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The Craftsman

"The lyf so short
the craft so
long to
lerne"

Markers of Time

By Irene Sargent

Enamel as a Decorative Agent

By Samuel Howe

Beaten Metal Work

By Amalie Busck

**The Drake Collection of
Brass & Copper Vessels**

By Samuel Howe

The Evolution of the Lock

By E. Alexander Powell

Some Cornish Craftsmen

By Mabel Thornton Whitmore

Metal as a Medium of Expression

By Mary Norton

THE CRAFTSMAN

Vol. II.

No. 2

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FOREWORD

PERSISTENT in the aim proposed in its initial number, "The Craftsman" for the current month offers to its readers a series of papers upon certain phases of art allied to Labor. Metals, the objects which are made from them, and the processes which are applied to them are here considered by a number of writers, several of whom are themselves craftsmen.

It is hoped that the suggestions upon the use of enamel as a decorative agent may awaken interest in a medium of artistic expression, as yet little understood in America, but possessing almost unlimited possibilities of picturesqueness to be added to our interiors and even, as the writer indicates, to our public thoroughfares.

The articles by the women workers in metals, technical and practical, like those upon the art of book-binding contained in the April issue, will doubtless prove instructive to those practically interested in these special crafts. They are also a sign of the times, hopeful and not to be disregarded, showing that the question of sex is relatively unimportant, and that workmanship alone is the test through which the right to labor and to create is gained.

The critique of the Alexander W. Drake collection : section of brass and copper vessels, is written by one competent to judge of its value. The article is unusual, as coming from an artist and craftsman, in that, beside treating of medium, form and color, it reaches out to questions social and racial. It is a tribute to the art of which William Morris was the advocate and prophet; a system created by the people for the service of the people, and which supplies a first necessity of all civilized life.

In such service "The Craftsman" will continue to put forth effort, and workers in any medium are invited to accept the aid of this publication for their encouragement and advancement. Anything

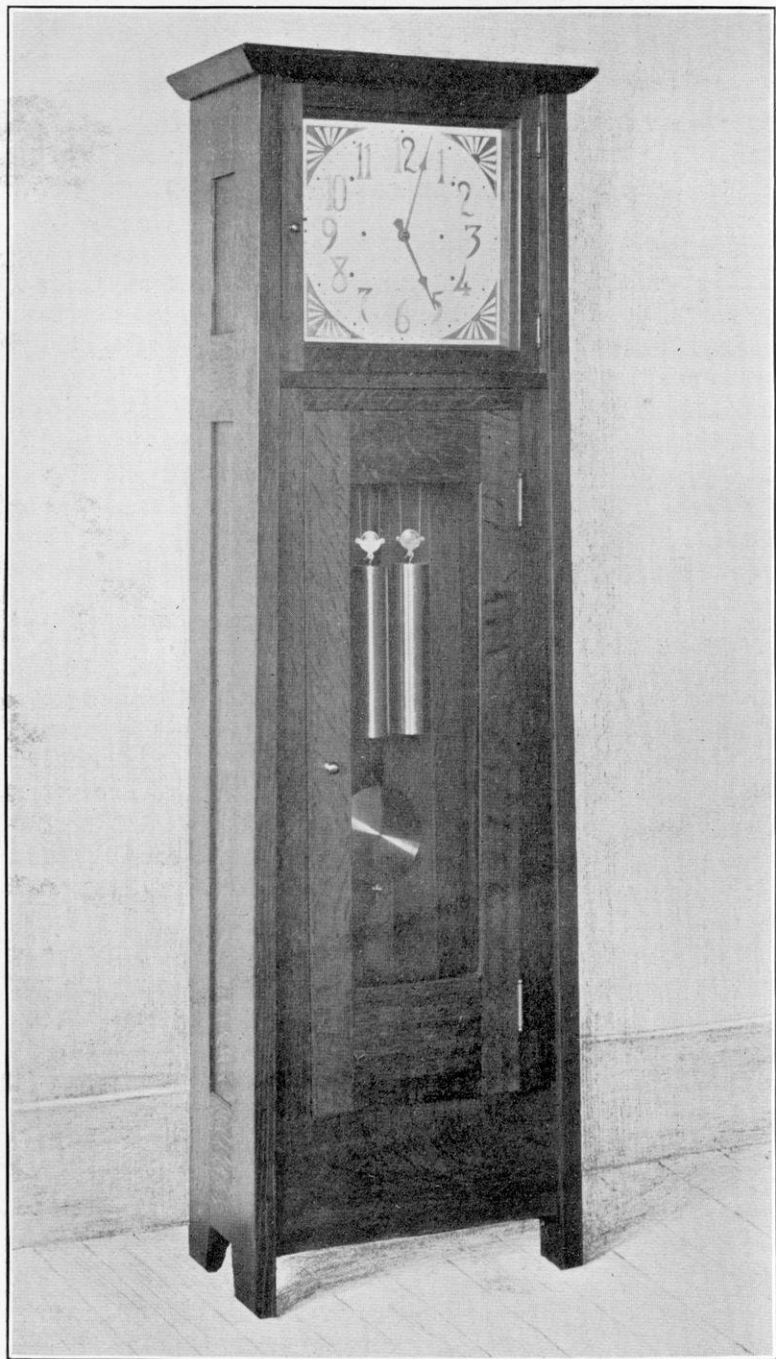
of value accomplished in use of material, process, or artistic result, if communicated to the Publishers, will receive from them the degree of recognition that it deserves. By this means, the designer, or inventor, will gain the incentive to future and further attainment; the followers of the Arts and Crafts movement will be able to note each step in its course; opportunity will be given for public discussion of technical questions in a simple and practical manner; the standards of work and taste will be surely and permanently raised. At all times "The Craftsman" as the organ and representative of art allied to labor, will maintain its principles by demanding from the workman honest and intelligent service, and for the workman an adequate livelihood that shall raise him above the necessity of haste and negligence.

Further to serve the interests and pleasure of its readers, "The Craftsman" solicits information from all Arts and Crafts Societies, both at home and abroad, regarding such of their aims and proceedings as are of general importance and tend to propagate broadly the healthful, popular enthusiasm of which these societies are the outcome.

Toward the development of the same movement, correspondence is invited from communities in which no such centers of practical work and aesthetic spirit as yet exist to multiply legitimate pleasures and to dignify the conduct of life.



*Door for house in Onteora Park, N. Y.
With copper trimmings by Mary Norton*



Hall Clock by the United Crafts

THE MARKERS OF TIME

DEREUNT Horae et Imputantur." "The hours perish and accuse," are words formulated from the grave thought of the Middle Ages, which appear on many an old English dial accenting cathedral front, or college quadrangle, or yet again the wall of some humbler structure to which men were wont to be called in large numbers by daily duty. Grave markers of time were these clocks and sun-dials, warning the people to act rightly and to think purely, lest their souls should suffer injury. Something of the sense of personal responsibility, of the conscience which distinguishes the Anglo-Saxon, is reflected in this thought, although it is formulated in the learned language of the schools. The spirit of the race has rarely been more clearly expressed, or received a better commentary than in this brief warning.

Across the channel too, there were clocks and dials inscribed with earnest words of instruction for the proper conduct of life. But these were of other tenor, and they also mirrored the thoughts and principles of the people whose lives they divided and marked. In Paris, the tower of the Palace of Justice displayed in the fourteenth century Henry de Vic's great clock: a picturesque spot upon the grey wall, rich in blue enamel and gold fleurs-de-lys, with its supporting female figures, carved and gilded, and its decorative inscription, "*Machina quae bis sex tam juste dividit horas, justitiam servare monet et legesque tueri:*" "The instrument which so justly divides the hours of the day, teaches us to respect justice and to keep the law." This counsel is one appealing to the intellect, rather than to the heart. It voices the spirit of the races who gave to the world legal concept in its simplest, purest form. It is the great Roman code reduced to its lowest terms, solemn in its recognition of equity, setting forth citizen-rights and the dignity of the State, but leaving the one who reads it unmoved and cold. And this is because it contains no direct and

personal warning, because it does not search the record of individual life and conscience, like the words, "They perish and accuse," which constitute every hour into an awful Final Judgment.

The two differing sentences sum up indeed all that can be learned in history of the two opposite races: the Latin, animated in its actions and thought by the idea of citizenship and unity; worshipping the concept of the city even so far as to name it the *Éternal*, as in the case of Rome; fighting again and again for democracy in various countries of the continent, and when overcome, returning again and again to the charge in obedience to the most deeply set of instincts. On the other hand, we feel the spirit of our race and kindred throbbing through the "*Pereunt et Imputantur*"; the individuality which gave birth to *Magna Charta*, to the great English Parliament, to Shakspeare, to the colonization schemes which have well-nigh universalized our language, and to the personal fortitude which has reached out into the gravest perils to give us material wealth and dominant intellectual force among the races of men. The heroes of the world have always obeyed the principle clothed in the words "*Pereunt et Imputantur*," with all their eloquent and terrible suggestion of the opportunity once offered, once accepted or rejected, and never repeated.

The value of legends such as the ones quoted, when placed at points to which all eyes are compelled, can scarcely be estimated. Elevated above the narrow and sombre streets of mediæval towns, their power of teaching, warning and saving must have been inexpressibly great over the trained minds of scholars, just as the sculptures of the cathedral fronts pictured the end of the world and the stories of saints, sufferers and sinners for the unlettered people, and so taught them to respect the laws of both God and man.

It might be urged that legends and symbols have spent their force; that they were

primers in the school of humanity; and that to the intellectually adult men of the present day facts alone make appeal. It is true that God was then regarded as the Avenger rather than the Great All-Father, and that the powers of Nature were the enemies, rather than the allies of man; so that mystery and gravity were the inseparable companions of the active hours of life. The burgher who was born, labored and died in one and the same city can in no wise be compared to his similar in modern times who changes scene at will and effaces from his mind by pleasure the thoughts of the unknown hereafter which awaits him. He trusts to a succession of impressions to scatter the gloom which may have temporarily arrested the careless course of his life. Yet even to-day, legends like the "*Pereunt et Imputantur*," inscribed at points of interest and assembly, exercise a strong power by which to draw men toward higher ideals. The old French dial of the Palace of Justice, restored and dominating the modern Parisian throngs hurrying to the play-houses, the Exchange, or the gay and rich shops of the quarter, arrests as may be daily seen, the feet and the glances of many a passer, and it must be that it causes many also to ask themselves what justice and the laws demand.

