its manufacture, as regards texture, design, and colouring, presented difficulties which could only be overcome by a master of all three branches of the art; for even presuming that Maksoud had, as I imagine, a sufficient working guide, the time was far distant when the Jacquard machine relieved the weaver of any anxiety as to design and colouring, and the merit of the finished carpet belongs to Maksoud of Kashan, and Maksoud alone ; the artist's design without the weaver would have been but a manuscript, and it cannot be gainsaid that the merits of the fabric itself have a value quite outside any other artistic consideration, while it is the combination of the qualities which raise the carpet above any other of a like class.

The arts of the calligraphist and illuminator are essentially feminine ; and in spite of the heroic subjects frequently depicted, the same can be said of tapestry, which irresistibly reminds one of the practice of the art by Homer's Penelope ; and, over two thousand years later, of Queen Mathilde, of Bayeux Tapestry fame. The Aubusson and Savonnerie carpets are distinct of their class, and whatever their merits as fabrics may be, they have little suggestion of the true Oriental designs and colourings. The late Mr. William Morris, in

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spite of his admiration for the fine Persian carpets, and his desire to “make England independent of the East for carpets which may claim to be considered works of art,” very strangely made no attempt to emulate the wonderful specimens of the great period of the sixteenth century, up to the death of Shah Abbas in 1628. Mr. Morris issued his Carpet Circular, announcing his intentions with regard to this new outlet for his artistic resources, and his views as to its development, in the year 1880, at which time the very finest examples of Persian and Indian antique carpets could have been obtained at prices which would have shown a much larger profit than his collection of manuscripts, which I believe realized a very handsome return upon his outlay, when sold after his death.

The true Oriental Carpet is vigorous, robust, and of fine-bred strength in texture, design, and colouring, and can claim in all its essential characteristics to be thoroughly masculine.

The Jacquard carpet, whether from the inevitable necessity of dealing with the continuous rows of coloured threads, lying upon one another in the series of courses forming the width, or from a serious and scientific study of the fine Oriental carpets, approaches more closely to the true Oriental fabric than any other make of carpet.

The preceding division, “Carpets, Runners, and Rugs,” having particular reference to the finer grades of Persian and Indian carpets, it may be convenient to refer briefly here to the leading varieties of Jacquard carpets, and at the same time to mention other makes, which, while presenting superficial resemblances, are nevertheless made upon distinctly different principles, as regards the essentials of Design and Colouring.

Hand-made Axminster.—The process in this splendid fabric is a mere modification of the Persian method, the worsteds used being actually knotted to the warp threads. This quality, which is as distinct in its manufacture as the old hand-made “finger-rug” quality already referred to, is only again mentioned here to enable the uninitiated to understand better the machine-made Chenille and Royal Axminster fabrics, which will soon be referred to.

Brussels Carpets.—I have no information as to when this fabric was first made in the Belgian capital, which gave it a name which it has since held in all the countries of its manufacture. It would undoubtedly precede the cut pile, in the same way as the ancient plaiting would naturally come before any attempt to cut threads, the sufficient bind of which, afterwards, formed one of the great problems to be faced, when the superior effect of the velvet surface was first

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discovered. Introduced into this country in 1749, there has been no material change in its manufacture, and from its nature, no other method of reproducing the clean firm surface of looped pile threads is likely to be attained. It is to be specially noted that the worsted threads of which the surface is composed are dyed in such quantities of the same colour, that when wound upon bobbins and placed in the frames, each single thread used is of one uniform colour throughout its entire length. This fact necessitates the use of the Jacquard, whereas in *printed* fabrics each thread is parti-coloured, the design and colouring being formed automatically from a single beam or "frame" of colour, previously printed, the coloured portions of each separate thread being so arranged that the withdrawal of the wire, whether Brussels or Velvet, leaves the exact spot of uniform colour of which the pattern is built up.

The quality of a Brussels carpet cannot be judged upon the mere basis of the number of frames of colours of which it is made; it is quite possible for a carpet of this make of any single colour to be of a much higher grade than the five or six frames to which the fabric is generally confined, on account of the fact that only one of the frames of worsted can appear upon the surface. In explanation of this seeming contradiction, it is obvious that one frame of the finest grade of worsted possible to be introduced to form the pile of any Jacquard fabric, whether Brussels or Velvet, may be superior to five frames of ordinary quality of worsted, only one of which can be drawn to the surface at a time. In the absence of the intertwining which occurs in the rise and fall of the worsted threads in a five-frame carpet, for example (for in proportional degree the same remark applies to a four-, three-, or two-frame carpet), the weft is sometimes passed twice across the warp threads in a plain colour Brussels, but even this may not be necessary if the pile is very closely woven, which would naturally present a closer, firmer, wearing surface.

These features of the Brussels carpet are more particularly dealt with, as the same principles affect all qualities made by the Jacquard process of weaving. Only a thorough knowledge of all the points affecting quality can be applied to an expert discrimination as to the respective merits of a plain colour, two, three, four, or more frames of colour, which, as far as the scope of this book is concerned, are only of importance as affecting the variety of colouring which in the reproduction of Oriental carpets, with their unlimited variety of colour, is of paramount importance.

Wilton Carpets.—First made in France, and introduced into this country in 1745. Excepting the fact that the velvet pile is formed

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by the withdrawal of a wire with a knife at the end, instead of the plain wire which leaves an uncut loop, the general principles upon which this fabric is produced are precisely the same as in Brussels.

Saxony Brussels Carpets.—The difference between a Brussels and Wilton worsted and a Saxony worsted is that the former consists of several fine threads, loosely combined to form the single thread of varying thickness according to the quality ; the Saxony thread, which is generally of a thick heavy grade, is twisted together in the form of a string, the several threads of which this “string” is composed, preserving its form in Brussels, giving a somewhat coarse knotted surface, of, however, great resisting powers. I have no absolute information as to when this particular class of worsted thread was first used in the manufacture of carpets ; it was, however, probably copied from some of the Oriental fabrics, perhaps the Turkey variety.

Saxony Pile Carpets.—Made in precisely the same way as the Brussels variety, the knife-wire cutting the Brussels loops, and forming the pile as in Wilton and kindred qualities of the same manufacture.

To appreciate the merits of the Jacquard process of manufacture, it has been necessary to deal with the four distinct makes mentioned, which embrace first in Brussels and Wilton the loosely combined fine threads, which, however, count only as one thread in the colour and design effect, representing one knot in the Oriental carpet, and one “cord,” as it is called, in the Jacquard carpet ; and the Saxony Brussels and Saxony Velvet fabrics, in which the closely twisted strands of worsted make a thick heavy quality, in which the characteristic “twist” of the worsted used gives that defined effect to each cord without which many of the Oriental fabrics could not be reproduced.

With the unlimited variation in the “pitch” of the Jacquard fabric, the fineness or coarseness of which consists of the number of cords to the square inch ; and the infinite variations in the height of the pile, which is controlled entirely by the wire used, there is no grade of Oriental carpet, or any other fabric, which cannot be successfully imitated ; and this is the distinctive feature of the Jacquard process of manufacture, and in this respect it can be compared with first the Oriental carpet, and again with the printing process in which the variety of types used, and the variations in the colours of the inks, correspond with the features of design and colouring in the carpet.

Bearing in mind the essential points of first, the Brussels loop and the Velvet cut loop ; secondly, the Brussels and Wilton yarns and the Saxony Brussels and Saxony Velvet yarns ; and thirdly, the plain wire and the knife-wire, which regulate the height and

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denseness of the surface, the claims that can be made for the Jacquard products as being *facile princeps* the legitimate successors of the Oriental hand-made fabrics will, I conceive, be readily admitted. Before proceeding to the remaining machine-made fabrics, it is well to say that as the wire regulates the height of the pile, in a manner not requiring further explanation, so the thinness of the blade of the wire regulates the denseness of the pile, *the way of the warp*, that is, calculated in the length of the carpet. Measured in the width, or *the way of the weft*, the pile is regulated by the number of threads in the warp; it is also obvious that the thickness of the worsted materials used has much the same effect as the means above suggested, but it is to be kept in mind that if the pitch of the carpet has to be reduced to accommodate them, the thicker the worsteds, the coarser the effects of design and colouring.

The marvellous adaptability of the Jacquard method of producing design and colouring at one and the same time is demonstrated by the fact that it is equally applicable to the finest and the coarsest fabrics without in any degree prejudicing its facility in execution and effectiveness in the resulting fabric. The surpassing merits of Jacquard's invention can be summed up in its effective simplicity of construction; its universal application and adaptability to all classes of Designs, Colourings, and Qualities; and its capacity for weaving the familiar, convenient, and economical breadth or "piece" fabrics, and the seamless carpet measuring 12 feet in width, with equal sureness and ease.

Tapestry Brussels and Velvet.—Patented in 1832. The worsted threads forming the pile are first wound round a gigantic drum and the colours are then *printed* on them in such a fashion that when placed upon a beam the full width of the fabric, and woven off upon a loom of the same class as the Jacquard loom, the design and colourings are automatically formed, without the use of a Jacquard or any other similar machine. The series of worsted bobbins in frames used in the Jacquard process are entirely dispensed with, and as the whole of the worsted used forms the pile, the process is the most economical of its kind. The Brussels and Velvet qualities are made in precisely the same way as in the Jacquard process; a plain wire, when withdrawn, leaving a loop; and the knife-wire cutting the loops when drawn out, thus forming the velvet surface.

Chenille Axminster.—Patented in 1839, and is exclusively a cut pile fabric. The pile or "fur," as it is called, is woven quite separately from the final process of weaving the finished fabric, during which latter operation the fur is attached to the warp by an ingenious

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process, which results in the whole of the worsted being upon the surface. The separate tufts of colour in the fur are woven according to the coloured paper design, and there are no limits to either design or colour. The number of qualities can also be readily varied, and the fabric generally is as attractive in appearance as it is ingenious in the method of its manufacture. Neither Jacquard nor wires are used in this fabric, and the height of the pile is regulated entirely by the height of the coloured tufts forming the fur, which is passed from edge to edge of the warp threads in a shuttle-box, and stroked and pressed by the weaver into position with hand combs.

Royal Axminster.—Introduced into England in 1878, and is exclusively a velvet pile fabric. The process of forming the design and colouring is quite distinct from any of the fabrics yet mentioned. Woollen or worsted threads of a Saxony twist, each thread of one continuous colour, are first “set” or arranged upon long bobbins or “spools” the exact width of the fabric. The number of these spools varies according to the length of the design, while the colour and position of each thread on the spool creates the design, which is set up from a paper design, each square of which represents a tuft of the threads, which are cut off as follows.

To understand the formation of the surface pile in its full pattern of design and colouring, it is to be understood that each spool has a tin tube attached to it, which may be described as a comb, the teeth of which are hollow. Each separate thread of coloured woollen or worsted is passed through one of these hollow teeth, which are divided from one another, according to the fineness or coarseness of the fabric in course of weaving. The spools with their burden of arranged colours in the hollow-toothed combs are attached to a pair of linked chains, a spring on each side of the spool gripping the chains, which pass over teathed wheels, the said wheels and chains being fixed according to the width of the fabric. A wooden framework fixed above the loom supports the chains holding the spools, which pass round wheels fixed immediately above the metal plate over which the warp threads pass. Two metal arms grip each spool as it is carried along by the chains, and dip the teeth of the comb (through each hollow tooth of which the coloured pile threads project) between the warp threads. A comb beneath the warp threads turns up the projecting ends of the threads, still attached to the spools; another sley-comb with flattened teeth and rounded ends comes up from the back and presses the tufts close up against the row of tufts and the weft threads previously made, and the spool threads are then cut off the requisite length as follows.

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After the hollow-toothed combs insert the coloured threads of woollen or worsted into the warp threads, and when the ends of these threads are turned up as explained above, a long blade, the width of the fabric (called the "ledger" blade) moves forward and is met by another very slightly rounded blade (the "curved" blade) which with a kind of guillotine motion cuts off the threads, now firmly attached to the warp by the weft, which with motions alternating with those already described has done its appointed part. The ledger blade which just clears the sley from behind, and the curved blade which with a corresponding sweeping motion moves forward to meet it over the finished fabric, regulate the height of the pile. No wires are used; and, as will be understood, the Jacquard has no part in this fabric.

Any reasonable variety of quality can be made on this loom; but the expense of setting the design and colouring, the necessity for the hollow-toothed comb regulating the number of threads in the width, and the fact that each loom can only weave its own particular width—these features in the process, the expense of which can only be reduced by making large quantities of each design and colouring, make it necessary to confine the fabric to a very few standard grades, in which, too, the worsted or woollen threads vary little.

The whole process is extremely interesting, and the invention one in which genius has successfully attained a result which, while comparing favourably with any other fabric of its class, has no features in common as regards the way the design and colouring are formed; in these respects, infinite variety is possible, and the actual effect of the Oriental carpet, even including the appearance of the frequent re-dyeings which vary the same colours, can be obtained in Royal Axminster, as also in Chenille Axminster, but in the latter case by an entirely different process.

There is no necessity to refer again to any of these three distinct fabrics, namely, Tapestry Brussels and Velvet, Chenille Axminster, and Royal Axminster, in which the Jacquard machine has no part. The perforating or stamping of the cards, which by means of the Jacquard machine form the design and colouring, being of the greatest importance, it is well to remember that as the misplacement of a single letter causes an error in the printed page, so the misplacement of a punch in the stamping-plate equally causes a mistake, which has to be "corrected," as the process of filling in one hole and punching another is called. It may serve further to illustrate the importance of the preliminary process of stamping the cards, when comparison is made with the now universally familiar Pianola,

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Angelus, and Orchestrelle piano-players. It will be understood that in the perforated rolls used in these instruments a wrongly-perforated hole causes a false note, which is more readily detected than the single false colour cords here and there, which are hardly detected unless completing the outline or colouring of a prominent figure. Imagine the effect of a false letter in printing and a false note in music, and the misplacement of a single punch in stamping the cards for Jacquard's machine will give a sufficient impression that the operation of arranging the punches for stamping the Jacquard cards is just as important in its way as the arranging of the type in producing a printed page of literary matter. It is not perhaps too much nowadays to say that the design and colouring resulting from the use of the stamped cards operating the Jacquard machine are jointly equal to the average literature resulting from the Printer's efforts, and that the association of Jacquard's invention with the art of printing constitutes a claim for consideration which the following necessarily brief and imperfect memoir could not establish outside the manifest results obtained by the use of the "Jacquard," which is synonymous with the man himself.