It would indeed be desirable from the point of view of morals that these monitory and educative legends should be displayed in discreet number in the open squares and thoroughfares of our cities. They would give accent to places which are now often but convenient passages to an objective point; they would fill the after-route with material for thought and instruction; they would, furthermore, if artistically presented, serve a function in that composite scheme of development, moral, intellectual and aesthetic, into which modern education is crystalizing.

It is said that even infidels standing beneath the great dome of St. Peter's are sensi-

tive to the inscription circling the drum of the cupola: "Thou art Peter, and upon this rock I will found my Church." And it is undisputed that a symbol, or a word of exhortation, if skilfully chosen, will lead throngs of men to brave and generous action through the faith born of enthusiasm, even though they, in calmer moments, reject the cause represented by the inspiring symbol or word. Still another proof of the uplifting effect of hortatory inscriptions may be read in the faces of visitors to the Memorial Hall, at Harvard University, which, on the authority of Professor Charles Eliot Norton, is said to be the only building in the world dedicated to youthful value. The eulogies of the student soldiers who gave their lives in the war which preserved the Union and Constitution of the United States, follow the wall lines like a frieze, and to those who read them they seem like the utterances of a supreme intelligence, guiding the world to the heights of patriotism and self-sacrifice.

Opportunities for the display of legends such as these occur but rarely, nor if more frequent, would they afford equal power of touching hearts and quickening enthusiasm.

But if inscriptions similar in sense to those accentuating the meaning of the mediaeval public time-pieces and dials, should be set for a like purpose on our modern clock-towers, both dignity and picturesqueness would be added to certain city quarters which are now marked only by costly and ugly structures and by jostling, careless crowds. Such action would not be a return to customs which have long since lost their force and meaning. Nor would it be an attempt to discipline and awe reasoning beings with means adapted to the childhood or youth of humanity, such as is the Dance of Death painted on the old bridge at Lucerne. It would simply infuse an uplifting idea into the midst of the strife and selfishness of trade and enterprise, and set a standard of thought and deed over and above that of the stock ex-

change and the great corporations. And no man's soul, save that of the degenerate, is so dead within him that it can not be touched by words of lofty counsel meeting his eye on his daily path, with all the power that the voice of a wise friend might possess over him. Examples of the inspiring force of such inscriptions may be drawn from certain familiar memories of our American cities: as for instance, the motto of the State of Massachusetts, which stands clear cut and bold upon the facade of the Old State House in Boston, with its dignified, imperious announcement of peace maintained by liberty and the sword. And a second example lies in the dedicatory inscription upon the Soldiers' Monument, on Boston Common, which was written by the president of Harvard: "To the men of Boston who died on land and sea, during the war which kept the Union whole and preserved the Constitution, the grateful City has raised this monument, that their example may serve to coming generations." And surely, set on its course by such eloquence, the desired influence will prevail and be perpetuated. It is further to be wished that public instruction, such as this, might be conveyed in connection with the markers of time: the clocks of town halls and libraries and railway stations to which, at all times and seasons, attention is drawn by the demand for punctuality among all classes of people, which year by year grows more exacting as life grows more complex.

So let some words of encouragement, counsel and warning: words above all reflecting the sense of personal responsibility contained in the "*Pereunt et Imputantur*" appear joined with our public clocks and dials, just as the sentence fraught with the dignity of justice and the law is still left to dominate the wayward, restless city of Paris. And this is done there not to the sole furtherance of picturesqueness, which is so desired and appreciated by the artistic French people, but rather that the warning may restrain from moral laxity and keep in the paths of social and political rectitude those

who pass beneath it. It is possible further that more of these legends and mottoes may appear at different points of the old city, as a society of Parisian artists and antiquaries is now discussing the advisability of restoring many lost historic landmarks, such as smaller monuments of various kinds, and the shop signs which lent interest and character to the streets before the adoption of the commonplace, but convenient modern system of numbers. A similar movement is felt in our own country: an impulse to create beauty in public places that the old and best idea of the abstract city may again prevail: that is, that it may become the richest and most beautiful possession of the people, who shall keep it in trust for the common good, regarding it as a focus of moral, intellectual and aesthetic illumination, and enjoying its advantages equally afforded to all.

Were these principles in full operation, private life would be at once simplified and embellished, and the inordinate desire for individual luxury, always the vice of rich republics, would be strictly repressed. Under these conditions, an ideal home may be pictured, and that home would be such as it was described by William Morris, the supreme craftsman of the nineteenth century.

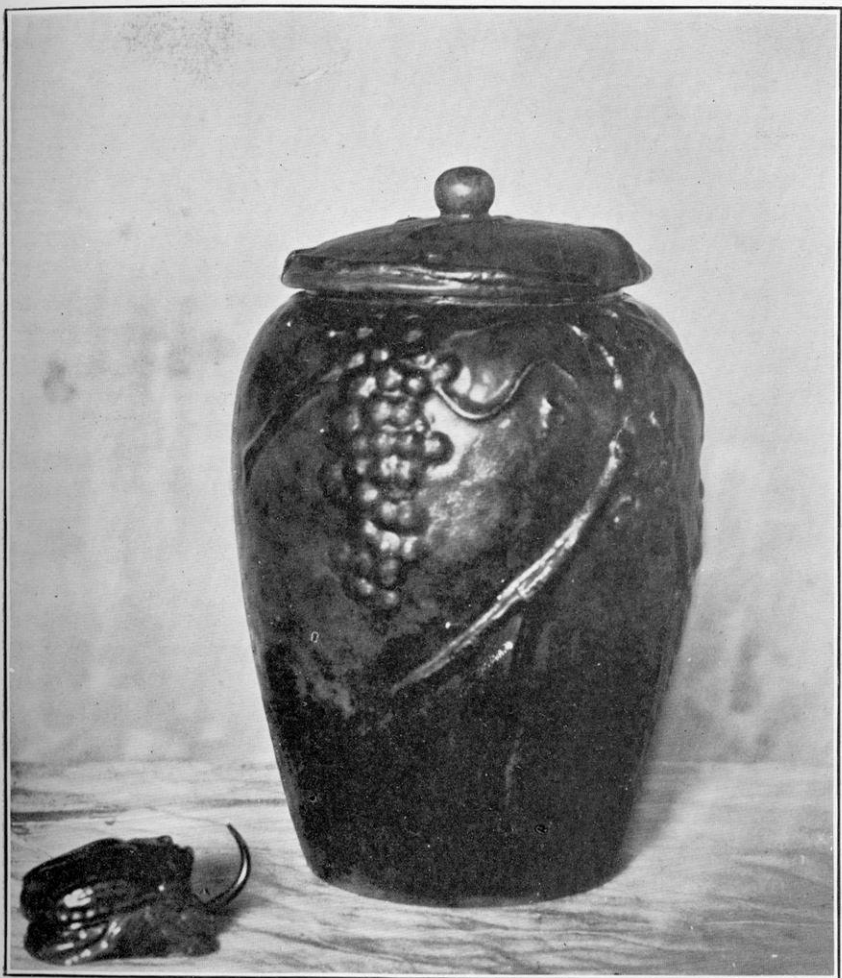
The place of life and labor would then contain no superfluous objects, such as now encroach upon space, demand care and attention without returning an equivalent of service, and, most often, offend by ugliness of form and color. Rather it would receive within its walls only such objects as are known to be useful and felt to be beautiful: simple furnishings for the maintenance of comfort, good order and sanitation; instruments needed in the pursuit of some art or science; books for instruction and recreation; pictures and models, valuable for their cultural influence, and not chosen in obedience to some passing caprice, and accepted in too great number, as is now almost universally the case.

Prominent among these necessary furnishings stand the markers of time, the clocks on which depend the provisions for the well being of the individual occupants of the home, and for the very maintenance of the family bond. And about the family time-piece, as we know from our own sentiment, and by illustration from literature and art, circle a large share of the memories—both the sweet and the bitter—of life. We remember the stories told us in our childhood by our parents and grandparents, of the clocks of their own homes; tall and slender, standing on the stair-landing, or in the “keeping-room” or kitchen, of some New England farm or village house. And as the picturing words fell from the lips of the dim-eyed, placid-faced, aged man or woman, the vision of the clock rose before us as something to be loved and cherished. We could see the polished metal dial, round and glistening like the full moon, with its great numerals so eagerly consulted by the children anxious for their food and their play-time, or yet awaiting the moment when they should “creep unwillingly to school.” Within the dial, perhaps, a circle was cut to allow the sight of a quaint picture displaying or suggesting the mechanism of the time-piece: sometimes a ship was seen, straining its sails and ploughing the waves, in obedience to a regular motion; sometimes the movements of the planets were described by miniature balls; or, as a motif drawn from the Dance of Death, Father Time appeared with his proper attributes, the scythe, the skull and the hour-glass. The old time-piece was, as Longfellow writes with the feeling born of experience, associated with all the events that constitute the history of a family: birth, marriage, and death, partings, home-comings, and all the lesser concerns which fill the hours and make the smaller divisions of time pass unremarked into the greater.

The sentiment and romance of the clock so permeates domestic history that no poem,

play, or picture, treating of the life of the people, is complete without mention or representation of some marker of time. For it gives accent and homeliness to the mimic scene, as surely as by means of its regular, slow and gentle utterance, it lends a sense of peace and comfort to the real environment. The tick of the clock and the steam of the kettle are the working allies of discovery and invention. They have tided over discouragement, disciplined unskilful haste and encouraged patient, continuous effort. The clock is a first necessity of civilized life: while itself and the book are the most available and universally satisfying substitutes for human companionship.

In view, then, of its important functions and of its great influence upon daily experience, it should be fashioned with extreme care by the craftsman and chosen with equal care by the one who receives it into his home. Its mechanism should be clothed in distinctive, beautiful form, that it may remain pleasing throughout the vicissitudes of a long companionship. Unassuming and refined, it should not obtrude upon the sight, but rather like many a household saint, should it perform its useful functions without attracting praise or blame: which is the ideal way of rendering service. Its voice should be low and sweet, like that of the ideal woman, and if its face were marked with the best thought of the race, epitomized as in some sentence like the "*Per-eunt et Imputantur*," it would then indeed attain the highest requisites of perfect friendly or fraternal fellowship. It would lend a new sense to the meaning of the legend often found in Latin countries on the dials of markers of time, in places of recreation and pleasure: "I mark no hours save the happy ones."



Enamel Jar
By Louis C. Tiffany



Specimens of Enamel by Louis C. Tiffany

ENAMEL AS A DECORATIVE AGENT BY SAMUEL HOWE



ENAMEL is a strong, active force for color, which requires great care in use. Its intensity, unchanging quality, expression and movement make us hesitate to employ it for many purposes, because of the difficulty of securing for it congenial neighbors. It is, by nature, assertive and capricious. It must be judiciously introduced; otherwise, lack of harmony and disorder follow. If the entire scheme can not be well and effectively planned, then enamel would best be omitted altogether.

Within a short time only, has enamel been successfully employed in modern decoration. The difficulty with which it is controlled and handled caused artists and craftsmen to hesitate long before attempting to deal with a so uncertain yet fascinating element. Those who examined the enamels made by Courties from designs of Raphael, or the beautiful specimens of the Spitzer collection, and the small, exquisite pieces in *grisaille* by Pierre Raimond, were astonished to find the capricious decorative agent controlled and submissive, without having lost any of its brilliant charms. Then, repeated experiments gradually led to the discovery of methods by which enamel has been applied with fine results to the adornment of the modern house, holding its peculiar beauties, without detracting from those of neighboring elements, and without injury to the decorative scheme as a whole.

But the use of this agent of adornment yet contains an element of uncertainty which is likely to remain permanent. Enamel is hard to produce; it is still harder to place and, when perfectly made, it involves so much human effort that it sometimes becomes tragic. When well placed, it enriches; when out of place, it confuses. Uncompromising, hard, and changeless, it is without pity for the decorator who has made errors

through haste, or lack of judgment. In a word, as the price of its service, it demands from the artist the most unremitting care and the most exact calculation of effect.

The misuse of enamel is evidenced in the vagaries of certain examples of "*L'art nouveau*," which are found in Germany, Austria, and less extensively in England, and which result mainly from direct and often wilful disobedience to aesthetic laws. Enamel should be too greatly prized to allow it to enter where it is not welcome, and architecture too highly venerated to derogate from its dignity by the addition of ornament foreign to the general scheme of the edifice.

The main purpose of the present paper is to indicate the various occasions in which enamel may enter into the decoration of the modern house. And this purpose would not seem to be an idle one, since little has been written regarding its use in ceilings, wall-panels, pilasters, beams, on the under-side of corbels and brackets, in the apparatus for electric lighting, on iron window-frames, casements and door-fittings, and around open fire-places. Such uses, it is plain, demand greater knowledge than is possessed by ordinary builders and craftsmen; for they involve architectural questions regarding laws of proportion, fitness to place and surroundings, and other considerations not to be treated lightly.

But as these difficulties have already been overcome in a number of instances in both Europe and America, it is necessary only to make plain the advantages of metal over wood in certain details of house-construction, in order to insure the use of enamel as a decorative agent. As an example, the superiority of an iron over a wooden window frame is unquestionable, if durability be the chief requisite. Iron window-frames can not be affected by wear, and, when properly enameled, they show that union of decorative with constructive elements which is an essential of all good architecture. By means of black oxide of cobalt, enamel can readily and

durably be secured to iron, and this metal can then be decoratively used on hinges, door-plates, lighting apparatus and the other more or less important parts of a building which we have already enumerated. A good tendency borrowed from the Japanese, and rapidly creeping into the art of Europe and America countenances few things for ornament alone, while it beautifies and refines all objects intended for daily service. The custom of hiding locks in mortices formerly robbed the builder of the chance to use the lock-plate decoratively, but now, through the efforts of the English architects, Norman Shaw, Ernest George, and their followers, locks often come out from concealment to create points of decorative interest on the surfaces where they occur.

In the uses above indicated, the enamel may be subjected to various treatments: the artist can easily glaze some portion of his iron work with semi-opaque enamel, while other parts can be treated in solid tones of full-bodied pigment. Again, certain vigorous designs can be hammered from iron or copper, in such a way as to receive opaque enamel of sufficient body to be well seen after a second and transparent coating of enamel has covered the entire surface. Bright and polished metal without enamel is also an important factor in beauty of effect, as it provokes the play of light and shade, such as we see made in the dark apartments of continental castles and halls by shining coats of mail, trophies of arms, coffers, and drinking vessels.

We do not ask indeed, nor were it even desirable, in view of the great expense necessitated, that the enamels of the sixteenth century be reproduced, with their accuracy of figure-drawing and their flesh-tints so difficult to manipulate. But we do stand in artistic need of a decorative agent which shall accomplish in point of color for modern interiors what the French enamels of Francis First's time did for the churches, town halls and palaces of France.

Once the interiors of public and private buildings were so beautified, artists would be led to the calculation of exterior effects to be produced by this same medium of enamel. The street signs and permanent advertisements which now so generally disfigure the walls on which they appear, might become finely decorative, if treated in enamel and set in broad continuous bands of full rich color. Thus they would regain for our thoroughfares something of that picturesque quality which has been lost to them through the practical demands of modern life.

The future extensive use of enamel seems to be assured, since experiments are now making, under the direction of Mr. Louis C. Tiffany, in his studio at Corona, Long Island, with the purpose of doing for enamel what has already been accomplished for glass. And surely all that ingenuity, skill and knowledge can suggest, this artist will work out and complete!

Mr. Tiffany is not content with having re-discovered the processes of the glass-workers of Pompeii and Herculaneum, producing by these methods table-vessels and lamps, beautiful in color, well annealed and perfectly made: greatly superior for practical use to the antiques which are sadly lacking in sanitary qualities. He has further applied certain of these secrets to the study of the sister art of enameling: enamels being, as is well known, glass, and glass silicate colored with metallic oxides. His efforts are now centered in the application of enamel to vases ornamented with fruits, flowers, or conventional designs in high relief; his processes being of course unknown outside of his studio, but certain shapes being evidently hammered up from pitch molds, in the usual way, afterward rounded into vase-form, and lastly closed at the bottom.

The desired relief being secured, he adds "paillons," or, as the French word signifies, "spangles," which are small sheets of absolutely pure

gold or silver, of from thirty to fifty times the thickness of gold leaf; these are embedded in transparent enamel, or in the surface of the copper foundation, without allowing air to penetrate beneath. Or again, an opaque enamel is floated over the relief ornament: a process difficult even for flat surfaces, and still more complicated when applied to relief ornament. Over this opaque substance, colored enamel is then added according to the design; thin, transparent glazes being mainly used to produce the quality needed. In cases when the natural color of the metal enters into the scheme, the glaze is permitted to over-run the entire subject, giving a still further tone, by increasing depth, perspective and lustre.

Superimposed enamel, that is: the placing of thin layers of transparent substance one over the other, is attended with the danger of chipping, and with great expense,—the latter owing to the number of firings and of annealings necessary, and the risk consequent upon them. But this transparent, or semi-opaque method, notwithstanding its difficulties and its cost, is a real boon to craftsmen, since it affords them a last opportunity to harmonize their strong, crude, and sometimes brutal tones, by removing what is technically known as “the grin,” and by softening, enriching and intensifying their effects.

Passing now from the consideration of process to that of effect, we are met by the question of comparison between enamel and marble or opalescent glass, and yet again between enamel and jade, malachite, or jasper, as to qualities of color, brilliancy and durability. This question has been already partially answered by a practical experiment, which while not wholly satisfactory, has done much to advance the claims of enamel to the possession of a high degree of the qualities tested. Properly to measure the tone in the color of good enamels necessitated the choice of a high standard of value in color, brilliancy and lustre. To this end a

small vase, made by Mr. Louis C. Tiffany, and a fair example of that artist's skill, was taken to the Tiffany shop in Union Square, placed in a strong light, and surrounded by unmounted, polished, and partly cut gems: such as lapis lazuli, sapphire, star sapphire, topaz, golden beryl, Mexican fire-opal, Siberian amethyst, pink tourmaline, aquamarine, and other valuable gems corresponding to the shades of color in the vase. In the results of the test, the enamels proved equally fine in quality and tone of color with the gems; due allowance being made for the scintillations and counter-lights cast by the latter. The difficulties of forming a competent judgment consequent upon the play of these lights were not easily overcome. The gems, placed in contact with the enamel, seemed to change their color, and refused to retain any one tone. Many of them, also, as is their custom when alone, at times almost lost their color by excess of fire. But comparison was finally made possible by the use of a neutralizing, or semi-opaque layer of glass, which was spread over the gems; a device adapted from one stage in the manufacture of enamels. The conditions being thus to a certain degree equalized, the enamels,—especially the blues and the intense greens,—showed much more depth and perspective than were found in the stones. The same test further showed that the relations between gems and enamels differ according to the light in which the objects are seen. As for example, in a jewel containing a number of emeralds mounted in gold ornament, the enamel and stones were of the same color, when subjected to daylight; while, under electric light, the emeralds attained a somewhat better, fuller, richer and more natural color than the enamel, which lost some share of its tone and accent: changes which prove that in such comparisons and contrasts account is to be taken of the chemical action of light whether emanating from the natural source, the sun, or yet from artificial means, such as gas, or electricity.

From the description of these

tests, it will be seen that the study of enamels demands much technical knowledge: which fact has no doubt deterred many American artists and craftsmen from attempting to work in this medium. But beside Mr. Tiffany, who has devoted several years of his life to the work described in the present paper, there are other well-known men—among them John LaFarge and Prentice Treadwell Crowninshield—who, in their decorative schemes, have approached the same art by the use of transparent glazes over aluminum leaf. In Boston, a small private studio has recently been opened for the practical study of enamel, and the same branch of art will, it is said, be taught at Pratt Institute, Brooklyn, in the coming scholastic year. In New York, there is, as yet, no movement toward the establishment of a school, but in addition to the accomplishments of Mr. Tiffany, the city can show the remarkable work in figures done by M. Gustave de Festetics, and successful experiments made by another artist whose name is withheld.

The conditions of the work abroad are not everywhere satisfactory. In Paris, the schools of enameling fostered by the City Council, closed sometime since, after a service of eight or nine years, although an effort is now making for their re-opening. In London, enameling is taught in the excellent Technical School which is conducted by the County Council of that city. In Vienna and Buda-Pesth, as well as in several cities of Germany, Holland and Russia, there are well established schools in which craftsmen and artists are instructed in the various branches and processes of both the historic and the modern art of enameling.

Among individual workers are to be mentioned Professor Herkomer, Alexander Fisher, George J. Frampton, Nelson and Edith Dawson of London, all of whom are producing fine results.

The example of such men as we have cited, should serve as an inspiration to others

less courageous and ingenious; while the fascination of making something unassailable by time should allure and hold the ambition of the true craftsman. Let us hope that the future of the art will justify our present expectations of its success!