On December 28, 1908, wishing to have the best data for drawing up a short notice of the eminent French inventor, Joseph Marie Jacquard of Lyons, I wrote to the London agent of one of the leading booksellers in Paris, asking for a particular work which, from information obtained at the British Museum, I had reason to think would serve my purpose. Failing in this quarter, and two direct inquiries through an important second-hand bookseller in Paris meeting with a like result, I was compelled, on March 11 of this year, to do the best I could with the works on the subject to be found in the British Museum Library. The list of works under the heading "Jacquard" is given at the head of this division, and, having insufficient acquaintance with the German language to justify my consulting the pages of Professor Kohl, I found myself reduced to the two French works on the subject.

After waiting about half an hour, the courteous attendant brought me a slim paper-covered booklet, which turned out to be Madame Grandsard's sympathetic little sketch of the great man; at the same time I was handed my application slip for "Du Saussois—*Galerie des hommes utiles*—Jacquard," to which was attached a slip bearing the intimation, "This book is at the Binder's; if it is urgently required, application should be made to the SUPERINTENDENT OF THE READING-ROOM." Having specially gone up to London for the particular

Plate XXIV

PLATE XXIV

ORIENTAL INSCRIPTION RUG

Size 4-2 × 3-1

WARP—17 knots to the inch

WEFT—13 knots to the inch

221 KNOTS TO THE SQUARE INCH

(See Analysis)



موسسه تحقیقات فرش دستباف
موسسه تحقیقات فرش دستباف

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purpose of consulting the Library upon points rendered necessary by the scanty information obtainable from other sources, and having also to return home at the latest on the following day, I determined to deal with the solitary work at my disposal more thoroughly than would have been possible if any large selection had been available, and I venture to think that the result cannot be regarded as entirely unsatisfactory under the circumstances, here explained for the reason that I do not wish the absence of a number of authorities on the subject to imply that the lack is due to negligence on my part, or as showing a want of appreciation of the interest attaching to a man to whom this country, with so many others, owes a debt which will be hardly paid.

Madame Grandsard's little book, only 128 pages of which are devoted to Jacquard,—the remainder (from page 129 to 144) giving a sketch of the life of the eminent French chemist, M. Antoine Laurent Lavoisier,—is evidently the work of either a relation or a sympathetic friend, who with good reason might have regretted that the life of a man with such claims upon his nation had received up to the time of her own effort the tribute of only one work, which, if I am fortunate enough to procure it, will, I hope, be printed in full. It is quite gratifying and appropriate to be able to record that the book to which I shall devote the remainder of this division is one of a series of *Lives of Architects, Painters, and Artisans* "le plus célèbre," which include such names as Charlemagne, Pierre d'Aubusson, Christopher Columbus, Napoleon, Michael Angelo, and Raphael, with many others whose classification suggested a considerable extension of the original scope of the series.

I cannot do better than follow Madame Grandsard's pages as closely as possible; but at the outset I find it necessary to mention that throughout the book there is almost a complete absence of dates; one at least, the important date of Jacquard's death, being given as August 6, 1834, whereas several other authorities give August 7, 1834, which, I think, can be accepted as final. The absence of dates and the mistake above recorded do not in any degree affect the general character of the particulars given; the extreme difficulty of accurately recalling such details thirty-five years after the events (for Madame Grandsard's book was published in 1869) sufficiently accounts for slips of the sort. I shall duly acknowledge the information added to Madame Grandsard's account; but, unless specifically mentioned, the Life which follows must be attributed to her pen, and I here gratefully make my personal acknowledgments, for the kindly record was an unexpected and genuine pleasure.

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Towards the middle of the last century, there might have been seen in one of the most important factories in Lyons, a boy of from eight to nine years of age, whose puny body hardly seemed capable of enduring the labour imposed upon him.

Stooping under the loom, the boy was busily engaged in re-tying the threads as they broke, while the weaver energetically added to the weft, which was growing under his fingers.

“Courage, Joseph, courage!” said the weaver from time to time, in a tone of voice which showed that the poor boy’s exertions touched him to the heart.

The child summoned up all his strength to continue his task, but an instant after, raised his head towards the weaver, showing his forehead bathed with perspiration, as if he sought to move him by the sight of his weakness.

“What can I do for you, my poor boy?” said the weaver; “I will tell you: take a quarter of an hour’s rest, for you need it; but I shall have to stop my work, and at the end of the day the time lost will be deducted.”

“Ah! I will continue working, father,” sighed the child; “I must help to take mother sufficient money to buy some food, for she is so sad when we want for anything.”

The father tenderly stroked the long locks of his son, already bending down to his work of re-tying the threads, and this encouragement and applause of his courageous resolution comforted the child for a long time afterwards.

The weaver’s name was Jean-Charles Jacquard.

The Cambridge Modern History throws some light upon the conditions under which the silk factories in Lyons were conducted. Continuing the paragraph, a portion of which is quoted at the head of this division, it says, referring to the Jacquard machine: “It brought no change in the industrial organisation of the Lyons trade. The capitalist *maître fabricant*, more a merchant than a manufacturer, directed the course of business as in the eighteenth century, giving out designs and material to the subordinate *maître ouvrier* and his journey-men.” It can be imagined that with this division of responsibility, and the entrusting of essential details, and especially leaving the handing out of materials to subordinates, the opportunities for petty tyranny, if not speculation and making money out of the weavers, would not be neglected. The conditions under which even the skilled working classes laboured in those days quite support the suggestion that any failure in the result of the day’s work would be rigorously taken into account, and the scanty earnings possible would not bear any reduction.

Madame Antoinette Jacquard had objected to her son working in the mills; but, the father pointing out that the boy would have

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to take early to laborious habits, as he had to earn his living with his hands, she gave way and let him go, with the result described.

On returning home from this hard day's work, Joseph Marie betrayed by his pale face and worn-out body that he had not the strength to continue in his present position; and one morning, being unable to rise from his bed, and also suffering excruciating pains in his head, Madame Jacquard announced her intention of endeavouring to apprentice the boy to a bookbinder, in whose employment, she told her husband, skill more than strength was required; the intelligent Joseph in his new sphere would distinguish himself some day.

Joseph liked his new occupation, and progressed so well that in less than three months he was the best workman in the shop, and zeal and energy were rewarded by quite a high salary for his age.

“Happiness is not for this world,” as Madame Grandsard expresses it, and Joseph Jacquard soon had to find this out. His father and mother both fell ill, upon which Joseph at once gave up his work to be with his parents, but, presumably owing to his master's kindness, was allowed to take work home; which cheerfully undertaking with his usual activity and interest, he at the same time devoted himself to the task of attending upon his parents.

In spite of Joseph's sacrificing exertions, both his parents died, and at the age of sixteen he found himself alone in the world.

Four years later, Jacquard (as we shall now call him) gave up his bookbinding, and having saved a little money, invested it in a hat-making business, in which he succeeded beyond his hopes. He married, and in due course had a son, whom he named Charles.

It is not surprising, with our later knowledge of his amiable character, to learn from Madame Grandsard that Jacquard was loved and esteemed by his workpeople. Madame Jacquard sold the goods and controlled the workmen, and in the space of four years the pair found themselves well enough off to move into a better house, in which later the little family was installed. In this house Jacquard and his family lived for fifteen years.

The Revolution of 1789 came to disturb their happiness, and Jacquard and his wife had the grief of seeing their son Charles enrolled as a soldier. The Bastille was demolished, and the throne of Louis XIV. tottered to its foundations. Jacquard and his wife, overwhelmed by anxiety for their son's safety, neglected their business, to the joy of their rivals, who had envied them for the past twenty years. Madame Jacquard had warned her husband not

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to mix with politics ; but one morning he failed to salute his neighbour Pierre Cotard, who in revenge threatened to denounce him as a "suspect."

On August 24, 1793, Lyons was in a state of siege. Jacquard, evidently through the jealous hatred of his rival Pierre Cotard, was denounced, his house burned to the ground, and he himself only saved by allowing kindly neighbours to persuade him to fly. He joined his son Charles at Cambrai, where he was fighting with the Revolutionary army against the Austrians, and for six months the father and son fought side by side in many sanguinary engagements, in which both proved their valour. One day the enemy in stronger force than usual made a general attack upon the French, and Jacquard responding to the cry of "Forward !" advanced with his son and a young Lyonnais at his side ; both were shot down, and the heart-broken father had the melancholy satisfaction of supporting his dying son, and in receiving from him a pocket-book, to be afterwards handed to the sorrow-stricken mother. The battle in which Charles Jacquard lost his life would probably be when the French were defeated at Caesar's Camp, near Cambrai, by the allied army under the Duke of York, on April 24, 1794.

It appears that Jacquard first turned his attention to the machine which bears his name as early as 1790, probably soon after the time when, his son being conscripted, his thoughts were diverted from his business. When his affairs later got into a bad way, and his workmen were reluctantly compelled to leave him one by one, his attention was called to an advertisement in an English newspaper, in which a prize of 50,000 francs was offered for a machine which would weave nets. Jacquard, urged on by the encouragement of his friends and neighbours, and perhaps more still by his own and his wife's necessities (for by this time the death of their only son had wrecked their lives and happiness, and their business was a thing of the past), seriously gave his mind to an endeavour to secure the prize, in which he was apparently unsuccessful, as the net he succeeded in making was thrown aside and almost forgotten.

Probably soon after he was declared First Consul on November 10, 1799, Napoleon found time to turn his attention to the industrial resources of the country he doubtless felt he would soon rule over. By some means Jacquard's net-making experiments came to Napoleon's ears, and Jacquard was first commanded to appear before the Prefect of Lyons ; and later, by order of the First Consul, was summoned to Paris, with an arbitrariness which barely left him time to pack his personal belongings, although he found time to

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write a letter to his wife, in which he expressed confidence in the result of his coming interview with the great man.

Napoleon interviewed Jacquard in the presence of Carnot, who at first, with the greatest courtesy, conducted the interrogations, until a little man in a blue uniform, whom Jacquard at first had not particularly noted, came forward, and brusquely took matters into his own hands, questioning Jacquard closely as to the merits of his net-making machine, which he had reconstructed previously by order of the Prefect of Lyons. Evidently satisfied with Jacquard's replies, and perhaps secretly pleased with the ready intelligence and modest confidence displayed by the inventor, Napoleon gave him an allowance of 6000 francs, and installed him in the Conservatoire of Arts and Industries.

Jacques de Vaucanson, born of a noble family at Grenoble, in Dauphiné, February 24, 1709, had in 1745 invented a loom which, the story goes, Jacquard discovered forgotten and neglected in a hidden corner of the Conservatoire. What stage this invention had arrived at it is impossible to say ; but it is scarcely likely that any practical results had been obtained, or it would surely have not been allowed to lapse, although the Revolution in 1789 was quite sufficient to throw out of gear any industrial or mechanical operations which were not in actual going order. In any case, the following further interview with Napoleon, as related by Madame Grandsard, goes to show that Jacquard acted in perfect honesty, as might have been expected from his character, and justice was doubtless done to any portion of Vaucanson's invention which Jacquard made use of in perfecting his own.

The date is not recorded ; but presumably as soon as Jacquard was given sufficient time to arrive at some practical results from his stay in the Conservatoire, he again met Napoleon, and was afforded the opportunity of explaining the progress he had made. Brushing aside a machine Jacquard had constructed for making shawls, Napoleon proceeded at once to the room in which the more important machine for weaving figured silks was erected for his inspection. Jacquard explained the machine to Napoleon in words to this effect : "This loom, invented by Vaucanson, and perfected by me, is a combination of all the principles of weaving ; it simplifies the weaver's work ; enables him to work like a man, instead of becoming a hunchback, as frequently happens to the Lyons weavers ; and dispenses with the children having to crouch down under the loom, to tie up the broken threads." Jacquard could not have spoken more to the point had he been a diplomatist. Napoleon

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would instantly recognize the advantages resulting from the increased production ; but it is equally certain that the advantage to the physical condition of the weavers, and especially the children, would even more impress the victor of Marengo, who would doubtless have in his mind the potential value of the soldiers that the good city of Lyons could furnish at his command, and with respect to whom sound thews and sinews, and robust constitutions, would be more to the point than even the prosperity he spared no effort to obtain for them, and all the Frenchmen in like case, whom he would later call his own.

Napoleon, with the good-nature which he so well knew how to exercise, cordially congratulated Jacquard, and shook him by the hand, saying, "You are a great citizen ; why have you taken up these grand ideas so late in life ? I shall not delay to recompense you for the important service you have rendered to your country. When your loom is finally completed, you can return to Lyons, and I will charge myself with your future."

Jacquard's machine was shown at the National Exhibition held in Paris in 1801, and, as already noted, the invention was patented on December 23 of the same year.

Jacquard's experience with his fellow-countrymen forms such a curious parallel to that of the Rev. Edmund Cartwright, the English inventor of the power-loom for weaving cotton, that some reference will be made here, not only for the reason above given, but also on account of its general interest. It is, of course, beyond question that by Cartwright's invention many difficulties were cleared out of the way for the carpet loom, and to this extent, as James Watt and Jacquard later joined hands, we can at this point introduce the reputed inventor of the first power-loom.

Edmund Cartwright was born at Marnham, Nottinghamshire, in 1743. Educated at Oxford, he obtained the Rectory of Goadby Marwood, Leicestershire, in 1779, where on his glebe-land he made improvements in agriculture. A visit to Arkwright's cotton-spinning mills in Derbyshire directed his attention to the processes of weaving there in operation, and after numerous experiments he produced his first rudely-constructed power-loom, a patent for which was granted on April 4, 1785. Increased experience showing him that much yet remained to be done, he persevered with his idea, and a final patent was taken out on August 1, 1787. Cartwright erected a factory at Doncaster, in which his power-loom was used ; but he met with such determined opposition, and the expense was so great, that he had to abandon it. A mill set up in Manchester with four

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hundred of his power-loom was burned down ; and it was not until the beginning of the nineteenth century that the power-loom came into practical use. It is interesting to add that Cartwright took out a patent in 1790 for combing wool ; and was associated with Robert Fulton in his experiment for applying steam-power to navigation. Cartwright received a grant of £10,000 from the Government in 1809, in recognition of his services to his country, and this he enjoyed until October 30, 1823, when he died at Hastings. Samuel Crompton, who invented the "mule-jenny" in 1779, was also reduced to accepting a Government grant in 1812, of the amount of £5000—a poor recompense for an invention which enriched thousands and provided occupation for millions. The experience of William Lee, the pioneer inventor of industrial automatic machines, was more unhappy still. Said to have been heir to a good estate, Lee matriculated as a Sizar of Christ's College, Cambridge, in May 1579. He subsequently removed to St. John's College in the same University, and obtained his B.A. degree, 1582-83. There is some doubt as to the M.A., which is supposed to have followed in 1586. In 1589, when Curate of Calverton, about five miles from Nottingham, he invented the Stocking Frame, under romantic circumstances which will not bear scrutiny. After vain efforts to obtain a patent for his invention, which was refused by Queen Elizabeth, Lee lost all hope of recognition in his own country, and took his machine to France, on the invitation of Sully, the great Minister of Henry IV., whose name has already been coupled with Colbert's. Misfortune seems to have dogged Lee's footsteps from the very first, for before he could make arrangements to establish his new business the King was assassinated by Ravailac, May 14, 1610 ; overcome by this last blow, Lee died the same year in Paris, it is said broken-hearted, and apparently without having derived any benefit from an invention which should at least have secured for him an honourable competence.