BEATEN METAL WORK BY AMALIE BUSCH

THE last century saw the adaptation of machinery to the production of nearly all material needs. The machine now makes almost automatically the thousand articles used in the daily routine of life. While the making of objects by the thousand has given the world more leisure, it has also filled it with the tawdry and the commonplace. Therefore, the change has been regarded with contempt by many of artistic temperament, who characterize it as commercialism, as artistic retrogression. But in spite of all inventions, it has been proven impossible entirely to supersede the handicrafts, by means of which the finest work in wood, stone, and metal is still done. The individual craftsman of the past is now the skilled laborer of our great factories and workshops, and his skill is no doubt equal, if not superior to that of his similar of the past, while his facilities are greater. But the conditions of his life are paralyzing. He works against time; not for individuality; not for varying form, and lines of beauty which would develop his artistic sense. Skilled workmanship is his pride. Number and uniformity are his aim and ambition. It is useless to decry these conditions. They are not necessarily permanent. An outside influence,—



Repousse work in copper from the Busck Studios, New York



*Copper Shield, sixteen inches in diameter
From the Busck Studios, New York*

the so-called amateur,—is gradually becoming a force. He is not yet so skilful a workman; but because he is aiming persistently at technical excellence, because he is guided by his artistic capacities, he is destined to raise the crafts to their former position beside the arts.

The meaning of the present tendencies is plain. It is shown by the fact that the younger generation of those who are artistically inclined do not regard music, poetry, painting and sculpture as the only worthy mediums of expression.

Among many other materials possessed of artistic possibilities, the metals have been recognized as capable of being made to express great beauty of form and color.

As yet, little is doing by the artist himself in casting metal and in the heavier process by which wrought iron is produced; the artist supplying for the one the model in clay, and for the other usually the design only. Under the maintenance of so complete a division of labor, perfection is, of course, impossible. But at present, many difficulties, financial and technical, stand in the way of a closer co-operation.

Beaten work, as applied to some of the softer mediums, such as gold, silver, copper, brass and bronze, is now executed by the artist himself. But even here, difficulties are met, since it is not to be supposed that craftwork will be simply a revival of the old methods. For while the craftsman of the future must possess equal, if not greater skill than the workman of the past and present, yet will he fail in the requirements of his age, if he shall not avail himself of the most advanced mechanical and mediumistic devices.

“Handwork” is a survival, and is much in danger of becoming a fetich. Effect, fitness of the purpose to the medium, and honest workmanship are the ends to be pursued. And many results are best, if not alone, attained by hand-tools. An object wrought by

hand may properly awaken admiration in the minds of those patrons of the arts and crafts who have never used the tool, and seen and felt the tough metal soften, move, and take form beneath the hammer. The patron may have artistic capabilities, and may appreciate all the beauties which texture adds to form, but it is only for the craftsman that the word "hand-made" can have its full significance.

In this division of modern work lies the principal difficulty of developing artistic handicraft. The worker with innate mechanical ability must recognize his probable incapacity as a designer of merit. The production of things "hand-made" is not legitimate or worthy craftwork, and offers no improvement upon the the skilfully wrought articles turned out by our firms. The aim must be beauty, and the conception can come from the artist alone. Co-operation is essential, and this statement can not be too insistently made. At the present time, craftsmen,—from the "artistic" heads of some of our best known and most pretentious firms down to the individual workers in metal, wood, bookbinding, and other mediums, are devoid of any knowledge of construction, or of the principles of the adaptation of design.

Before modern craftwork can attain distinction, artistic motive must be the incentive in each object wrought. Unskilled or "barbaric" workmanship may be overlooked, or even necessary. But to have no aim beyond that of skilled workmanship is to be uninteresting, which is unpardonable. On the other hand, the designer can not meet the requirements of metal-work, without some practical knowledge of technical methods and of the peculiarities and limitations of his medium.

The technical points necessary to be understood in metal work are neither numerous nor difficult to be understood. Yet it is only by experiment that the worker can attain to a full appreciation of the

quality of the medium which should always be expressed in the design.

After a short experience in the workshop of a coppersmith, or a jeweler, in which one can gain the principles of soldering and brazing, a general idea of the use of special tools, and learn to give the hammer-blow that stretches, or that thickens the metal, the beginner may himself set up a small shop and devote himself to the increase of his skill: a process in which he will incidentally discover not only new difficulties, but also possibilities which he has never suspected. The little workshop is an essential factor in the education of a designer, even if he have at his command the facilities of the fully-equipped workshop of a commercial house, in which he may perfect his more pretentious efforts.

The fittings of the little workshop may be elaborate or simple, according to the choice of the worker. A great many anvils, lathes and forms may be used with advantage; yet it is also possible to produce good results by limiting these fittings to a few steel hammers and wooden mallets, a sand-bag, a pitch-bed, a number of wooden blocks, and a set of steel outlining and raising tools, the number and forms of which vary with almost every new design; so that it is best for the worker to supply or make them according to his needs.

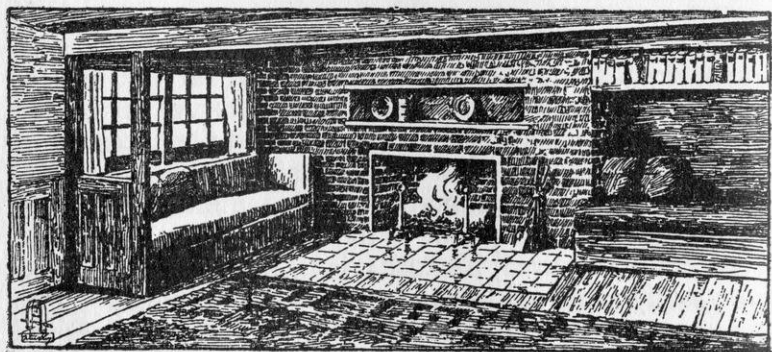
The earliest repousse metal which has come down to us is in bronze; the metal being beaten into the design, which was cut on the face of wooden blocks. Later, the wooden blocks were discarded for softer materials, which did away with the necessity of carving the design. The beds of resisting mediums now in use are: lead, the sand-bag, and a mixture of pitch. Burgundy pitch is superior to the tar mixture which has been commonly used, because it is cleaner, less sticky, and more easily removed from the surface of the metal. The consistency of the pitch-bed is easily changed to meet the requirements of differing cases, by melting, and by adding

plaster of Paris, or lard. Lead, on account of its greater resistance, is used under narrow line tools to give sharper definition, by holding back the metal on either side of the point directly under the tool. But pitch is sufficiently resistant for copper up to eighteen gauge, and further, it has the advantage of holding the work securely : for the metal is laid on hot, and pressed down until every part is in contact with the resisting medium. The pitch is then cooled and holds the metal firm and flat.

The pieces of copper repousse illustrated in this paper are good examples of what may be done with very simple means. The designs have been worked out entirely with steel and wooden tools in the pitch-bed and on the sand-bag. Machinery has been used only in turning the edges of the fire-place front, in a ponderous press, such as may be found at any coppersmith's.

The means for attaining the best results in metal-work, as well as in any of the other crafts, were concisely formulated by William Morris, when he said :

“We must diligently cultivate in ourselves the sense of beauty, skill of hand, and niceness of observation, without which only a makeshift of art can be got.”



THE DRAKE COLLECTION OF BRASS AND COPPER VESSELS BY SAMUEL HOWE



COLLECTING is often the subject of ridicule and merciless criticism. But laughter and scorn do not abate the enthusiasm of the amateur. The chase after the beautiful the rare and the curious, continues with unre-mitted zeal. The impulse to collect is more than a desire to possess, more than the craving for notoriety, or the passion for hoarding precious things, or for overcoming difficulties standing in the way of possession, and for outwitting astute rivals. Still, it cannot be denied that all these elements are, to a certain degree, factors in the collecting problem. But it is possible to take a higher and broader view of the subject, and it is most significant that certain of our brightest and most active citizens devote their leisure to diligent search after some one class of the objects which may be the desire of the collector's mania.

Indiscriminate collecting is a mistake justly deserving censure. Intelligent collecting is often the work of a scholar, a man of the world, who, not content with the pleasures derived from foreign countries, and varied scenes, gladly burdens himself with relics and trophies of memorable occasions.

The unrestrained bibliophile, who is sometimes also unskilled and ignorant, is the type which is largely responsible for the harsh criticism so often made upon collectors. But this passion is, by no means, an unmixed evil. It has the negative value of keeping its possessor from less harmful extravagances. It has the positive value of increasing his information and of refining his taste.

The inconsistencies and vagaries of celebrities never fail to amuse those less highly placed; but many of these same censors possess in themselves the germs of the follies which they so criticise, and

lack nothing save means and opportunity to develop parallel cases of madness.

A list of noted collectors reveals tastes as widely different as are the stations and professions of the persons able so to gratify their desires. Richard Heber required eight houses in which to keep his books; four being in England, the others, in Brussels, Antwerp, Ghent, and Paris. M. Nestor Roqueplan, a French author and director of opera, who, as a critic and man of affairs, thoroughly satisfied the public, bequeathed to the nation a large collection of warming pans. His Majesty, George IV. of England, had a passion for teapots, Prince Bismarck for thermometers, Louis XVI. for locks, clocks and keys. The late empress of Russia and her grand-daughter, Princess Marie of Roumania, acquired large collections of scent bottles. The English Admiralty causes the figureheads of disused British warships to be sawn off and preserved as memorials. King Edward VII. and ex-President Cleveland are collectors of walking-sticks, a fact which would seem, at first thought, to be quite inconsistent with the ways of men held close by the confining duties of court and professional life.

Among collectors many have provided for the preservation of their treasures as a whole, but perhaps none save M. Edmond de Goncourt has asked that they be dispersed. This famous Frenchman, almost equally well known as an author and a connoisseur, gave directions in his will that his ceramics and bric-a-brac be sold; preferring that they should pass into the possession of those who should care for them, rather than be classified in a museum, there to await the cold glances of the indifferent.

The collection, which is the subject of the present paper is a very important one; whether it be judged from its claims to beauty, extensiveness and value, or yet again from the educative influence which it

exerts upon artists and craftsmen and the public taste. We shall now treat only of the section of brass and copper objects which are said to be the direct cause of the "brass fever:" a mania which is invading "society" and transforming many of its devotees into collectors and amateurs.

The Drake collection, precious as it is from the aesthetic point of view, has besides an appealing and pathetic interest derived from the people who fashioned these vessels and utensils, which are examples of what may be done with a few sheets of good metal and a mere handful of tools. In glancing through the collection, we find it to be largely the work of simple folk, artistic yet unlettered, of those who, ignorant of classic principle and academic rule, have yet perceived the vital essence of art and clothed it in visible form. If we study a simple water bottle from Arabia, Spain, or Poland, we feel that its maker has put his life into his work. Or we may take a lesson in the development of ornament from a Venetian bucket. Here, on the lower part of the utensil, the hammer blows are distinct, regular and sufficiently accented to keep them in sight. Then follows a deeply tooled line, practically straight. Then, the mood of the craftsman having changed, we find a quaint design hammered from the inside, with the ground set back in the front. This bucket, made by some humble worker, and intended for the common uses of laboring people, is full of interest for the student. For possibly it was suggested by some great mosaic glowing with voluptuous coloring, or drawn from a capital stone in St. Mark's.

Perhaps it is the helplessness of these brave family servants which is the true cause of their salvation, which saves them from being lost or destroyed. It is mainly to metal that we look for the laws of classic proportion, and the preservation of many forms. Metal is long suffering and endures much.

Examine, if you will, that small hand brazier! It is punctured and perforated. It leans a

little to one side. Yet who would have it otherwise than it stands : a combination of dignity and insolence ?

Observe also the large brazier from Madrid, and note the influence which it asserts over the great fire platform ! It is not too much to say that centuries of thought could scarcely improve its outlines. Its handles are full bodied brass castings, strong and spirited, refined a little by the file, but without losing in the process anything of their vigor.

Furthermore, these examples of brass are of good, thick and honest metal : a substance which responds to the blow essential to shape it, and which is sufficiently thick to preserve the marks of the blow, and to resist a possible loss by the action of fire, by friction, or by accident. These qualities it were well for our young women workers to observe ; for they are inclined to choose thin metal as the object of the gentle tapings. And here we venture to recommend fencing and the exercises of the gymnasium as preparatory work for their use of thicker, more resistant metal, to the end that both their designs and their execution may be improved.

But let us return to the collection before us, and compare a stamped silver bowl, purchased at a fashionable silversmith's, with a brass one coming from the cottage of a Russian peasant ! The work on the latter vessel is distinguished by an infinite care which has guided the craftsman in his effort to accomplish by hand what he had no other means to do. Such is work that lasts ! There is a sentiment of grandeur running through this epic poem of work. At times, also, there are signs of a gentle mood : a subtle, fleeting idea, as if the workman were reproducing a half-forgotten, hereditary art. There are curious signs on these little jugs, these Russian tea and cake boxes, which appeal and are known to lovers of art.

For example, look at this milk jug and note its handle, large and thick, cast solid, rough-



Venetian Well Bucket

Russian Bowl

Algerian Water Jar - This is carried on the shoulder by a leather strap which passes around the neck and bears the license tag



Russian Cake Mould

Dutch Pewter Tankard

Dutch Tankard of Pewter

Russian Tea Caddy

Russian Tea Caddy of Pewter

Russian Dish

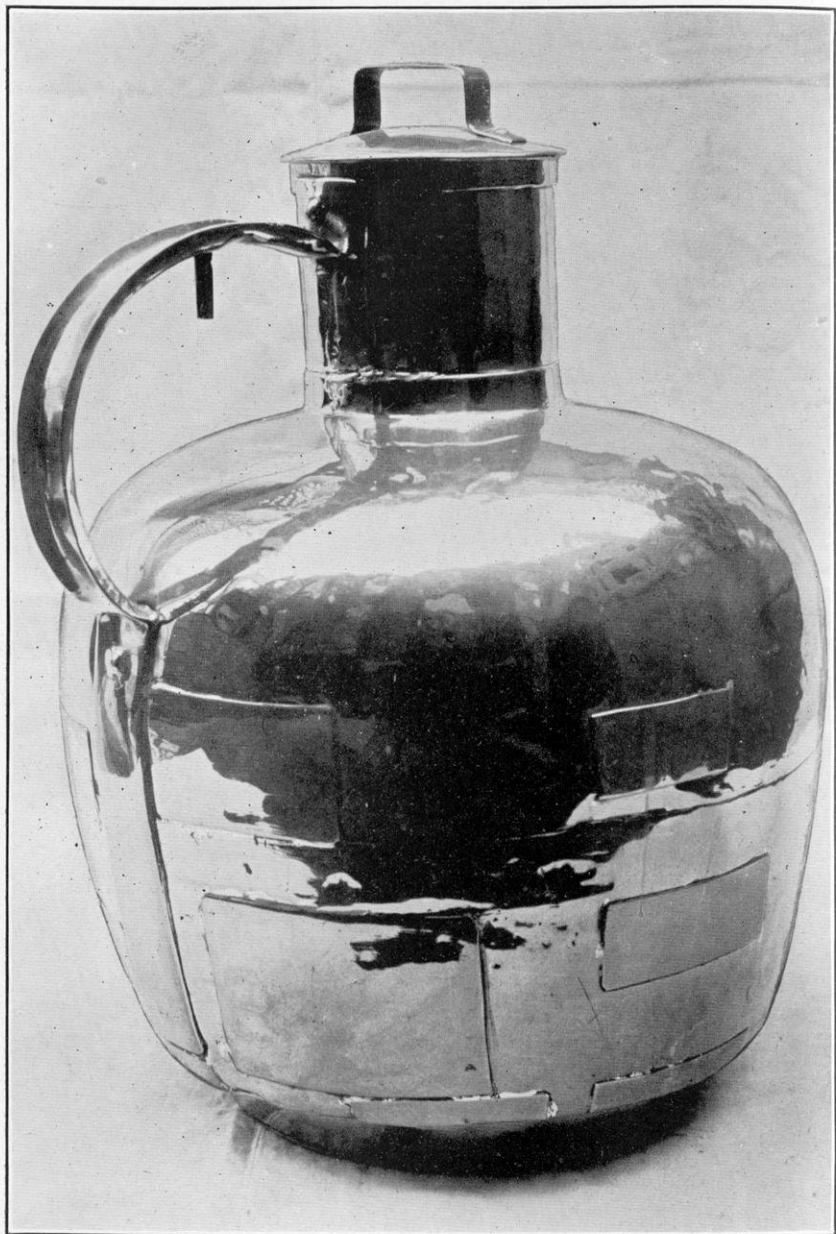


Dutch Warming Pan

Brazero for table from Cordova, Spain
Spanish Tongues for Charcoal

Italian Scaldino

Hand Scaldino



A Dutch Milk Can—to be carried over the shoulder with a “yoke”

ly cut, and chased. Take care that you see the sparkle of color in that knob of enamel! The general expression of the object is in accord with its meaning and early use. The whole is simple and consistent.

Glancing at vessels of certain other forms, we conclude that whatever may be said to the discredit of hard drinkers, there is virtue in their pots, mugs, and tankards. There is wholesomeness in their proportion, and few things have suffered less by pernicious modification and caprice of fashion. In these vessels we find, at times, slight attempts at surface decoration wrought out with punch and hammer. And again the handles claim attention. They are firm, strong, with ends so hammered out as to give a firm grip, and they are secured by great rivets. Similar in execution to these vessels is the Dutch milk can from Haarlem. In this last named object, the long handle is made wide, and carried to the very bottom of the can. And where is the designer or craftsman who would venture to "improve" this simple object of daily use which is also an object of art? Here, there is no coquetting with petty details, no scratchings, polishings, or trifling extravagances of style. The problem set before the metal-pot worker is to produce from a sheet of rich, pliant metal, an article for daily use, strong and beautiful, which can be made with the most ordinary tools, and which, when made, shall last forever. And here the shape is of the first importance, and receives the undivided thought of the craftsman, who can not rely upon atmospheric influence, or any other natural cause, to soften his line, or modify the color, as happens when brick, stone, terra cotta, or wood is the working medium.

Among other homely utensils it is interesting to note an English beer-mug, a Russian samovar, an Algerian water-jar, a Dutch tankard, and a Spanish brazier, in all of which is accentuated the relationship between plain spaces and ornament of a plain, dignified character, such as piercing, chasing and molding.

These vessels might be studied with much profit by our army of factory workers in so-called ornament, who could learn from them a lesson in simplicity and restraint.

Most attractive also are the copper kettles, for there are few things which bear so plainly written on them the history of their lives. Every pressure, every incident is shown. We can see how the metal sheet was handled, hammered, twisted, turned and then hammered again. And all these processes testify to the skill of the craftsman who used them! Furthermore, these domestic vessels appeal to those who love their fellow men; for years of human life have written their history upon them in the marks of daily service. Fire, water, feast, famine, trouble, pleasure have made but a surface impression upon them. They have survived them all. If bent, they can be straightened. If punctured, they can be soldered. They are philosophers, and they accept events as they come.

An Italian scaldino next invites our attention. It is in reality very simple, in spite of its rich appearance, which is caused by its well balanced design, evenly covered and centered. What a picture it would make, if filled with lighted charcoal!

And thus we might comment indefinitely, in praise of the qualities which characterize and dignify these household wares of the people of many nations and races; finding in them balance and exquisite proportion, richness and beauty of form. How tall these small pieces are! Only inches in height! But note the scale of them! They dwarf every day metal ware by their frank acceptance of laws of proportion which, although scarcely classic, still entitle them to be rivals of the jars and vases of Pompeii and Herculaneum.

The aesthetic value of this collection should awaken the enthusiasm not only to possess, but also to create similar objects. Any sincere craftsman can take up the study of metal work. There

is here no chemical or harassing mechanical difficulty to overcome. Nor does the enterprise require difficult and complicated technical manipulation. Any one who can patiently and intelligently hammer a flat surface, or acquire the art of riveting, can begin the work. But the use of the hammer must be well understood, before the craftsman may decorate. And great pleasure is found in the preliminary task, since copper is responsive to the touch of the workman,—more so, perhaps, than any other metal save pewter. So, while the use of the hammer is lacking in the passion, in the intoxicating happiness communicated by the forge, there is much in this work which strengthens and develops the craftsman. Brass and iron are not only of the people, as is iron, but they are mirrors of popular life. Their polished surfaces receive the impress of homely histories of pleasure, pain and toil.

Altogether the brass and copper vessels of the Drake collection are rich in lessons of art, history and life. They may be compared with a Shakespearian play in which tragedy and comedy jostle each other, in which idea and emotion are simply and grandly expressed.