Jacquard's experience was bitter enough ; but he was saved from the neglect which might otherwise have attended his exertions by the recognition of Napoleon, to whom the very smallest detail affecting the welfare of his subjects and kingdom had sufficient importance to secure his personal attention. In spite, however, of the countenance of the greatest man of his age, Jacquard was accused of intending to ruin the Lyons silk industry, and he was only saved from being thrown into the Rhone by the timely arrival of the city gendarmes. A decree was pronounced, which in the light of present-day knowledge is amusing enough, although it was serious for

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Jacquard at the time ; this sapient decree declared that “ *the Jacquard machines being more harmful than useful to industry, they should be burned on the public Place.*” This was accordingly done, on the Place Sathonay, whereon, in 1840, a simple statue was erected to the man who in his day was chiefly instrumental in reviving a decaying industry, and from whose efforts a prosperity which endures to the present day set in.

MM. Grand frères, successors of Camille Pernon, manufacturers of rich furniture-covering materials, for four years from the introduction of the Jacquard machine vainly endeavoured to convince the workmen of its merits ; it was not until 1809 that they succeeded in demonstrating its economy in use, and simplicity of action. In 1812 few of the old-fashioned machines survived in Lyons, Jacquard's invention having been universally adopted, and with only slight modifications in detail the machine in its broad principles remains to this day much the same as when it left the hands of its great inventor.

It has already been mentioned that James Watt, apparently in the year of his death, visited Jacquard, and the coincidence of this meeting is too striking to be passed lightly. James Watt in 1765 performed condensation in a separate vessel from the cylinder ; in 1769 he took out his first patent, produced his expansion engine in 1778, and invented his double engine, taking out his first patent for it in 1781. Madame Grandsard gives no date ; but from the account which follows it will be seen that the meeting was in 1819, or possibly the year before, at which time the inventor of the steam engine would be eighty-two years of age, and the inventor of the Jacquard machine sixty-six. Both were at that time honoured in their respective countries.

It is almost incredible to think that James Watt at such an advanced age could have undertaken the fatigue of a journey to Paris, for a steamboat service was not established between Dover and Calais until 1821 ; steam, however, had been used in crossing the Atlantic in 1818 and 1819, and it is by no means improbable that James Watt's journey to France was undertaken first with the special object of gauging the possibilities of the Channel passage, and that his unique experience in the application of steam-power would be regarded as of such importance as to induce him to take risks which would be amply repaid by the benefits arising to the two countries.

Resuming Madame Grandsard's narrative : James Watt visited Jacquard in behalf of the English Government, to make a generous offer for the use of his inventions. Jacquard, recognizing that the

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economical advantages to be obtained from the application of the machine to the textile industries of France's strongest competitor would be to the disadvantage of his native land, refused all offers. This exhibition of noble disinterestedness and practical patriotism on the part of Jacquard moved Watt profoundly. Refraining from urging the object of his visit, he left Jacquard, warmly expressing the admiration his conduct had inspired.

Some weeks after Watt's visit, and in the year 1819, a gendarme called upon Jacquard and handed him a sealed packet, which proved to contain a brevet, entitling him to be known in future as Joseph Marie Jacquard, Chevalier of the Legion of Honour.

Overjoyed by this tardy recognition of his services, Jacquard announced the good news to Madame Jacquard, saying, "Look, my dear wife, they have done me justice at last, since I now have the record *Pour avoir bien mérité de sa patrie.*" His wife Marguerite, with a shrewd appreciation of the gratitude of her countrymen, and probably embittered by many years of neglect, reminded Jacquard of the recent visit of the great Englishman, to whom she attributed the conferring of the honour.

"True," replied Jacquard sadly, "I know that he is a Member of the Institute of France. *Ah! c'est donc à un Anglais que je dois ce brevet, moi qui éprouvais tant de bonheur à l'attribuer à la reconnaissance de mon pays!*" a sentence the beauty and full meaning of which would be lost in any other language than the original.

It is possible that this simple relation may be looked upon as one of the things which ought to have happened, and that it may go the way of other romances which a cold scientific desire for mere accuracy, rather than a real regard for truth, reduces to the bare category of "unproven facts." If this is the case already, or becomes the case, the legend can accompany the equally interesting narratives with regard to Cyrus the Great, and Shah Abbas the Great, in whose company Joseph Marie Jacquard can be safely allowed to remain in the annals of romance, as it is actually closely associated with the great Persian monarch, whose palace carpet factory has furnished many glorious specimens of the art which Jacquard's machine has successfully reproduced, thus playing its part in perpetuating their inimitable designs and colouring, if not even, in some degree, their textures.

It is well to record here that Jacquard had for some years enjoyed a pension of £60 a year granted by Napoleon, and also a royalty of £2 for each machine sold, which modest tribute elicited the remark from Napoleon, when he signed the document authorizing it, "Here

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at last is a man who is satisfied with very little"—a comment very possibly drawn forth from his experience of the extravagant demands made by those with far less recommendation to his consideration. In addition to this source of income, in 1806 the city of Lyons had granted him a pension of 1000 crowns—a meagre sum ; when twitted about it by some great personage, Jacquard replied that it was all that he required, and that he had not asked for anything.

It is not usually the inventor who reaps the fruits of his genius and industry ; it is those who exploit it, and make use of it. Jacquard had ample opportunity of witnessing this. On all sides he saw his fellow-citizens growing rich by means of the largely increased output resulting from his invention, and also from its economy in use, while he himself was simply placed beyond actual want and the need for exertion in his old age. Truly he had need of all the philosophy and patriotism he could muster. It is said that when the contrast between his own position and that of the many wealthy men around him whom he had benefited was brought to his notice, he remarked, "At least I have the satisfaction of having been a good citizen, and of conferring benefits on my native town."

After Jacquard had received the well-deserved honours already recorded, his wife Marguerite died from a violent attack of fever. Jacquard, prostrated by this blow, realized an investment which he had made from money painfully saved from his scanty resources, and purchasing a small property in the village of Oullins, some three miles from Lyons, installed himself there with his old housekeeper Marie. He tried to distract his attention from troubles by devoting himself to gardening, but with little avail. He endeared himself to the villagers by his kindly disposition, and on occasions was doubtless called upon to gratify the genuine desire for information as to his invention, and also to respond to the mere curiosity of others, to whom the man who had actually conversed with the great Napoleon would be an object of the greatest interest, for it may be noted that the late Emperor of the French had died at St. Helena on May 5, 1821. Jacquard's amiable disposition is shown by the fact that Madame Grandsard thought it worth while to record that on occasions he begged holidays for the schoolboys, whom he entertained, it may be supposed, with lavish generosity.

After a brief illness, the time came when it was necessary to administer the last sacrament, the day, according to the little book I am making use of, being August 6, 1834, though several independent authorities give it as August 7. It is pleasant to know that his faithful old housekeeper Marie, and probably a relation Denise, were

Joseph Marie Jacquard

with him when he died. At the good old age of eighty-two, Joseph Marie Jacquard quietly passed away to join the wife and son he had so much loved, whose loss clouded his otherwise happy life.

Jacquard was buried at Oullins. The simple tablet in the village church was the first tribute to his memory, and for this reason is worthy of reproduction :

À LA MÉMOIRE
DE JOSEPH-MARIE JACQUARD,
MÉCANICIEN CÉLÈBRE
HOMME DE BIEN ET DE GÉNIE,
MORT À OULLINS, DANS SA MAISON,
AU SEIN DES CONSOLATIONS RELIGIEUSES.
AU NOM DES HABITANTS DE LA COMMUNE
HOMMAGE
DU CONSEIL MUNICIPAL
DONT IL A FAIT PARTIE.

The coffin was followed to the grave by a few friends in deep mourning, and by a body of thirty weavers, who probably formed a deputation representative of the leading silk-factories in Lyons. A representative of the Lyons Society of Agriculture and the Useful Arts pronounced the eulogium, from which the following extracts will be of interest.

Referring to the fact that, although of a simple, modest, retiring nature, Jacquard was nevertheless one of the most eminent notabilities of European industry, and as well known in London as in Philadelphia, in St. Petersburg as in Calcutta, the speaker called attention to the fact that by means of Jacquard's wonderful invention, which automatically reproduced the most elaborate design and colour effects while dispensing with superfluous labour, the great and splendid manufactures of industrial France had been extended, developed, perfected, and enriched. Jacquard for years had been allowed to live in his native town unnoticed, overlooked, and neglected, until the discerning eye of the great Emperor Napoleon singled him out, after which all was well with him.

Recalling Jacquard's summons to Paris, and his work in the Conservatoire of Arts and Industries, the speaker picturesquely gave particulars of the circumstance which first turned Jacquard's attention to the machine with which his name is most closely associated—for it must be remembered that he was by no means a man of only one idea. Seeking for inspiration from the numerous models stored away in the Conservatoire Museum, Jacquard at last found the long-

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forgotten model of Vaucanson's loom ; and as Correggio, upon seeing for the first time Raphael's frescoes in the Vatican, conscious of his own transcendent but less regarded talents, broke forth with the memorable words, " Anch' io son pittore ! " so Jacquard upon seeing Vaucanson's model exclaimed, " Et moi aussi je suis mécanicien ! "

The memory of many a great man, whether king, statesman, soldier, artist, or professor of letters, has been kept alive by means of some simple and easily remembered anecdote, which survives his achievements, and it may be the same with Jacquard. When the aeroplane has quite obliterated the remembrance of the Flying Carpet of the *Arabian Nights' Entertainments*, and the electric automata of the future have rendered the cumbrous inventions of past ages obsolete, it may happen that the image of the middle-aged Jacquard, gazing at Vaucanson's model in the great Conservatoire Museum, Paris, will come to the memory, and perhaps in imagination the half-breathed words of the newly-awakened inventor will again be heard, " ET MOI AUSSI JE SUIS MÉCANICIEN ! "

Madame Grandsard closes her *Life of Jacquard* with the mention of the statue raised to his memory on the very Place Sathonay upon which, at the beginning of the century, his models had been publicly burned. A rough lithograph of this monument forms the frontispiece to her little volume, which records it as being the work of M. Faytier, and that it was inaugurated on August 16, 1840.

The only portrait of Jacquard within my knowledge is that painted by Jean Claude Bonnefond, who was born at Lyons, March 27, 1796, and died there June 27, 1860. Bonnefond studied in Rome, 1826 ; became Director of the Art School of his native town in 1831 ; and in 1837 was elected a Member of the Academy. His well-known picture of Jacquard, dated 1834, was commissioned by the city of Lyons, and is now in the local Museum. It is of sufficient interest to justify a brief description. Jacquard is represented as seated in an elaborately carved and upholstered chair, dressed in a flowing, open, broad-lapelled coat, with ample white waistcoat, and the collar and stock of the period ; he, of course, has in his buttonhole the ribbon of the Legion of Honour. His right hand, holding a pair of compasses, rests upon a pile of Jacquard cards, some plain and others perforated ; his left hand, holding a handkerchief, lightly rests upon the arm of the chair. On the left-hand side of the picture is to be seen a working model of his machine, with its band of perforated cards wrapped round the cylinder. In the background is a workman's bench, with racks holding gouges and chisels, and above, a shelf with lathe wheels and

Joseph Marie Jacquard

other implements, the use of which enabled him to achieve his ends. In the foreground the most prominent feature is a large pulley, or perhaps measuring-wheel, which rests against a sley, while below it is a weaver's shuttle ; all these are in relief against a piece of woven stuff, with a figured pattern which undoubtedly was produced by means of the Jacquard machine. The cracked pane in the window is perhaps emblematic of the strikes which accompanied the introduction of his invention, while the high tower of the ancient cathedral suggests the city of Lyons.

There is a certain sense of incongruity in Jacquard's being in full festive attire while in his workshop, and surrounded with implements which suggest hard work rather than a holiday (this feature is absent from a corresponding picture representing the violin-maker, Stradivarius, under similar conditions) ; the object, however, was doubtless to epitomize his career as a whole, and having been apparently painted in the year of his death, the details represented would depend upon the capacity of the artist to assimilate the word descriptions which were probably his only guide. The picture has been wholly and partially reproduced in woven silk at various times ; the section I am fortunate enough to possess was woven at the Paris International Exhibition, opened April 1, 1867. A small oval reproduction from the same picture is to be seen at the Victoria and Albert Museum, Kensington, bearing the legend, "Portrait of J. M. Jacquard, woven by his own Machine" ; presumably near by is a model of the machine itself ; and illustrations of both the man and his machine are given in *Social England*, where Jacquard figures among the great textile inventors of the nineteenth century.

The birthplace of any man of note is interesting ; but the city of Lyons has historical claims which would make it worthy of mention quite outside the fact of its having had the honour of enrolling amongst its great sons the man to whom this division is dedicated.

Lyons, the ancient *Lugdunum*, was founded by the Pro-Consul Munatius Plancus, 43 B.C., and became the capital of Celtic Gaul, or the Lyonnaise. Destroyed by fire, it was rebuilt by Nero. Severus ruined it A.D. 197 ; but it was restored by Constantine. It was the residence of the Kings of Burgundy till the end of the fifth century, and was ravaged by the Saracens in the eighth century. Afterwards governed by its archbishops, feudatories of the German Empire, it was annexed to France in 1312. The cathedral, built between the twelfth and the fifteenth centuries, is a mixture of Romanesque and Gothic architecture, with traces of Oriental influence ; the Archbishop bears the proud title of "Primate of all the Gauls."

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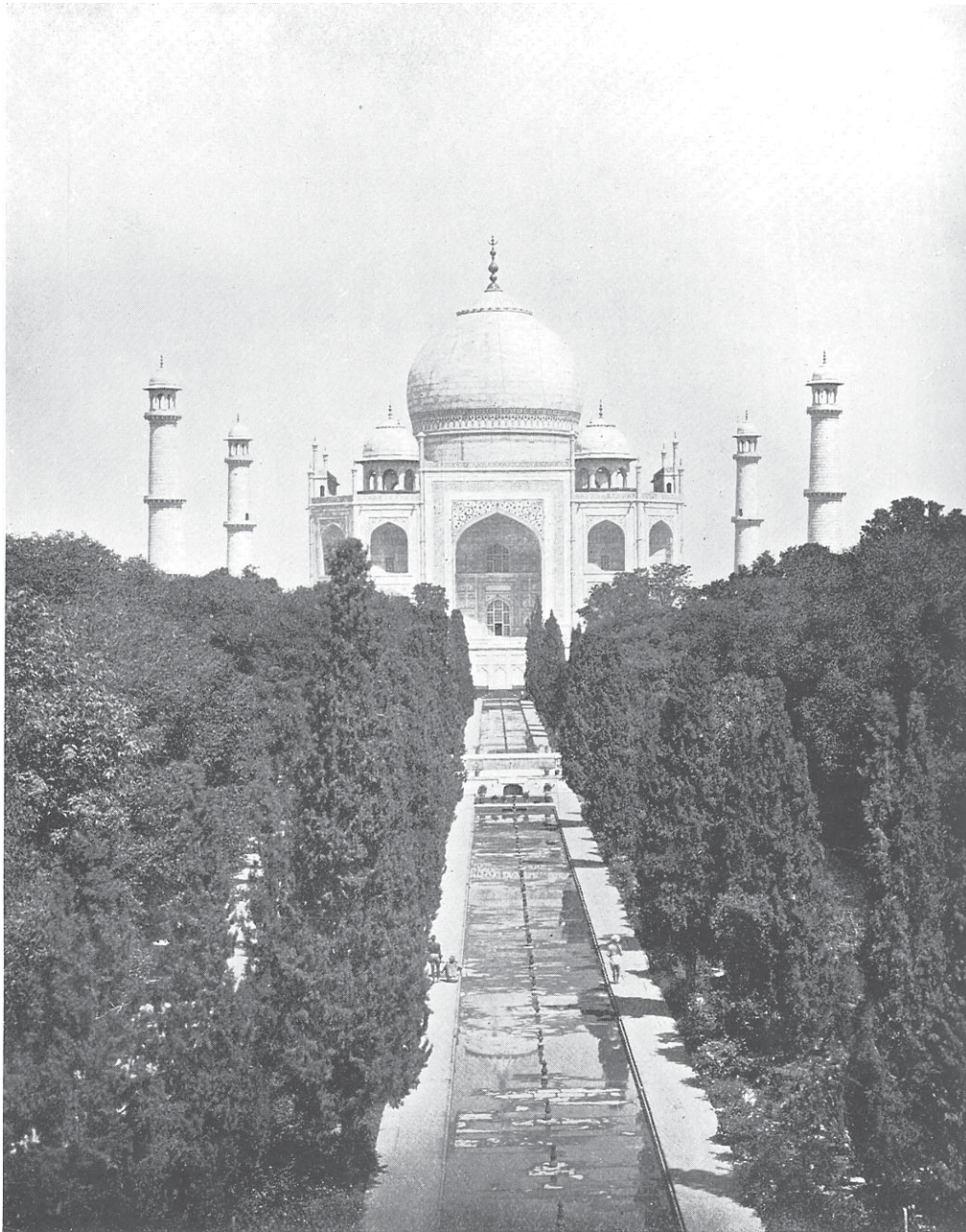
Lyons has a University, a Library of 130,000 volumes, and a Museum of Arts and Industries which is unique in France. The second city of France in regard to population and commercial importance, it is the most important centre of silk-weaving in the western world.

The birthplace of Germanicus, the Emperors Claudius, Marcus Aurelius, and Caracalla, Lyons can also claim the famous bibliophile Grolier; the architect Delorme; the De Jussieus, botanists; the painter Meissonier; the famous beauty of the *salons*, Madame Récamier; and has also the closest associations with the savant Ampère, and the renowned surgeon Bonnet, known as “Bonnet of Lyons.” It remains to mention the name of Joseph Marie Jacquard, inventor and *patriot*, for not the least of his recommendations to the notice of posterity is that he refused to enrich himself at the expense of his country.

I cannot do better than conclude this brief and inadequate sketch by using the words of the small band of mourners who had the privilege of paying the last tributes of respect to the fine old man whose sterling character enabled him to overcome adversity, as it prevented his being spoiled by prosperity :

“ Adieu, Jacquard, adieu ! ”

ROMANCE



THE TAJ MAHAL, AGRA

From the Entrance Gate

(See Analysis)

CHAPTER V

ROMANCE

To the one who watched and wondered that November morning the thing seemed full of sorrow—the sorrow of the man who built it for the woman he loved, and the sorrow of the workmen who died in the building—used up like cattle. And in the face of this sorrow the Taj flushed in the sunlight and was beautiful, after the beauty of a woman who has done no wrong.—RUDYARD KIPLING.

THERE is probably no building in the world with which romance is so closely associated as it is with the Taj Mahal, Agra, which no traveller seems to have seen without an irresistible desire to indulge in poetical allusions to its extreme beauty under all aspects, and to the pathetic and romantic circumstances amid which it came into being. Sir William Wilson Hunter speaks of it as “the exquisite mausoleum of the Taj Mahal, a dream in marble, ‘designed by Titans and finished by jewellers.’” The late Mr. G. W. Steevens thus records his impressions upon a first view of it: “I raised my eyes, and there, on the edge of the ugly prairie, sat a fair white palace with domes and minarets. So exquisite in symmetry, so softly lustrous in tint, it could hardly be substantial, and I all but cried, ‘Mirage!’” A native writer, Syad Muhammad Latif, from whose book, *Agra, Historical and Descriptive*, I shall have occasion to quote freely in describing the Taj and its history, gives his impressions as follows: “The sight of the Taj by moonlight is most entrancing. The whole structure appears to sparkle like a diamond in the bright slanting rays; and the pure white dome, raised on a marble pavement, viewed from a distance, looks like a brilliant pearl on a silvery plate. The decorations on the marble wall seem like so many gems set on an ornament, while the calm stream flowing by its side, coupled with the soft shadow cast around by the trees, adds to the loveliness of the scene. Nothing but a whispering breeze breaks the surrounding calm.”

Before proceeding to relate in plain narrative form the circumstances which induced me to be persuaded that as the Taj Mahal is

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the finest building of its kind in the world, so it contained, and still may contain, the finest carpet ever produced—which is as emblematic of the famous Mumtaz Mahal as the building itself—I will give some account of the lives of those who directly or indirectly have bearing upon what this chapter has to offer.

Timur, or Tamerlane, the great Tartar conqueror, invaded India in 1398 ; but, after nameless atrocities, returned to his own kingdom in 1399, leaving few traces of his power, except desolated cities. In the person of Babar, Timur left a descendant who, invading India in 1526, after the memorable battle of Fatehpur Sikri, near Agra, in 1527, firmly established his authority, and founded the great Mogul dynasty, which, with the unlimited wealth it commanded, held the most splendid court in Asia until the close of the eighteenth century. Babar died at Agra, at the early age of forty-eight. His eldest son, Humayun, succeeded him, and married a girl of exquisite beauty, Hamida Bano, in 1541. Akbar, their first child, came into the world, amid the most romantic circumstances, on October 15, 1542, at Amarkot, on the edge of the deserts of Marwar, whither Humayun had been compelled to fly, driven by the inhospitality of Mal Deo, Rajah of Jodhpur.

Akbar, dying in the Fort of Agra on October 13, 1605, left the way open to his son Salem, who was crowned the same year, under the pompous title of Nur-ud-din Jahangir, “Conqueror of the World.” The beautiful woman known as Nur Mahal, the “Light of the Palace,” and later, on her marriage with Jahangir, as “Nur Jahan,” the “Light of the World,” had first been married to a brave soldier, Sher Afgan, who was put out of the way on his refusal to divorce his wife to enable Jahangir to marry her on his coming to the throne. The part of the palace where Nur Mahal spent the greater portion of her life still stands at Agra, and is known as the Jasmine Bower. Here Jahangir had first loved her ; but after the death of her husband he neglected her for four years before, chancing to meet her accidentally in the palace, his old love returned in full force, and he threw round her neck a chain of forty pearls which he wore. Nur Mahal was removed to the imperial quarters, and became Jahangir’s favourite queen, to be known as long as history endures as Nur Jahan, the noble woman who for twenty years in ruling her husband ruled his kingdom and his fortunes.

In the light of the artistic influences which doubtless went largely to form the tastes of her step-son Shah Jahan, it is well to quote the words of the native author referred to, which throw light upon the main incidents of this chapter. Referring to the period

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of her widowhood, he writes : “Nur Mahal had adorned these chambers with extraordinary splendour and magnificence. All the designs were her own, and the workmanship was by the hands of her own female slaves, under her personal direction. All the ladies of the harem consulted her in matters of jewellery and the painting of silk, and she introduced quite novel styles and fashions into the court. The seraglio resounded with her charms and talents.” The artist and poet Shah Jahan, on the death of Jahangir on October 12, 1627, finally overcame the difficulties placed in the way of his accession, for which Nur Jahan was partly responsible, and in 1628 firmly seated himself upon the throne, and began a reign which, shadowed very soon after by the death of his favourite wife, the famous Mumtaz Mahal, nevertheless proved glorious from the exercise of the consummate taste and judgment which he had derived from his step-mother Nur Jahan, whose power upon his accession was at an end, although, to his credit be it noted when considering the general ruthlessness with which difficulties are removed in Eastern countries, Shah Jahan allowed her to retire into private life with a liberal pension, which bears testimony to the influence she had exercised for good during her long reign.

Premising that the late Empress Nur Jahan, although “born in great poverty, was of a noble Persian family, and that her beauty won the love of Jahangir while they were both in their first youth, during the reign of Akbar,” as stated by Sir W. W. Hunter in his *Brief History of the Indian Peoples*, I will quote verbatim from Mr. Latif, as giving the best account of Mumtaz Mahal, the woman who, beautiful herself, gave the inspiration which resulted in a building which has all the characteristics of the beautiful woman of any nationality—an elusive “something” which cannot be subjected to the cold-blooded dissection of the surgeon ; which defies the analysis of the scientific formulist ; and which, if appraised by an individual examination of the several features and members going to make the perfect whole, would reveal defects which are a constant joy to rivals, who “really can see nothing beautiful in her.” Mrs. Flora Annie Steel, in *India through the Ages*, in describing the Taj Mahal, puts the matter concisely thus : “Perhaps the most bewildering thing about its beauty is the impossibility of saying wherein that beauty lies. Colour of stone, purity of outline, faultlessness of form, delicacy of decoration—all these are here ; but they are also in many a building from which the eye turns—and turns to forget. But once seen, the Taj—whether seen with approval or disapproval—is never forgotten.”

To return to Mr. Latif and Mumtaz Mahal : “Arjumand Bano

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Begam, surnamed Mumtaz-uz-Zamani, or Mumtaz Mahal, was the daughter of Mirza Abul Hasan Asif Khan, or Asif Jah, the son of Mirza Ghias Beg Itimad-ud-daula, whose daughter, Nur Jahan, was the wife of Jahangir. She was thus niece to Nur Jahan, the step-mother of Shah Jahan. As the aunt was famous for her surpassing beauty and accomplishments, so was the niece ; as Nur Jahan had fascinated the libertine Jahangir with her charms, so Mumtaz subdued the stern Shah Jahan with her loveliness. Both in their turn exercised great influence over their lords and husbands.

“Jahangir betrothed Mumtaz-uz-Zamani to Shah Jahan when the latter was fifteen years and eight months old. After the expiry of five years and three months, while Shah Jahan was twenty years and eleven months old, he was married to Mumtaz. The bride, at the time of marriage, was nineteen years, eight months, and nine days old. The marriage took place on the night of Friday, the 9th of Rabi ul-Awal, A.H. 1021 (A.D. 1612). The affectionate royal father, at a propitious moment, bound the wreath of pearls to the turban of the bridegroom with his own hands. The nuptials took place in the palace of Itimad-ud-daula, the Emperor Jahangir gracing the occasion with his presence. The dowry was fixed at five lakhs of rupees. The couple remained on terms of deep affection throughout their lives.”

Could anything be more charming than this description of the betrothal and wedding of the lovely girl, whose attractions so well precluded the account of her marriage ? The precision of the details as to age, the date of the happy event, all give evidence of the minute exactness of the native mind ; but on this occasion at least I venture to think that not the smallest particular could be omitted without prejudicing the naiveness of the whole narrative.

Mr. Latif proceeds : “ His Majesty was so much attached to Mumtaz-uz-Zamani, that she was his inseparable companion, and he could not part with her even when engaged in military expeditions in remote parts of India such as the Deccan. What she wanted was never refused. She, in particular, acquired great fame for obtaining the free pardon of persons sentenced to undergo the extreme penalty of the law, and many whom she, out of compassion, recommended for the exercise of the King’s prerogative, owed their life to her.

“ Shah Jahan had fourteen children by Mumtaz-uz-Zamani, of whom eight were sons and six daughters ; of these seven were alive at the time of the Empress’s death.” Following upon this sentence, Mr. Latif records with the utmost exactness the full sex, name, and date of birth of each of the fourteen children, in some cases even

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giving the day of the month. It was in giving birth to her last child that the Empress died ; this gives reason for reproducing the full wording of the record referred to, which can be taken as an example of the other entries :

14.—Gauhar Ara Begam (daughter), the last issue, born on the night of Wednesday, the 17th of Zika-ad, A.H. 1040 (A.D. 1630), in Burhanpur.

“The entire court went into mourning. His Majesty put on white robes, and the Princes Royal, the grandees of the realm and officials and servants of state dressed themselves in mourning costume. Mumtaz-uz-Zamani, at the time of her death, was thirty-nine years, four months, and four days old. The poet Bebadal Khan found the date of her death in the hemistich :

May paradise be the abode of Mumtaz Mahal.”