Of Mr. Alexander W. Drake, the owner of the collection, we have not spoken, for we have felt that we could add no word to the tributes which have been already paid to him. Furthermore, his works praise him. For he has not been content to label, case and catalogue after the manner of collectors. By constant use, these brasses and bronzes gathered from foreign households have become to him as living guests who pay homage to their host, and add, each in greater or less measure, to the beauties of his home.

THE EVOLUTION OF THE LOCK

BY E. ALEXANDER POWELL



HERE is, perhaps, no craft which has undergone such an evolution in the last century as that of the locksmith. In less than one hundred years it has dropped from the status of an art to that of an industry; before the march of progress mediaeval aestheticism has given way to modern commercialism. As a result the craft has gained in science what it has lost in art. The cumbersome, but exquisitely wrought locks of our forefathers' time have been replaced by a mechanism far more wonderful than the most beautiful ornamentations of the old-time smiths. From the most remote times it has been an accepted fact that to retain a thing of value it was necessary to fasten that in which it was contained. The wooden button of the ancients gave way to a bar fitting into sockets, and this in turn to a rude latch, often with a leathern thong, and so on, until gradually the modern lock was evolved. But even to-day many of the old forms still remain. The wooden button can be found in daily use in the cottages of English shires. The doors of adobe huts in Old Mexico are still barred against marauders, and amongst the natives of our southern mountains the latch lifted by a deer skin thong is still a common sight.

The earliest historical mention of locks occurs in Judges iii, 23-25, where it is told that "Ehud locked the doors of the parlor," and the servants of King Eglon "took a key and opened them." The Egyptians of four thousand years ago were probably the first people to make use of the lock in its modern sense, their doors being fitted with a primitive affair, consisting of a simple device of a series of three pins in the lock proper, dropping into three corresponding holes in the bolts, when it is pushed in, and thus holding it fast. This lock contained the principles of the modern tumbler lock, and so is still in use among the modern Egyptians and Turks,

but in their hands has made no advance. These locks were made of hard wood, and must have been very cumbersome affairs, with keys several feet in length, calling to mind the passage in Isaiah xxii, 22, "The key of the House of David will lay upon his shoulder." (B. C. 758). Also Callimachus, in his Hymn to Ceres, speaks of the goddess in the form of her priestess, Nissippe, carrying a "key fit to be borne upon the shoulder." For many centuries locks continued to be made large and clumsy, for Eustathius, Bishop of Thessalonica (A. D. 1155) describes keys that were curved like a sickle and so large that they were often carried on the shoulder.

Next to the Egyptian, the oldest type of tumbler lock was probably one invented by the Chinese very early in their history. The tumbler lock derives its name from a lever or slide entering a notch in the bolt, which consequently cannot be moved until the tumbler is lifted by a key. Many modifications of this ancient lock are still used.

The next step in lock making was the warded lock, the name being derived from an irregularly shaped construction attached to the lock case in the path of the key which makes it impossible to move the bolt unless the key has openings in its bit which enables it to pass the wards. Such locks were used by the Ancient Romans long before the beginning of the Christian Era, and are still used when a cheap lock suffices. It was probably some such lock that is mentioned in Homer's description of Penelope opening her wardrobe :

"A brazen key she held, the handle turned,
With steel and polished ivory adorned.
The bolt, obedient to the silken string,
Forsakes the staple as she pulls the ring.
The wards, respondent to the key, turn 'round,
The bars fly back, the flying valves resound
Loud as a bull, made hill and valley ring.
So roared the lock when it released the spring."

Locks are supposed to have been introduced into England by Phœnician traders, as locks similar to those originating in Egypt have been used in Cornwall from remote antiquity. They were first manufactured in England in the reign of Alfred (A. D. 871 to 901), and about this period the following entries in a book of records belonging to the Manor of Savoy occur: "2 stock lokkes, price XX^d," and "2 hang lokkes, price XV^d." It was about this period that the more elaborate ornamentation was begun, which reached its height during the sixteenth and seventeenth centuries, and placed the locksmiths in the foremost rank of European craftsmen. The escutcheons covering the front of the lock were also as a rule of beautiful and elaborate design, and even the keys were highly ornamented.

Letter or dial locks are frequently mentioned in writings of early in the seventeenth century, notably in Beaumont & Fletcher's play, *A Noble Gentleman*, (1615):

"A cap-case for your linen and your plate,
With a strange lock that opens with A.M.E.N."

And again, Thomas Carew, in 1620. says:

" As doth a lock that goes
With letters; for, till everyone be known,
The lock's as fast as though you had found none."

M. Regnier, Director of the Musée d' Artillerie, of Paris, about 1650 invented a dial lock, which, however, was probably only an improvement on one of an earlier date. These locks never attained a general use, but were used for a number of years for fastening diplomatic dispatch boxes.

In 1627, one Matthew Jousse, a celebrated French locksmith, wrote a treatise on iron work, and the art of lock making in particular, which he dedicated to the Jesuits. This work was the first of its

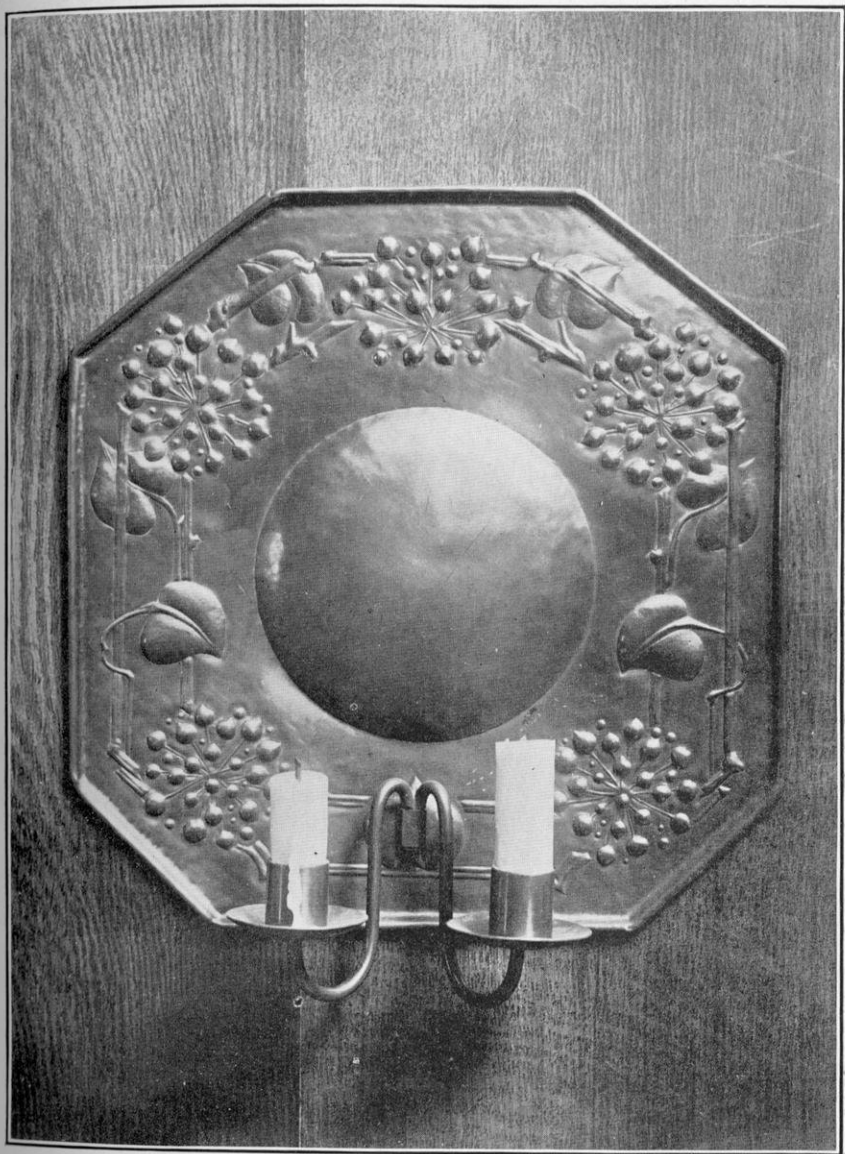
kind, and is the only information we have respecting the methods of the old iron workers. At this period, iron, like gold, silver and other metals, was chased up to great perfection, as shown in the marvelous examples of locks in the Hotel de Cluny and at the Louvre. Jousse, in urging his objections to the old style of locks, claims that they are always placed on the outside; that great difficulty was met with in making them because of the intricacy of the action, but more especially because of the great degree to which their ornamentation had been carried, that they were easily picked and were liable to tear ladies' dresses. He divides locks into two classes. First, those with single hasps; second, those with double or bifurcated hasps. Among other receipts given in this interesting work, Jousse tells how to "melt iron and to run it into molds like other fusible metals," and at little expense. He also gives several modes of brazing or joining pieces of iron together by means of melted brass, and also recommends a mixture of silver and brass. Perhaps the most interesting portion of his work is that dealing with the enameling of iron work. His receipt is as follows: One ounce rosin; one quarter ounce "Sanderas" (gum sanderac); one quarter ounce "*mastic en carme*," all of which are to be pulverized and mixed together and the color which is desired is added. If the worker wants blue, he takes "*email fin*" (some color, not enamel), and the same process if he wishes red, vermilion, green, verdigris, etc.; these are mixed with the above composition, which is then allowed to cool to the consistency of paste. From this pasty substance small sticks are made with which the work is enameled after it has been tinned. The enameling is performed by slightly heating the piece of iron and then passing over the places with the aforesaid sticks, which are gradually melted by the heat. The author says that this enamel will last a long time and is very cheap.