The above gives the date A.H. 1040 (A.D. 1630).

After recording the arrangements made for the temporary interment of the late Empress, during the completion of the final mausoleum, Mr. Latif continues : “The building of the Taj was commenced in 1630, or one year after the death of Mumtaz Mahal. The date of the completion of the building, inscribed on the front gateway, is 1057 (1648). It thus took eighteen years to complete. The cost was three millions sterling.” In a footnote to this statement it is mentioned, “According to Tavernier, twenty-two years, which, no doubt, includes the period of the construction of the buildings attached to the Taj, the Caravan Serae, etc.” The usual time assigned for the completion of the building is twenty-two years, and it is generally added that 20,000 workmen were continually employed in its construction.

Mr. Latif’s full account of the preliminary sketch of the lives of Shah Jahan and his Empress, with the very full particulars as to the building itself, runs to over 23 pages, and I must refer the reader to the book itself, which is not only of the greatest possible interest from the searching light thrown upon every aspect of the building, in its actual creation, and the romance attached to almost every stone of which it is constructed ; but also as being the work of a native gentleman of rank and position, it affords instructive insight into the minds of the native classes, to whom more and more the actual detail of the government of the great Indian Empire is being entrusted.

It is necessary to my purpose to reproduce two further passages from Mr. Latif, and I wish to draw particular attention to them, as

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they have intimate bearing upon the information given to me some twenty-two years before the book I now quote from came into my possession. I merely mention as a curious coincidence that the period named agrees exactly with the period taken in building the Taj, and it will be found that the wonderful carpet to which I shall shortly refer took just two years less in the making, or twenty years, which again is just over the age of Mumtaz Mahal when she married Shah Jahan, and began her new life as wife and Empress of the man she loved, and who, sad to relate, in after years ended his life as the prisoner of the son who, the sixth pledge of their mutual affection, is a sufficiently significant factor from my point of view to cause me to refer again to Mr. Latif's chronology, and copy the following entry :—

6.—Mohammad Aurangzeb (son), born on the night of Saturday, the 15th of Zikad, A.H. 1027 (A.D. 1617).

Under the heading of "Tavernier's Account of the Building," Mr. Latif writes :

"I witnessed," says Tavernier, "the commencement and accomplishment of this great work, on which they have expended twenty-two years, during which twenty thousand men worked incessantly ; this is sufficient to enable one to realize that the cost of it has been enormous. It is said that the scaffoldings alone cost more than the entire work, because, from want of wood, they had all to be made of brick, as well as the supports of the arches ; this entailed much labour and a heavy expenditure. Shah Jahan began to build his own tomb on the other side of the river, but the war which he had with his sons interrupted his plans, and Aurangzeb, who reigns at present, is not disposed to complete it. *A eunuch in command of 2000 men guards both the tombs of Begam and the Tasemacan, to which it is near at hand.*" The italics are mine, with the intention of emphasizing the practice which evidently ruled under Aurangzeb of carefully guarding the entrance and approaches to the tombs, which included that of Shah Jahan himself, which, be it noted, was only divided from the Taj by the river Jumna, which, taking a broad sweep round the Fort of Agra, is less than 300 yards from bank to bank, immediately opposite the enclosure surrounding the Taj, one corner of which abuts upon the river-bank.

The second passage referred to reads as follows : "Whenever the King was in the metropolis, he attended the anniversary of his Queen in the company of his affectionate daughter, the Begam Sahib, and the ladies of the *harem*. The ladies occupied the central platform,

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being concealed from the public gaze by *kanats*, or screens of red cloth and velvet, while the *Amirs* assembled under *shamianas* which were pitched for the occasion. The fixed sum of rupees fifty thousand was on each occasion distributed in alms, half on the day of the anniversary and half on the following day. People assembled on the occasion of the anniversary from all parts of India.”

The end of Shah Jahan's career is soon told. He was seized with a dangerous illness in 1657, and his eldest son, Dara, was entrusted with the administration of the government ; but Aurangzeb, securing the aid of his brother Murad by stratagem, marched upon Agra, and in the battle of Samagarhat, at which point the two armies met, Dara was totally defeated in June 1658. Three days after the battle, Aurangzeb marched to Agra, and, awaiting his opportunity, eventually seized the person of the old Emperor, and kept him confined in one of the small palaces within the Fort of Agra until his death. Mr. Latif records that “Shah Jahan continued to live in regal state in Agra for seven years, and died in the Fort of Agra, December 1666. He had lived seventy-six years and reigned for thirty-one.”

Mr. Steevens, in his book *In India*, from which I have already quoted, thus records Shah Jahan's last moments : “Being grown very feeble, he begged to be laid in a chamber of the palace wherefrom he could see the Taj Mahal. This was granted him, so that he died with his eyes upon the tomb of the love of his youth.”

This may seem a lengthy prelude to a narrative which must of necessity be longer still ; but it has appeared to me absolutely necessary that some outline of the actual circumstances attending the conception and building of the Taj should be in the minds of readers before offering the particulars which can only have claim for credence on the basis of the personality of the Emperor Shah Jahan himself. The influence of his talented and artistic step-mother, the beautiful Nur Jahan, must have permeated his life until he came to the throne ; and it must not be forgotten that her niece, Mumtaz Mahal, could not have failed to keep upon the closest terms with a relation who, as the favourite wife of the ruling Emperor, Jahangir, could have made or marred her at any moment. Thus, himself a poet, artistic by nature, and influenced by the two most beautiful and clever women of their day, there are quite sufficient grounds for imagining that Shah Jahan would not stoop to the commonplaces of life, but with some of the eccentricity of genius followed up the inspiration which resulted in a building which is admittedly a masterpiece of poetical and imaginative conception, by an effort in an equally artistic direction, in which he intended to preserve for

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his sole and exclusive gratification and solace the living presentment of the wife whom, whatever his later irregularities may have been, he never ceased to love and regret.

It was my good fortune to be a passenger on the old Peninsular and Oriental s.s. *Sutlej* when she called at Bombay on her way home in September 1886, and, having ten days to look around, I naturally endeavoured to make the best use of the opportunity. Passengers familiar with India had advised me to visit Agra, Delhi, and Jeypore, as the most representative cities within reasonable distance; but failing to find any companion willing to risk missing the boat with so short a time available, and also finding that the monotony of the long railway journeys would discount the pleasure to be derived from such a hasty look round, I decided to confine my attention to what was to be seen in and near Bombay, and then to visit Poona, which was truly enough described as being of some historical interest, and particularly agreeable at the time of year of which I am speaking.

Having duly driven round Malabar Hill, admired the fine Rajabai Tower and the splendid and imposing buildings to be seen by the Esplanade, on the first day available for sight-seeing, I allowed myself to be persuaded next day to visit the Elephanta Caves, near Bombay, which are sufficiently interesting to make some slight reference here excusable. Elephanta Island is reached by launch from Bombay: so, leaving the Apollo Bunder early one morning, a small party of passengers undertook the seven-mile run, with some curiosity aroused by tales of the unusual nature of the sculptures to be seen. I must confess that, after overcoming a certain amount of awe, caused by a knowledge that the caves dated back to the middle of the eighth or early in the ninth century, and that religious rites of a very extraordinary character were carried on, in which the worship of the female form divine was a conspicuous feature, I was only impressed by the gloomy recesses of the immense caves, and the wonderful grotesque carving of the supporting pillars and of the figures which covered the walls in places.

As the figure carvings introduce some of the leading deities of the Hindu Mythology, I will briefly refer to some of them: it is impossible to have a proper appreciation of the numerous temples to be found throughout India and Ceylon without some knowledge of the figures represented in the sculptures with which they are freely adorned. Borrowing from the Rev. W. J. Wilkins's *Hindu Mythology*, I find that Brahma is the first of the three great Hindu gods, and is called the Creator, the father of gods and men, and the lord of creatures. Vishnu, the Preserver, is the second person of the Hindu

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Triad ; but, although called the second, he must not be regarded as in any way inferior to Brahma. Krishna may here be mentioned as the most interesting incarnation of Vishnu, on account of the opportunity it affords to trace in Hindu antiquity the gradual transformation of mortal heroes into representatives of a god, and on account of the numerous legends connected with it.

The Elephanta sculptures are largely devoted to the representation of the third person in the trilogy, Siva, the Destroyer, to whom, therefore, special attention will here be paid. As Brahma was the Creator and Vishnu the Preserver, in order to complete the system, as all things are subject to decay, a Destroyer was necessary ; and destruction is regarded as the peculiar work of Siva. It must be remembered, however, that according to the teaching of Hinduism, death is not death in the sense of passing into non-existence, but simply a change into a new form of life. He who destroys, therefore, causes beings to assume new phases of existence—the Destroyer is really a re-Creator. Hence the name Siva, the Bright or Happy One, is given to him, which would not have been the case had he been regarded as the destroyer in the ordinary meaning of that term. In illustration of these apparently contradictory attributes, Siva in the Elephanta sculptures is represented as Brahma, the Creator, in mild and peaceful character, holding a citron ; as Rudra, the Destroyer, with an oval swelling above the nose, representing a third eye ; and as Vishnu, the Preserver, holding a lotus flower in his hand.

In one of the caves is to be seen a gigantic figure, half male, half female, representing Ardhanarishwara, the deity that combines the active or manlike attributes of Siva and the passive or womanlike attributes of Parvati, his wife. Indra, god of the firmament, in whose hands are thunder and lightning, at whose command refreshing showers fall to render the earth fruitful, is represented ; and it is not surprising that, with the powers at his command, he is one of the most popular of the deities. It only remains to add Ganesha, the Indian god of Wisdom, who corresponds with the Janus of the Latins. He is also spoken of as the god of Prudence and Policy, and is the reputed eldest son of Siva and Parvati.

Although not represented in the Elephanta sculptures, I take the opportunity here of again referring to Agni, the god of Fire, and one of the most prominent deities of the Vedas. In pictures he is shown as a red man, having three legs and seven arms, dark eyes, eyebrows, and hair. He rides on a ram, and wears a *poita* (Brahmanical thread) and a garland of fruit. Agni is an immortal ; the lord, protector, king of men. He is the lord of the house, dwelling

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in every abode. He is a guest in every home ; he despises no man ; he lives in every family.

It is impossible to avoid being struck by the suggestion of a similarity between Jason of the Golden Fleece, the demi-god of Carpets, or the Patron of Carpets, and Agni, whose attributes of benevolence in the home might equally be regarded as associated with the domestic carpet, which being always present in a room, the following continuation of his functions is peculiarly appropriate. "He is considered as a mediator between gods and men, *and as a witness of their actions* ; hence to the present day he is worshipped, and his blessing sought on all solemn occasions, as at marriage, death, etc." The name Agni, and the ram upon which he is represented as riding, give point to the comparison made above, and it would be interesting to ascertain the connection, if it exists, between the ancient Greek hero of the Argonautic Expedition of 1263 B.C., and the Hindu God of the Vedas, described by Sir W. W. Hunter as "the Youngest of the Gods," "the Lord and Giver of Wealth." It may be mentioned that, according to one authority, the "Vedas, the sacred books of the Hindoos, were probably written about the sixth or seventh century B.C."

The next day—to be as precise as Mr. Latif, on Thursday, September 30, 1886—I accompanied some friends to what stands for the Bombay Museum, the School of Art, known in full as the Sir Jamsetjee Jeejeebhoy School of Art, which was opened in 1857. The students are instructed in wood-carving, decorative painting, architectural sculpture, ornamental sculpture, and kindred crafts. The Lord Reay Art Workshops are situated in the grounds of the Museum. Within the main building a small collection of paintings gave promise of a Picture Gallery which would be worthy of the great city. I give these particulars because it was here that the first link in the chain of suggested evidence was forged, which led me to make inquiries as to the existence of Palace Carpets, resulting in the romance of the Mumtaz Mahal Carpet, which largely influenced me in compiling this book, with the object of obtaining information such as would enable me later to pursue inquiries upon the spot, which seems to be the only means of arriving at a final solution of the mystery surrounding the whole subject.

Suspended from one of the galleries of the main building above described was a very fine Oriental carpet—fine as regards design, colouring, and texture ; upon inquiry, I found it had been manufactured at the Yerrowda Jail, near Poona. Struck with the merits of the carpet, I entered into conversation with the kindly Director

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of the institute, with the object of ascertaining if by any chance I could witness the general details of an industry which would be of the greatest possible interest to me. After being informed that there was nothing to be seen in the way of the finer qualities of carpet-manufacture nearer than Poona, and also upon assurance that I should have no difficulty in obtaining permission to inspect the Yerrowda Jail, where carpet-making was carried on by the prisoners, I turned my attention to general inquiries as to anything fine to be seen in Carpets particularly, the possibility of specimens rivalling the fine Persian examples with which I had some familiarity naturally entering into my mind. With some reason I imagined that the finest specimens would be made for the palaces of the native rulers, and the Taj Mahal was uppermost in my mind from having been told that, whatever I omitted to see, the Taj was one thing which no one visiting India should leave without at least one visit ; unfortunately, this was quite impossible, and I had to be contented with what information I could obtain from close inquiry, while photographs, of which two illustrate this division, would have to suffice in satisfying the eye.

The very courteous Director, who could hardly conceal his amusement at the pertinacity of my questions, soon informed me that the collections of the great Rajahs would not be opened to a stranger without a strong recommendation from a personal friend, or through an official source, and that, while undoubtedly carpets of the highest artistic merit would be in use in the palaces in occupation, they would not be found in such buildings as the Taj Mahal, only used for the particular purpose for which they were built. I pursued my inquiries with the view of ascertaining whether it was probable that when the Taj was completed, and during Shah Jahan's lifetime, there would not have been some conveniences in the shape of carpets, cushions, hangings, etc., for occasions when he might probably spend some days in silent meditation—upon anniversaries of his Queen's death, or when religious festivals were held. The reply was that the palaces within the Fort of Agra, which was sufficiently within distance of the Taj, could provide all that was necessary upon any occasion likely to arise.

Not satisfied with the negative information I had hitherto received, and unwilling to relinquish the chance of obtaining inside information, which later might be useful, I next inquired if any portrait existed of the beautiful woman to whom such a superb shrine had been erected. The answer was that the customs of the country and the religion forbade the representation of the female form ;

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and the Director added that as far as he was aware no picture of Mumtaz Mahal existed, or ever did exist, and that if any likeness had ever been executed by the express orders of Shah Jahan, it would certainly be for his eye alone, and that it would probably be destroyed at his death. This naturally led to inquiry as to any secret rooms in the Taj which might be used to preserve any personal relics of the Queen he had loved so much, and which also might be used as a kind of memorial chamber, in which the portrait would be a conspicuous feature. Having had no previous acquaintance with Indian or Oriental life, I am afraid I had visions of something approaching a modern European Gallery, or of such a room as the one in the Doria Gallery, Rome, which is devoted exclusively to the display of the superb portrait of Pope Innocent X., by Velasquez, already referred to. I was speedily informed that anything in the shape of picture galleries would most likely be in the shape of frescoes painted upon the walls, and that certainly nothing of a personal nature, such as portraits of sovereign rulers and their families, would be displayed in any way which would under any possible circumstances bring them under the gaze of the public eye, let alone that of any foreigner.

Having probably some sympathy over the barren results from my string of questions, and willing to afford me some satisfaction, the Director (I never ascertained his name) informed me that some years previously he had shown a remote descendant of Shah Jahan's family over the school, and the conversation turned on the secret chambers which were built in most if not all of the native palaces, probably for the same reason that many old mansions in this country had refuges from religious persecutions. A reason for such sources of safety, in which a turn of events might restore a fugitive to power, could not better be illustrated than in the fate of Shah Jahan himself, who when all his sons, with the sole exception of Dara, rebelled against him, remained for seven years a close prisoner. Shah Jahan's chances of recovering his throne, however, were from the first thwarted by the extraordinary apathy of his former subjects, which the traveller Bernier, who was at the time of Aurangzeb's usurpation (A.D. 1658) in Agra, remarked upon, expressing his surprise as follows: "I can indeed scarcely repress my indignation when I reflect that there was not a single movement, nor even a voice heard, in behalf of the aged and injured monarch." The closeness with which Shah Jahan was kept in confinement is shown by the fact that shortly before his death, when he wished to see new Delhi, which had not even then reached completion, Aurangzeb,

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fearing lest the appearance of the aged King on an elephant might cause excitement among the people and raise a party in his favour, consented to gratify his father's wish only on condition that the journey to Delhi was made by boat, the return journey to Agra being made in the same way—a proposition which Shah Jahan indignantly refused.

Before leaving my friend the Director, to whom I here tender my thanks, I invited him to repeat the information last given, which contained the only crumb of hope left in me, as to the possibility of unearthing something of interest on pursuing my inquiries in other quarters. He very kindly recalled a purely casual remark in which the native gentleman referred to had spoken of a tradition which had been passed down from members of Shah Jahan's household, to the effect that the Emperor had caused to be constructed a secret passage between the Fort and the splendid Mausoleum, which probably he would have the best of reasons for so constructing as to be of service to him in the event of his meeting with the ingratitude of his sons, which the experience of the great Akbar warned him might not improbably embitter his own later career. The fact of the old Emperor not having made use of any such passage would seem to denote an idle tale ; but if my subsequent inquiries in Poona have only the ghost of a suggestion of truth in them, it is quite possible that the refusal of Shah Jahan to be removed from his palace, except in his character as a sovereign, might be accounted for by his hope that some relaxation of the severity of his confinement would enable him eventually to escape, and, waiting for some turn of affairs in his favour, reassert his authority and his right to the throne.

In describing the Fort of Agra, Mr. Latif writes : “To the south of the Khas Mahal, and close to the Amar Singh Gate, is a massive building in redstone, called the Jahangir Mahal, or the Palace of Jahangir, a singularly elegant and beautiful structure.” It is worth while mentioning here that the palace in question is only about a mile and a half from the Taj, and (what is perhaps more to the point) less than 500 yards from the palace to the outside wall of the Fort, from which point to the nearest approach to the Taj would not be much more than a mile, so that once escaped from the palace, the way to a secret entrance leading into the Taj itself would not be fraught with insuperable difficulties.

All this may seem fanciful ; but I venture to think that the following passage from Mr. Latif's book gives quite a different complexion to the remaining portion of this chapter, and it should consequently be read with the attention it deserves, as it entirely

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depends upon the existence of some secret entrance and exit in the Taj, and the chamber or chambers which connected with it, whether or not the Mumtaz Mahal Carpet is a pure myth, or its manufacture and unknown fate are an historical fact, as I believe it to be, now that some corroboration of almost forgotten details has reconciled points which seemed to me at the time finally to dispose of the whole story.

Following Mr. Latif's description of Jahangir's Palace comes the passage above referred to, which I quote verbatim, only adding the italics to emphasize the concluding sentence. He writes: "Among the wonders of the palace are the curious underground chambers, descent to which is obtained by broad stairs to the south of the Khas Mahal. The windows of these labyrinths, overlooking the Jumna, may be observed from the base of Jahangir's palace. The buildings extend over a considerable area and terminate in a Baoli, or well-house. In these vaulted chambers the Emperor and his delicate Harem found shelter from the burning heat of the sun and scorching winds in the summer. Fountains of water played and made the atmosphere cool and delicious. Here the Emperor, in his pleasant retreat, dashed through the pure and cold waters, the royal party was entertained with dancing and music, the chambers resounded with festive merriment. The avenues in the *Baoli* that surrounded the waters of the well were carpeted with cushions of soft velvet, on which sat the royal ladies, chattering and making merry, while the apathetic boatmen, gliding down the river, gazed up at the lofty walls, wondering what the laughter meant. A dark and dreary chamber at the extremity of the well was designed for the incarceration of women found guilty of misdemeanour. *It is said one of these underground passages communicated with the Taj and the Sekandara ; but no outlet has yet been discovered.*"

I left my friend the Director with, I am afraid, insufficient thanks for his courtesy and considerate kindness, and in the afternoon of the same day called upon M. Henri Follet, the French Consul. On learning that he had left for Poona in connection with the functions to be held on the visit of the Duke and Duchess of Connaught (as I afterwards was informed), I was more than ever determined to lose no more time, and arranged to leave for Poona next morning.

The next morning, Saturday, October 2, 1886, I left Bombay at 7.30 A.M., by the Great Indian Peninsular Railway, the Victoria Terminus Station of which line is one of the modern architectural glories of India, and undoubtedly the finest railway station in the

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world. Until about sixty miles from Bombay the scenery is of no particular interest ; but from this point begins the ascent of the Ghauts, a work which presented enormous engineering difficulties, successfully overcome. The engine was uncoupled, and two powerful mountain engines took its place, and the train worked its way up a steep incline to the highest point of the line, where a reversing station prepared the way for the descent. The scenery for the sixteen miles of this Ghaut portion of the line was magnificent beyond description, and only comparable in my own experience with the splendid scenery upon the line leading to Katoomba, the Blue Mountains, New South Wales. The day was beautifully fine, and the view of the peaks rising on either side, with an occasional peep at a vast plain stretching as far as the eye could pierce below, was one never to be forgotten. Eager for anything novel, my eyes were busily engaged in endeavouring to see an elephant at work, and I was rewarded by a distant sight of one lazily engaged upon some labour.

Arriving at Poona at 2.30 P.M., I proceeded to the Napier Hotel, to which I had been recommended, and was dismayed to find that every room was occupied, and that, owing to the influx of officials and visitors attracted by the several functions which were about to take place in connection with the Royal visit, there was no chance of obtaining any accommodation in the city. Thanks to the kindness of the proprietor of the hotel, I secured a "shake-down" for the night in a kind of outhouse, or scullery, in which there was no protection whatever from the outside, the "walls" consisting of open lattice-work festooned with creepers. For a first experience of the sort in a strange country, my quarters were not exactly calculated to secure repose, and I was by no means surprised to be awakened at about two or three in the morning by the flare of torches, and the cries of natives who in their loose white robes were eagerly engaged in some pursuit, which without an instant's reflection I connected with scenes familiar from reading accounts of the Indian Mutiny of 1857. It turned out afterwards that the commotion was nothing more serious than a hunt after an enormous rat, or "bandicoot," for the joy of killing which, and the opportunity of making unlimited noise, the whole *posse comitatus* of cooks, servants, waiters, and clerks came upon the scene, and gave me my first insight into the childishly simple and happy disposition of the natives, when not aroused by fears or prejudices.

Next day I had the good fortune to be present at the opening of the Western India Fine Arts Exhibition, and listened with great

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interest to the speech made by the Duke of Connaught ; my only recollection of it, I regret to say, is that I was struck with a foreign accent which I had not expected. I must confess to having been much interested in a group of young native ladies, who were in attendance upon the Duchess of Connaught, and who with their refined and expressive features, and their gauze-like flowing silk robes, delicately embroidered with gold, were exquisitely appropriate, in their fragile beauty, to the ceremoniousness of the occasion. The exhibits were of the usual interesting character. A series of twenty-one very cleverly painted water-colours illustrating native army costumes, executed by a young officer stationed in the city, attracted my attention. The modest sum of 200 rupees for the set would not have stood in the way of my acquiring them ; but, as they could not be removed while the Exhibition was open, and as I was so shortly leaving India, I did not accept the courteous offer of the artist to execute a fresh set.

I had by this time secured rooms in the Napier Hotel, and was fortunate enough to make the acquaintance of Lieutenant Montanaro and his wife, who, with the latter's sister, Miss Hayter, and a friend, Lieutenant Day, shared my love for music ; and we very pleasantly spent the few evenings available, which otherwise might have been dull enough. It may seem curious to civilians that, being upon personal terms, and staying in the same house as the two young officers mentioned, I should not have been warned of the great review of troops, numbering some 40,000, which took place in the presence of the royal visitors on the morning of October 5 ; but such was the case. To my intense disgust, I found, on making inquiries as to the unusual stillness when I was leisurely having my morning tub, that the whole of Poona was out seeing the grand sight which I would have given my head to witness. The Review was at six o'clock in the morning, owing to the excessive heat ; which accounted for my not having seen the stir which would have caused me to make inquiries. I was not consoled later in the morning by seeing one of the splendid native Bengal Lancers ride by on a superb black horse. Expostulations with my friends only resulted in their saying that they never dreamt of my not knowing of the event, and that in any case, as far as they were concerned, it was only a feature in their "day's work," and it never entered their heads to mention the matter.

It is not to the purpose to speak of my call upon M. Henri Follet, the French Consul at Bombay, already referred to ; nor of the various small functions I was fortunate to come in for owing to the lucky

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coincidence of my visit with the Royal ceremonies ; but to those who may be inclined to think that official, military, and civil life in India is all work and scant acknowledgment, it may be interesting to note in passing that an evening concert and amateur theatricals, which gave evidence of some talent, and a very enjoyable experience at the Poona Races, held upon the excellent Racecourse (which is now over a mile and a half in circumference, and encloses the whole of the parade ground), convinced me that there are ample compensations for the loss of the town life, absence from which to the uninitiated may seem to approach social ostracism.

The afternoon of Tuesday, October 5, was the occasion of the opening of the Reay Market, the foundation-stone of which was laid by Lord Reay, Governor of Bombay. From this point I must relate the remainder of my stay in Poona with some particularity, as the series of small circumstances which began with my thwarted intention of attending the opening ceremony referred to were eventually to result in this chapter, which from some points of view is the most important in the book, as some may think upon reading it.

I suppose that with an Englishman's first experience of the comparative cheapness of things, and the very moderate charges for carriage hire as compared with London, I must have given a lavish and open order for a turn-out suitable to the afternoon's event, for when the time came to start I was amazed to see a splendid carriage with a fine pair of horses approaching, the coachman and his groom in green livery, with snow-white turbans on their heads, the coachman having also, if my memory serves, a touch of red embroidery just sufficient to distinguish his head-gear from the groom's. As if this were not enough, a couple of natives stood behind the carriage, holding on to the straps provided for the purpose. I must confess I thought some mistake had been made ; but, everything being apparently right, I prepared to make a start.

Here came in one of those annoying little incidents which make or mar the pleasure of a day, or even have influence upon one's life. The very kindly proprietress of the hotel, probably instigated by her husband, had from the first taken an interest in me which I now realize was from an early understanding of the fact that I was the very greenest of green "griffins," and for the credit of the "Old Country" required a careful eye kept upon me. With a well-meant interference in my actions, which I am bound to confess I did not resent at the time, I was not allowed to start until close inquiries had been made as to the charge for the afternoon. I presume the figure mentioned was extortionate in the eyes of the worthy lady,

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who would have a keen eye upon the hotel stables ; in any case, after a fluent harangue in the native tongue, I was persuaded to get out of the carriage, and with some misgivings saw this magnificent equipage slowly move out of sight, and derived small comfort from the assurance that in a few minutes it would come back, and that less than half the charge originally demanded would be gladly accepted. To do my kind friend justice, this would under ordinary circumstances have been a quite correct view of the situation ; but I heard afterwards that, annoyed at being deprived of the expected heavy charge, and the accompanying unlimited *douceurs* to be expected upon a festive occasion, the livery-stable proprietors purposely replaced the carriage by the worst native-made carriage, horse and driver they could lay their hands on, and I have no doubt they secretly enjoyed the effectiveness of their revenge, which was gall and wormwood to me.

To cut this portion of the story short : After waiting for about half an hour, I saw emerging from the dust of the heated road the most miserable horse it has ever been my lot to see ; the harness, if it could be so called, consisted of rough ropes for traces, and outside the solitary strap to hold up the shafts, the rest of the harness was nothing more or less than pieces of string, none too securely tied. The driver of this antiquated apology for a conveyance presented to my imagination all the ill omen of the "Ancient Mariner," and his woebegone visage clearly denoted that he had been informed that he need not expect anything but the bare hire from the niggardly Englishman. Even in my disgust at this apparition, I reflected that the unusual sight of the great gathering of Europeans and natives would be well worth seeing at any personal inconvenience and loss of dignity. Mustering all the resignation I could, I gave the order to proceed.

After occasional stoppages to enable the driver to re-tie some of the loosened strings, I at last decided that to go farther, with the poor beast on its last legs, and the driver threatening collapse owing to the excessive heat, would be sheer cruelty. Very reluctantly I had myself taken back to the hotel, upon arriving at which I determined to get as much as I could out of the old gentleman who was driving me, and whose tongue I had already tuned to my purpose by the present of a whole rupee, which he received with the most evident and gratified astonishment. In a barbarous perversion of the English language, he had already accounted for his execrable fluency of tongue by proudly explaining that he had formed one of a party of native weavers who

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had worked at the London International Exhibition of 1874, and, sure of his audience, he regaled me with his experiences of the great city, of which I had had sufficient acquaintance to judge that the fertility of his imagination kept pace with his extraordinary loquacity, when he noticed the interest my numerous questions betrayed.