A lock was a subject on which

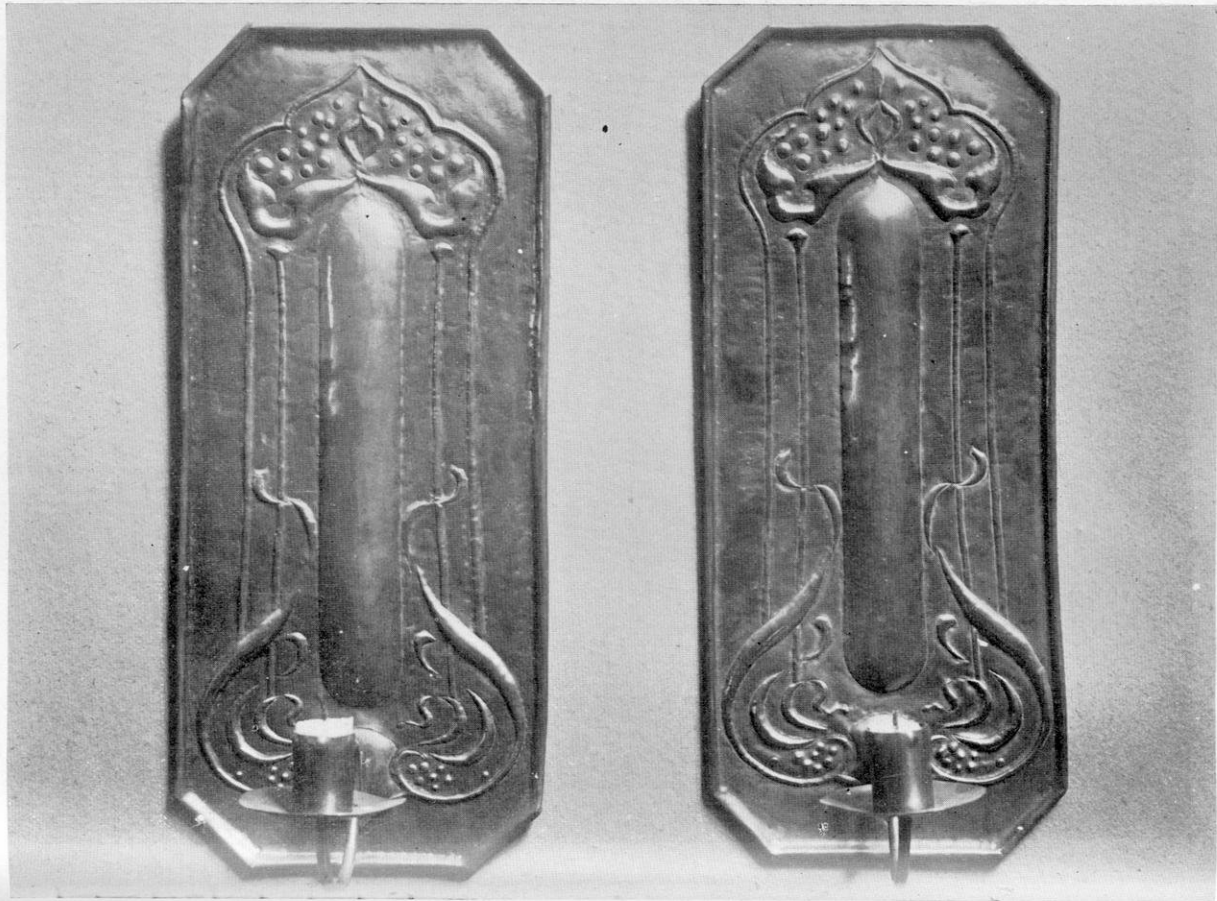
the ancient smiths delighted to exercise the utmost resources of their art. The locks of chests were originally of the most elaborate and beautiful description. In churches, locks were frequently found adorned with sacred subjects traced on them, and with the most ingenious mechanical contrivances for concealing the key-hole. Keys were also highly ornamented with appropriate decorations referring to the locks to which they belonged, and even the wards were turned into beautiful devices, initial letters or the arms of the owner.

A common and most ingenious expedient was often resorted to by the ancient smiths to procure the effect of rich decoration at the smallest possible outlay of time and labor. An open work pattern having been marked on sheet iron, it was punched out and the edges filled up square. This sheet was laid upon another one and foliations or other ornaments were marked out through the interstices of the first. When the second set of ornaments had been cut out, the second sheet was placed on the third, and the same operation was repeated to any extent of elaboration. Any number of sheets thus perforated were laid one upon another in such a way as to best throw up the design, were riveted together, and occasionally beads, rosettes and other ornaments were also attached to the face. As one punching and one filing up would serve for many plates at the same time, this, although strictly a handwork process, was by no means so expensive as might be imagined. Locks were often made out of perforated iron plates, the bottom one alone being brass and serving as a ground to relieve the rest. Old keys were for the most part filed from the solid, the labor on them frequently being enormous. Tracings of locks, more especially in England, were often first cast and then filed up.

The art of lock making must have made considerable advance during the reign of Queen Elizabeth, for we are told that one, Mark Scaliot,



Copper Sconce from the Busck Studios, New York



Copper Sconces from the Busck Studios, New York

a famous locksmith of the time, made a lock "consisting of eleven pieces of iron, steel and brass, all of which, with a pipe key of gold, weighed only two grains of gold." This Scalot must have been an ingenious and clever workman, for the Marquis of Worcester, in his famous *Century of Inventions*, (1663), mentions several locks of his design, and says of one of them: "If a stranger open it, it setteth an Alarm a-going, which the stranger cannot stop from running out; and besides, though none should be within hearing yet it catched his hand, as a Trap does a Fox; and though far from maiming him, yet it leaveth such a mark behind it, as will discover him if suspected; the Escoccheon or Lock plainly showing what monies he has taken out of the box to a farthing, and how many times opened since the owner had been in it."

In America during the Colonial period, the value of chests, trunks and cabinets was materially increased when accompanied with metal mountings, locks, keys and hinges. Wrought iron and brass were at this time in great demand. It must be assumed that the majority of boxes, trunks, cases and chests had no locks, since in many inventories the lock was worthy of special mention. Thus William Bartlett, of Hartford, in 1658, has "a chest with a lock, 10/—." In 1640 John Harby had "two old locks at 1/— each, and four iron hinges at —/10 each." Alexander Rollo had a "door lock and key 7/6. Two chests with keys and locks, 15/—, a desk with ditto, 8/—." In the inventories of hardware in the various shops, handles are very seldom mentioned.

Needless to say that the craft of locksmithing grew to large proportions during the sixteenth and seventeenth centuries, and the English artisans, although behind their fellows of the Continent in the finer arts, excelled them in the making of locks and keys. Much of the good effect of the better specimens of English workmanship was obtained by the simple method described elsewhere in this paper, of perforating sheets of

iron in patterns, and then placing them one over the other, and thus by the accumulation of geometrical or flowing forms, procuring the appearance of great complexity. The work of the English locksmiths was, as a whole, exceedingly good, the ground of their iron work being well filled, and the voids and solids agreeably balanced. Locks, handles and knockers of doors made during the Mediaeval period are almost always ornamental, the latter especially when of simple character, being usually in the shape of rings with a spindle going through the center of a circular escutcheon. Handles and knockers of the early English period are nearly always rings, and they seldom have any ornament about them, beyond occasionally a few spiral lines arising from their being made from square bar twisted; unless it be a small flower or an animal's head on each end of the spindle to keep them in place. A ring handle on the vestry door of St. Saviour's, Southwark, dating from the early part of the seventeenth century, has a pair of catches like lizards on it, with their heads near the end of the spindle and their tails curled around the ring. When not made in the form of rings, the handles were ornamented in various ways, frequently with minute patterns of tracery. The escutcheons were occasionally made with a projecting boss or *umbo* in the center, and sometimes had a few branches of foliage around them, but they were more usually ornamented with a delicate tracery or with holes pierced through them in various patterns. Sometimes the whole escutcheon was cut into leaves; the end of the spindle was not unfrequently formed into a head or hand. The knocker of Durham Cathedral, used by those demanding admittance or claiming the privilege of sanctuary, is a good example of this ornamentation; it is a grotesque head, holding a ring in its mouth.

An attachment which was generally used on doors of all kinds during the troublous times of the Middle Ages, was a small aperture placed a short

distance above the lock and having a little box or slide to it, by the withdrawal of which an inspection of the visitor might be made, and a conversation take place before drawing back the bolt. In times when assassination was the easiest and most largely employed method of removing an enemy, it can be readily seen that this contrivance was of very practical value, and some modifications of it were invariably found on every door of the period. There are several such *grilles* in the cloisters of Westminster Abbey, and many yet exist in the remains of the monastic and conventual establishments of the period.

For the last two centuries, the little Midlands town of Wolverhampton in Staffordshire has been the center of the lock-making industry in England. As late as 1856 scarcely a machine of any kind was used in making locks or keys throughout this whole district. Two decades ago Wolverhampton made nearly all of the good locks, and Willanhall, a nearby hamlet, nearly the whole of the cheaper kind, but in both places the operations were almost wholly handwork. The manufacture was wholly in the hands of small masters, each of whom worked at the bench himself and employed a small number of workmen and apprentices. The products were sold to the Wolverhampton factors or merchants, and many of the small manufacturers depended on these weekly receipts for the means of carrying on the next week's operations. There were very few lock factories where the trade was conducted on anything like a large scale.

Among the Continental locksmiths, the French *serruriers* were, perhaps the most skillful and paid more attention to the mechanism and beauty of their locks and keys than the workers of any other country. Among German smiths, the iron work of Nuremburg was exceptionally beautiful, and the smiths of that city excelled in every variety of article used by the Church, or the Laity in time of peace, while the Augs-

burg smiths were beyond competition in the production of work for military purposes. Although door trimmings were never produced in Italy in any such quantities as they were in England, France or Germany, a few good specimens are to be met with, and in the cities of Venice and Bologna, where the great masters left their impressions on the work, the highest degree of perfection was reached in individual examples. In the latter days of the 16th century when the Italian States were at the zenith of their wealth and power, their aristocracy were dissatisfied unless the most utilitarian of their wants and requirements were ministered to by the greatest artists of the age. As a result the locks and knockers of Venice and Bologna attained the most wonderful degree of perfection and show the influence of such masters as Luca della Robbia and Sansovino, of Riccio, and of Giovanni di Bologna. Italian locks were seldom if ever made in duplicate, and all the work of this school exemplifies how impossible it was to leave any article connected with the Church absolutely undecorated. The bronze knocker from the Pisani Palace is the most famous example of the Italian school and probably dates from the latter days of Sansovino.

Up to the middle of the eighteenth century, the main dependence for security in locks consisted of a combination of complicated wards, intricate keys, single tumblers, and a multitude of bolts shot simultaneously by the action of a single key from all sides, and even from the angles of the door or lid to which they were attached; often as many as twelve being used.