I naturally made close inquiries as to what was to be seen at the Yerrowda Jail, which I was visiting the afternoon of the next day, and the old man answered questions as to the carpet-weaving and other employments carried on there with a readiness which suggested an intimate familiarity with its interior, which politeness prevented my calling his attention to. I was tempted to ask about the other centres of carpet-making, which I knew to be carried on in most of the important jails throughout the country, and on my expressing surprise at the extent of his information on the subject, he implied that he was of the caste of Saurashtrika, or carpet-weavers, which his family had followed for centuries. With too much inquisitiveness I asked how he had come to his present condition, in which, although I wisely refrained from saying so, he had evidently lost caste, to which he replied with the usual formula, "Sahib, I am a poor man."

Some description of my old friend, whom for want of a better name I will call Fateh Khan, seems called for here: so with the clearest recollection of his personality, as far as a liberal accumulation of dirt and the shabbiest of clothes allowed, I will give my first impressions of him. Fateh Khan was a man of close upon seventy years of age, but of a spare, wiry figure, and had the appearance of not having allowed the troubles of this world to overburden him. His features were well enough formed, and of a somewhat different cast from those of the natives I had hitherto seen in the Bombay bazaars, and since then, in Poona; his nose was thin and of good shape, and with a distinct curve down towards the mouth, which, as might be expected, was indefinite, although by no means large. His eyes I could not determine the colour of at the time, and, although I can see them as clearly as if it were yesterday, I can only remember that they had the sombre depth and colour of his race, and that there was the added expression of experiences in which fancied injustice had played its part, which, with a certain "tamed" look, might be taken to denote that his glib response to the inquiries I had made as to prison-carpet had not been all hearsay. His hair was naturally thin, and white, which, in contrast with his sallow skin, gave an impression of sadness, common to men of his age, for, generally

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speaking, there is little use for the aged and worn-out in native countries, unless they combine this with something of the sage or "medicine-man."

Taken all round, Fateh Khan was a very decent old fellow ; if he imposed upon me, I had excellent value at the time, and do not grudge the reward which he probably laid himself out to earn. After exhausting the subject of jails, it occurred to me to follow up the suggestion thrown out by the Director of the Bombay School of Art, which in conversation came to my memory. I noticed at once that his volubility forsook him when my questions turned upon the secret hiding-places and dungeons in the palaces of the Rajahs, and the fact only made me more curious to hear what he knew. I endeavoured to give him confidence by saying that as I was leaving India in a few days, and should probably never come back again, he need not fear the results of any information he might have to give ; but the impression of centuries of ruthless oppression by their Mogul masters, with whom human beings were as flies when they stood in the way of their ambition, let alone their safety, kept Fateh Khan mum, and I thought it wise to give him time to make up his mind that an infinitesimal risk of my "giving him away" would be compensated for by the pleasures attached to rupees five, which I already had promised him, and which I thought it judicious to double, on the understanding that he would tell me all he knew the next morning, when, having previously decided to visit the Parvati Hill, I thought I could not do better than get him to accompany me, in spite of the way I had been treated. So, impressing upon him that I wanted a good horse and carriage to take me to the Parvati Hill, and that, as I should want him to act as guide, he would have to bring a driver, we parted company, with many protestations of gratitude on his part and the inevitable "Sahib, I am a poor man."

Next morning, Wednesday, October 6, I found a very decent carriage awaiting me, with a driver in livery, and my old friend Fateh Khan gorgeous in flowing cotton raiment and a snow-white turban, which, if I had given the matter sufficient attention, would clearly have indicated that he was primed with information, and, sure of his reward and something in addition, had already spent some of the promised rupees.

On arriving at the foot of the Parvati Hill, I was too much interested in the expectation of the fine view I had been led to expect to permit Fateh Khan's chatter : so, overcoming the objection of the guides to my taking him with me, we undertook the series of

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broad steps, five to six feet wide and a foot deep, which, I was soon informed, the Prince of Wales had ridden up on an elephant on the occasion of his visit to Poona in 1875, in his progress through India.

There are three temples on the Parvati Hill, the principal one, dedicated to Siva (with small shrines around it in honour of the Sun, Ganesha, Parvati, and Vishnu), being crowned by a gilt dome. The two other temples were outside the enclosure, and consequently did not attract my attention. From this temple, the Peshwa, Baji Rao, on November 5, 1817, witnessed the total defeat of his army in the battle of Kirki, during the last Mahratta War (1817-1818), after which he fled from his capital. "On the inner side of the temple door a hollow in the paved courtyard is pointed out as the opening of an underground road to one of the Peshwa's palaces. The ladies of the zenana were borne through it to the temple and back, secure from the gaze of men. Did Baji Rao take this underground road when he fled?" This from the *Guide to Poona*, from which I shall quote again. The appositeness of these little pieces of information induces me to relate what follows, which I should never have ventured to do in these sceptical times but for the gradual building up of accidentally acquired evidence, throwing side-lights upon Fateh Khan's narrative.

After having revelled sufficiently in the magnificent panorama extended before me, and imbibed the romance attached to the whole surroundings, which the old priest in charge of the temple did not fail to do full justice to under the stimulating influence of a rupee, I thought the time and place appropriate for the tale Fateh Khan had to tell, and the old man, nothing loath, making his salaam, approached me, and prepared to unburden his load of fact or fiction. Impressing upon him that it was no use telling me lies, as I could easily ascertain the truth of his story from the Governor of the jail in the afternoon, I invited him to tell me all he knew, and, settling myself down with as much comfort as the absence of any accommodation afforded, I awaited with some interest what would follow.

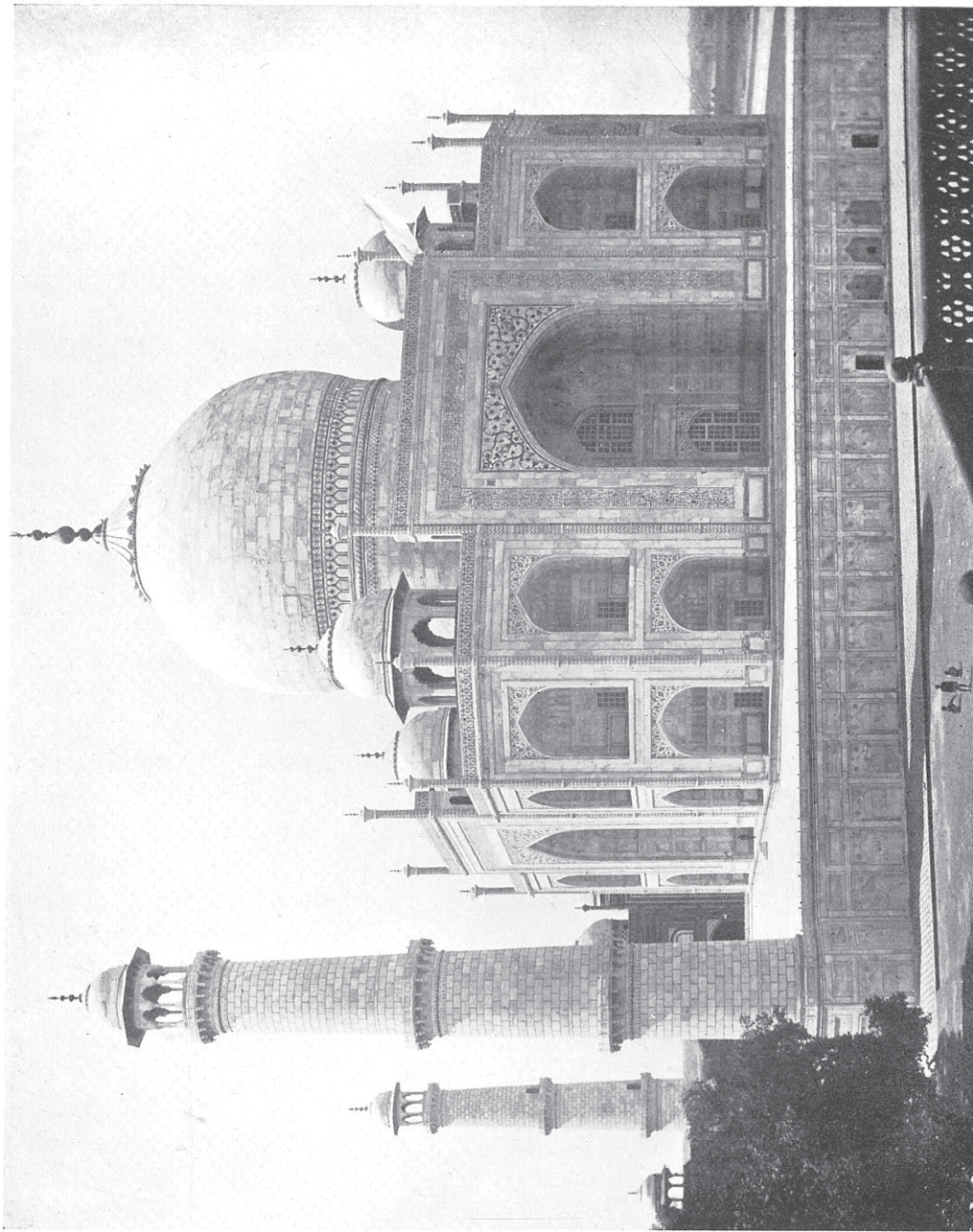
It would serve no purpose to relate at length my frequent interruptions, questionings, and cross-examinations, as the story progressed, nor the expostulations of the old man at my obvious incredulity, which seemed to hurt his feelings; he called upon all the gods of the Hindu Mythology to witness to the truth of every word he said, and I must confess that at last I was ready to believe him; and I will now reproduce the substance of his narrative, with such additions of detail as some acquaintance of Oriental life derived from a later

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visit to India, and from reading, and a much closer knowledge of Oriental Carpets and their romance, have enabled me to give, without any prejudice to the general broad facts which I made rough notes of when ample leisure on board ship gave me opportunity for doing so.

Being fully aware of my interest in the Taj Mahal, Agra, and also in anything connected with carpets, which our conversation of the previous day would have impressed upon him, Fateh Khan without preamble spoke of the building itself, without any of the exaggerated rhapsodies which Europeans have generally bestowed upon it—perhaps owing to the hideous waste of native lives which continuously accompanied the long and wearisome period before it arrived at completion. I remember one piece of information, which the shape of the dome over the main portion of the building gives colour to, for it is not of the conventional mosque design. With sidelong looks which seemed to denote the old man's certainty of arousing my interest, Fateh Khan told me that it was said that the dome or cupola crowning the Taj had been suggested, and designed to Shah Jahan's orders, from the perfectly moulded breast of the woman to whose memory the building was being erected. A most improbable and impossible conceit to some, but to readers of Dante Gabriel Rossetti's "Troy Town" merely the romantic sentiment of an artistic and sensuous nature. As a symbol of perfect womanhood, the idea is beautiful; and as a type of humanity generally, the whole aspect of the ancient Pyramid and Mosque form of architecture deserves a few moments' consideration.

Some authorities attribute the Pyramid form to the old Fire Worshippers; but is it not possible, indeed more likely, that the form stood for humanity at large, a form which would appeal to the human race, without distinction of race, creed, or sex? With arms close to the sides, and a line intersecting the body at the waist, a very reasonable representation of the Taj will be suggested; a line drawn from either side of the body so divided to the centre point of the top of the head forms a distinct pyramid, while a line clearing head and shoulders might stand for the original design of the Pyramids themselves. The same test can be applied to the whole human figure; that is to say, taking a perpendicular line dividing the body, lines drawn clearing the head and shoulders, and meeting at the broad base which would automatically follow, give a pyramidal form which encourages my suggestion. It is curious that, following out this theory, the three great buildings, the Pyramids, the Parthenon, and the Taj, all have this Pyramid form; the same



THE TAJ MAHAL, AGRA

From the Quadrangle

(See Analysis)

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remark applies to the great cathedrals of Florence and Rome, and our own St. Paul's, as also to numerous other buildings of the same class which will readily occur to the mind.

As a prelude to what follows, Fateh Khan's first startling piece of information probably had the effect of making his account of the "Lost Carpet of the Taj Mahal" seem commonplace, the idea being one which might readily occur to any one familiar with the exquisite fineness and colour of the sixteenth century Persian Carpets, of which Shah Jahan in his various palaces would probably have many of the choicest specimens, which the Persian monarchs were accustomed to have specially manufactured in the royal palaces, as presents for foreign potentates. It must be remembered that Shah Abbas the Great, under whose rule the Persian Carpet arrived at its highest perfection, came to the throne in 1585, and his reign lasted until 1628. Akbar the Great ruled India from 1556 to 1605, and introduced Persian weavers into his country, probably with the full sanction and even the kindly offices of the Persian monarch, who, with all his faults, would be sufficiently broad-minded not to anticipate or resent any competition likely to arise between Lahore and Ispahan; he would, moreover, be more than willing to promote friendly connection between the two great Eastern empires.

It will be seen later that in speaking of Shah Jahan's having brought Persian weavers, with full supplies of the raw silk, and the famous gold and silver thread, which only they could produce in perfection, upon the scene of the Taj building operations, about a year after the death of Mumtaz Mahal, Fateh Khan, without knowing it, touched upon a period which offers the greatest appearance of likelihood. Shah Abbas of Persia had been dead two years at the time named, and the dyeing of the necessary material could be readily done by the weavers engaged in their work at the royal palace of Lahore.

It may be asked, Why was not the work carried out by the weavers who had already acquired proficiency during their thirty or so years' experience they had had since Akbar introduced the carpet industry into his kingdom from Persia? I think the reason will be readily seen as Fateh Khan's story progresses; the nature of the design, and the prejudices of the religion of his country, and (perhaps stronger still) his own reluctance to confide his personal honour to any but the two or three trusted loyal subjects and probably personal friends who directed the construction of the Taj under his own guidance, quite sufficiently account for Shah Jahan's obtaining weavers from a distance, and, atrocious as the suggestion may seem

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to European minds, he from the very first intended to safeguard his secret by means familiar enough to those acquainted with the Eastern methods. Having poured out blood like water during the early stages of the Taj's construction, Shah Jahan was not likely to let the handful of Persian weavers and their families stand in the way of silence.

Following up his more than half-hinted suggestion of the origin of the beautiful dome of the Taj, Fateh Khan without circumlocution, and as if recording a thing of common knowledge, brought me up with a turn by speaking of a wonderful carpet which was in progress of making some few years after the beginning of the Taj, and which was completed about the same time. It is of no use to relate the asseverations of his veracity which the old man tumbled one over the other in his earnestness to combat a doubt of his story, which to his mind probably was only of importance as meaning the reduction of his promised reward, and the total withdrawal of the hoped-for contribution towards the costume evidently purchased and donned in my honour. The look of unspeakable innocence, and the utter absence of guile in Fateh Khan's injured countenance, would have disarmed one less willing to be deceived than myself: so, with the sure prospect of an interesting *dénouement*, I urged him to go on with what at least promised to be a tale worthy to rank with the "Flying Carpet" of the *Arabian Nights*.

Soon after the death of Mumtaz Mahal, the court painter was commissioned to reproduce her likeness, from his own memory and that of the bereaved husband; but, not satisfied with the smallness of the scale, or (more likely still) with the hardness of the medium, which the style of painting in the East would serve to make still more unsatisfactory and conventional, Shah Jahan took matters into his own hands, and, probably with the assistance of the architect of the Taj, drew up a rough suggestion for a design, to be executed by the weavers engaged in the new industry initiated by Akbar. For reasons already given, it would be later decided to obtain weavers and materials from Persia, the superiority of which Shah Jahan would be sufficiently artistic to recognize; there was also the necessity for secrecy in the execution of a project which would have offended, if it did not shock, the religious prejudices of his most loyal subjects, and have had a bad effect upon the more ignorant of the native population.

To those unaware of the almost fabulous fineness of some of the Oriental carpets, the apparent impossibility of producing even a passable likeness in such unpromising material may be sufficient to

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stamp the story as a fabrication ; but to such I can mention a carpet from the Marquand collection, recorded in this book, which, containing 780 knots to the square inch, gives the advantage to the Taj Carpet, which, according to Fateh Khan, contained 1000 hand-tied knots to the square inch. This may seem incredible ; but the Marquand carpet with 780 knots represented 28 knots of warp and weft within the square inch, whereas the Taj Carpet, with 1000 knots, only meant an increase in fineness represented by 32 knots each way, as against the 28 of the coarser carpet, if it may be so called.

To cut a long story short, the Persian weavers and their families were housed in a temporary shelter and compound, close by the Taj, and the same body of men who kept guard night and day during the whole time the building was in progress, and more still towards its final completion, also had the closest eye upon the enclosure, which only Shah Jahan, and the trusted but unknown architect who designed if he did not conceive the Taj, were ever known to enter. It may seem to be beyond the bounds of reason to suggest that a period of twenty years could possibly be taken up in the production of a carpet which my questions finally reduced from Fateh Khan's first absurd size to a marked-out space on the ground by the temple, to the more moderate dimensions of (say) 20 feet long by the same measurement in width—which, seeing that neither of us had seen the carpet, was an amusing compromise grudgingly made on the old native's side, but satisfying my idea as to probabilities and the natural order of things. The Ardebil Carpet, measuring 34 feet 6 inches by 17 feet 6 inches, and with 380 knots to the square inch, represents a total of over 33,000,000 hand-tied knots, with a fineness of texture represented by about 20 knots the way of the warp and weft. The Taj Carpet, with a measurement of 20 feet by 20 feet, with 32 knots warp and weft, contained 57,000,000 knots, which means the not contemptible labour of the four or five men engaged on the work of not very far from 3,000,000 knots a year.

It must be borne in mind that the usual impatience of the Oriental despot would in this case be controlled by the fact that the carpet would not be required until the completion of the building itself : so Shah Jahan can be pictured watching the gradual growing of his cherished design, in the same way that the Persian monarch, Shah Abbas, had perhaps with equal or greater interest daily when in his palace at Ispahan superintended every stitch of the famous Hunting Carpet which is now in the possession of the Emperor of Austria. There is no need to follow step by step the progress of the

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Taj Carpet ; to relate the delays caused by obtaining fresh raw or finished silk, and supplies of the gold and silver thread ; nor yet to speak of the constant dyeings which, undertaken by the Lahore dyers, would on each occasion stimulate the keenest curiosity of those employed in the work, and probably result in sufficient information gradually leaking out, through feminine sources probably, to justify Fateh Khan's claims for credence, based upon the "word" passed on from mouth to mouth, with the caution borne in the first instance that the merest whisper of any knowledge of such a personal secret would mean the wiping out of a whole village.

I cannot pretend that the bald facts related by the old man amounted to anything more than affected the mere existence of the carpet, which knowledge on his part would be derived from the flimsiest of whispers, which, whatever precautions may be taken, will filter through the medium of love from the most closely-guarded prison, to the guards outside, and thence, heaven knows where. I have already referred to the likeness of Mumtaz Mahal, and, without any suggestion on my part, the further information was vouchsafed that the members of her family were grouped around her in the field of the carpet, and that an inscription placed at the bottom of this space, and close to the border, recorded the birth and origin of Mumtaz Mahal, the circumstances of her death, and the full names of her numerous offspring. This is natural enough, and is, in fact, the sort of memorial inscription which Europeans would make use of in the ordinary course of things. The inclusion of poems upon the personal merits of the beautiful woman whom the pen of Shah Jahan himself celebrated in glowing verse is reminiscent of the valiant knights and troubadours of medieval times, not quite according to the ethics of taste ruling in colder climes, but quite characteristic of the flowing imagery of Eastern nations ; and coming from a poet and a devoted lover, both of which Shah Jahan could claim to be, the verses intended for his own eye alone probably recorded the perfections of Mumtaz Mahal with a minuteness similar to that of Sir Philip Sidney in the poem from the *Arcadia* entitled "Zelmane to Philoclea," and the familiar descriptions of a *Woman*, which, written by Donne and Herrick, were probably derived from the older inspiration.

The border of the Taj Carpet contained panels, which I assume to have been sixteen in number, or four panels within each side of the square of the carpet ; within these the verses of a romantic lover can easily be imagined, and it must be remembered that as with the hot-blooded and impetuous Jahangir and the famous beauty Nur Jahan, who held him in the chains of love for twenty years, so the

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niece, Mumtaz Mahal, by the influence of her beauty and undoubted mental and artistic endowments, for seventeen years held her place in the affections of her lover and husband, in a way which will be appreciated by those acquainted with the easy morality of Eastern potentates. It may be suggested that the series of brief verses fittingly recorded the noble appearance of the beautiful and queenly Mumtaz, the slight span of her waist, the glories of her raven hair, the expressive softness of her eyes, the compelling sweetness of her mouth, the delicate perfection of her shell-like ears, the exquisite symmetry of arms, hands, and ankles; it may be assumed that even the taper fingers and her henna-tinted filbert nails would not be overlooked. Suffice it to say that the poems would be framed in all the luxuriousness of an Eastern imagination, and it may even be conjectured that the gauze-like silken robes embroidered with gold, which suggested without revealing a divinely-moulded body, would to the mind of Shah Jahan only be recorded as bearing witness to his pleasure in lavishing upon the description of her person all the refinements of an inspired and poetical lover who, as already recorded by Mr. Latif, could refuse her nothing.

It is, of course, only possible to conjure up an idea of the colouring of the carpet by referring to some known example.

The carpet I have selected as answering all the conditions demanded of the Taj Carpet, and which in my judgment justifies all tests to which the carpet could be subjected upon technical and artistic grounds, was first seen by me on Friday, May 17, 1906, at the then still uncompleted addition to the famous Louvre Galleries, Paris, namely, the MUSÉE DES ARTS DÉCORATIFS; and I am afraid that my eager scanning of the exhibits at that time arranged, and my furtive attempts to jot rough sketches of what interested me, were as suspicious, if not alarming, as my innocent endeavours on Friday, March 12, 1909, were to the Director of the South Kensington Museum when, wishing to ascertain in which room the famous Ardebil Carpet really was, I was met with a very direct intimation that my nearest way out of the department (closed, by the way, for some reason or other) lay in a direction exactly opposite to that of my wishes and intentions.

The carpet I refer to is as much a fragment as the celebrated "Torso of the Belvidere," otherwise known as Michael Angelo's Master, from the fact that the great artist took it as his model in his younger days, and even when blind sought pleasure and inspiration from tracing the form and development with his sensitive fingers. The Room in which it is to be found is clearly marked

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“SALLE 117,” and a small label on the carpet itself bears the inscription, “Perse XVI^{ème} Siècle, Don de M(onsieu)r. J. Maciet, 1903.” By a most curious coincidence, the Second Part of the magnificent supplement to the great Vienna Carpet Book of 1892-1896, *Ancient Oriental Carpets*, dated 1906, contains in Plate VIII, No. 8, either the carpet itself or, by some extraordinary fortuity of artistic chance, another portion of the same carpet, which, if united, would form a perfect whole. Such chances are by no means unique in the history of Art, and the opportunity of verifying this particularly happy “fortuitous combination of circumstances” should certainly not be lost. In Part IV. of the work referred to, dated Leipzig, 1908, the carpet is described as “Persian, first half of 17th Century. Property of the Cracow Cathedral,” which would go to show that it is possible that this superb carpet, one part of which is in France and the other in Austria, only awaits the “harmony of nations” to ensure either one or the other being the happy possessor of the united whole, which in my judgment will mean one of the choicest and most interesting carpets in existence. In the meantime, I shall always now know the carpet as the “Taj Carpet,” and shall not be surprised if the mystery attaching to its severed condition is as romantic and remarkable in its way as the subject of this section.

This “Taj Carpet” seems to comprise, in the magnificent torso I have been privileged to see, the merits of design and colouring attaching to a masterpiece of the period in which Shah Abbas, by his knowledge and personal influence, fostered the art of carpet-weaving until it arrived at a stage similar to that in which Italian Art was left when Raphael, Michael Angelo, and Titian were no more. Even as further advancement in the art of painting was for the time beyond all genius of that period, and (as it has turned out) of any genius who has since arisen, so since the palmy days of Persian carpet-weaving decline has been the rule, and the past in an artistic sense exceeds all the promise of the present and the future.

Shah Abbas reigned from 1585 to 1628. The date assigned to the carpet as being of the first half of the seventeenth century admits, therefore, the possibility of the Taj Carpet having been produced under the personal direction, or inspiring influence, of the monarch, and of its having been made while the even more remarkable inspiration of the Indian emperor was taking shape and giving promise of its perfection.

The design and colouring of the carpet under consideration are infinite in their variety. The cloud and horseshoe forms (perverted by Chinese influence), the cypress or “tree of life,” the mango, almond,

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lemon, and pear trees in full blossom, the date palm—all are there in conventional or more or less natural treatment. The lion, the tiger, the leopard, and the jaguar seem all equally interested in the wide-antlered deer ; and the monkeys perched in trees, or lazily watching the scene, provide a variety of animal life which requires a more intimate acquaintance with the fauna of the country than I possess to do it justice. Birds of all descriptions are to be seen under various aspects, and all with an absence of convention surprising in its indication of the artist's and the weaver's intimate acquaintance with nature. Snipe, geese, vultures, cockatoos, and birds-of-paradise do not seem to lend themselves to carpet design ; but, unless I am mistaken, they are all to be seen. The ram is within the open centres of some of the palmette forms, and may have some special symbolical significance. One particularly delightful open palmette has upon a plain gold ground in its centre the figure of a doe, outlined in black. The whole effect has a delicacy and naturalness which would give pause to any one inclined to limit the possibilities of carpet design and colour.

The field or centre of the carpet is a delicate shade of canary yellow, broken up from what might have been a level monotony by the invariable necessity for frequent re-dyeing in a large carpet ; this has resulted in a variety of shades, all intended to be of the same colour, and thus sufficiently in shade with one another to give the necessary variety, without any sense of a false match. Upon this field, and in the centre of the carpet, is a leaf-shaped panel, outlined in red, next to which is a broad band of blue, in the outer form following all the convolutions of the conventional broken-leaf form, and in its inner lines enclosing the centre of the panel, which is a prominent feature of the carpet. Both this outer band of blue and the large panel which it encloses are richly and elaborately figured with trailing stems and flower forms upon the blue band, and with equally rich flower and stem effects and small animal and bird forms upon the larger red panel, which from its size admitted of more variety.

From the apex of the leaf-formed centre panel a small richly-designed and rounded palmette form rises, outlined with red, and upon its broken blue ground a small-leafed rosette figure is placed, with smaller leaf and rosette figures encircling the panel, arranged in conventional form. From this palmette form rises a more important panel, outlined in blue and cream, which (so to say) encloses a panelled figure upon a red ground, the centre of the panel bearing a freely drawn small ornamental panel upon a blue ground. This

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panel is filled with flower, stem, and bird forms, conventionally arranged.

The small blue panel next to the main centre panel, and the larger red panel, forming the top of the complete panel, are delicately connected, practically forming one figure, which from its appearance turns over from its horizontal centre, the space of yellow field being larger at either end of the panel and its two connected panels than at the sides of the important centre figure. It is inevitable that any attempt at a written description should convey a sense of heterogeneity and a "business" of effect which are entirely absent from the carpet. I have made use of the plate in making my description; but from the exigencies of any colour process—and that of the plate is inconceivably perfect in its way—the original carpet has a softness and a harmony of tint which, combined with the close, rich texture of the carpet, entirely remove any sense of incongruity in either design or colouring, and the fact that the carpet design, as far as its upper half is concerned, is treated geometrically—that is to say, the figures on the left are turned over and reproduced uniformly on the right—produces the same balance of effect as is observable in the Ardebil Carpet.

It is to be understood that the Paris fragment represents only half of the original carpet, and, if my memory serves, it is larger, and in more perfect condition than the one illustrated as being in the Cracow Cathedral. If the design of the carpet turns over from its centre lengthways, the halves apparently would exactly correspond, and with minor differences, such as the two distinct lamp forms in the Ardebil, the description applying to one half of the carpet would do equal justice to the other.

It remains to describe the border, which, in perfect proportion to the field of the carpet and the design as a whole, has the exact contrast in design and colour which is so characteristic of the Oriental, and particularly of the finest period of the Persian carpet. First comes upon the outer edge a narrow band of plain red; then a band of the same width in gold closely damasked; next to this is a more important band of a broken shade of green, which band is broad enough for a row of ornamental figures, consisting of two distinct forms, one rounded and the other of a squarer form, the two sides being hollowed to receive the rounded form, and the two forms themselves being arranged alternately in the continuous band, providing a marked and individual "moulding," divided from the main band of the border by a narrow band of damasked yellow, corresponding to the outer band of the same colour already referred to.