Barron's lock was the first to have multiple tumblers, and was patented in England in 1878. An improvement on this was the lock patented ten years later by Joseph Bramah, of London, which had the reputation of being the most secure known. So sure was the inventor of the strength of his lock that he said that "it was in that state not to be within the range of

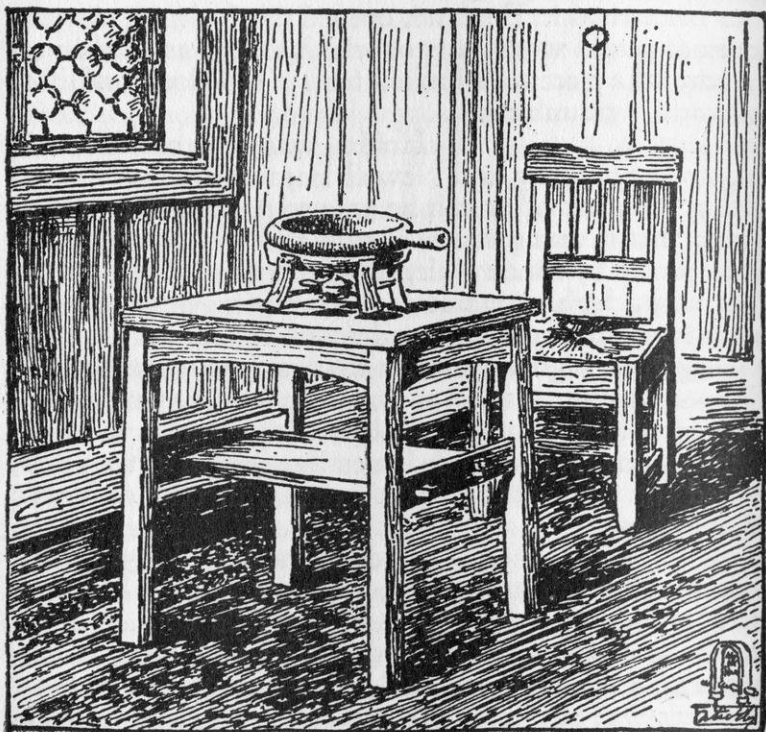
art to produce a key or other instrument by which a lock on this principle can be opened." The owners of this lock were so confident of its impregnability that some years later, when it had been still more perfected, one was hung in the window of their shop in London with a standing offer of two hundred guineas to any one who could open it, and it remained there as a challenge to a generation of locksmiths. The confidence of Messrs. Bramah was rudely shattered, however, for in 1851 A. C. Hobbs, a young American mechanic, thirteen months after his arrival in England, opened the lock in nineteen hours of actual work, part of which time was used in recovering the pieces of a broken tool. This lock had three bolts and six tumblers.

Hobbs was the exhibitor in England of the Day and Newell Parantoptic lock known as the "Protector," which he was so successful in introducing that it was given his name, and which, in its turn, was opened by Linus Yale, Jr., of Hartford, Connecticut. Yale was a highly ingenious and fertile inventor of locks, and without doubt contributed more to the art of lock-making in its higher branches than any other individual. The well known drawer or postoffice lock, having a thin, flat key, is his invention and bears his name. It might be interesting to add that James Sargent, in after years, opened the best of the Yale locks with one of Yale's micrometers.

Then came the Sargent lock, with its roller bolt and tumbler changeable by a key, and the Marvin magnetic lock; but the public confidence in the power of any lock to resist opening had been rudely shattered, and as a result the forerunner of the modern time lock was put upon the market. The first suggestion for a time lock is contained in an English patent issued to William Rutherford in 1832 for a lock, the mechanism of which was controlled by a clock fastened to the inside of the door. The clock could be set at the hour at which

it was desired to open the door, and at that hour and at no other could the key be made to open it.

To-day permutation, combination, dial and time locks are in extensive use upon fire and burglar proof safes and vaults, and it is safe to say that such an acme of perfection has been reached that it is absolutely impossible to open them except by the use of high explosives.



SOME CORNISH CRAFTSMEN BY MABEL THORNTON WHITMORE



HERE is on the coast of Cornwall, England, a little fishing village which, in the past twenty years, has become celebrated because of resident artists whose work is known wherever pictures are seen and valued. But in the last decade there has grown up in that same little village, a flourishing industry about which very little is known outside the limits of the section influenced by it.

Newlyn by Penzance lies on the border of Mount's Bay, about midway between Land's End on one side, and the Lizard Lights on the other. It is a picturesque little place, crouching at the waterside under the brow of a steep hill, where the crooked streets threaten to shoot the pedestrians straight into the harbor, and where thatched roofs are still in fashion.

The bleak Cornish coast offers little in the way of encouragement to farmers, and the chief occupation of the men and the larger boys is fishing. The little harbor, artificially made by long piers built out into the bay, is crowded with the brown-sailed luggers, which at sunset stream out to the ocean, and in the early dawn steal back one by one, with their load of fish.

In the winter months, however, there are many nights when the boats cannot go out. Then, the men find their occupation ashore: mending nets, repairing sails, overhauling rigging and—most important of all, if judged by the faithfulness shown—"pacing the quarter deck," to and fro on the bluff by the water-side, telling long tales of their varied experiences.

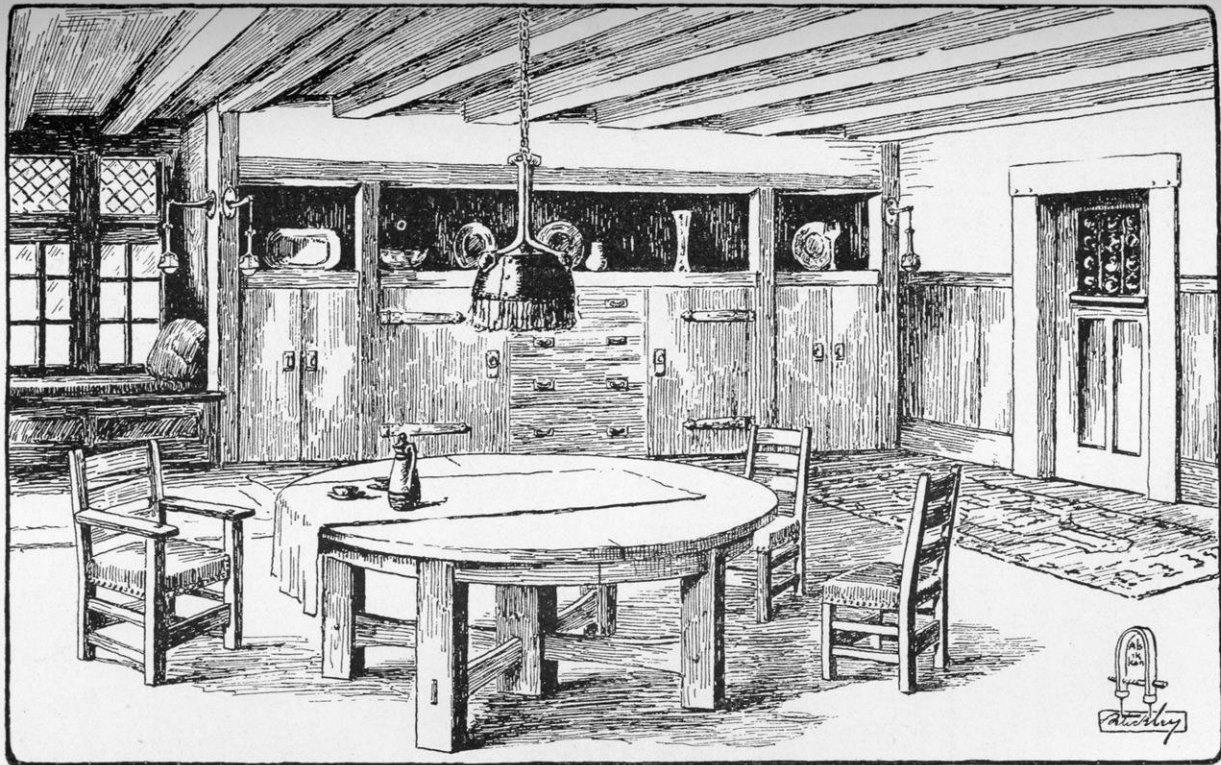
The younger lads from fourteen to eighteen, who belong to the crews, but take a minor part in the work on shore, thus have, during the long winter months, much idle time on their hands. And it was with a view of keeping them out of the "Pubs," and

so out of mischief that, about 1892, some of the local artists organized "The Newlyn Industrial Class," devoted chiefly to metal work. The Member of Parliament for that district, who is a wealthy and generous man, became interested in the idea, and financially aided the enterprise.

A suitable room was rented, centrally located near the water (for your true fisherman never penetrates more than a few hundred yards inland), where the incessant din of the hammers would not seriously annoy the neighbors. A few simple tools were purchased: chasers, punches, dies for stamping backgrounds, and hammers and mallets, with a number of lead, or pitch tablets.

An instructor experienced in metal work was engaged from London, and the school was opened three evenings the week for all who wished to join, no fee being charged. The class became popular, and although a number of the pupils soon wearied of the work, their places were filled by others whose interest grew and whose ability for the work developed.

It must be understood that, at the outset, the artists were as ignorant of the craft of brass-beating as the fisher-lads themselves. But three or four of them became much interested in the work, originally from the point of view of a charity toward the boys, and afterward, because of the really good and interesting results obtained. The evening classes were at first directed by the instructor from London, and attended in turn by one or two of the artists. The latter quickly became conversant with the methods employed, and expert in the use of the tools. They made all the designs for the work. These were at the beginning very simple. They were given to the boys, who with carbon transfer paper, traced them on smooth sheets of copper or brass. Copper was found to be more ductile and easier to work, and these qualities, together with its deep, rich color, made it the favorite material. As soon as the artists themselves began



Suggestions for Dining Room by the United Crafts



Rathskeller showing United Crafts Furniture

to understand the use of the tools and the manipulation of the metal, the instructor was dismissed, and the work attempted assumed a somewhat different character. The work of the London teacher was precise, neat, highly finished, and conventional. The artists, on the contrary, aimed at something more individual, unconventional and distinctive. Their designs were kept simple and naturally reflected the surroundings of the place: the things with which the fisher-boys were familiar. Sea-weed and fishes, the quaintly shaped luggers, even the light-house pier with the tossing sea at its foot were outlined on the metal. The things first wrought were trays, simple plaques, finger-plates for the edges of doors, etc.

But in a short time there developed among the boys a number who showed real ability for the work. One in particular, somewhat older than the others, became expert, not only in the use of the tools, but also in adapting and even in originating simple designs. Later, this young man was employed, at a regular salary, to superintend the class, take care of the room, purchase materials, and teach beginners. The tri-weekly attendance of the artists (finally somewhat of a burden) then became unnecessary; but one or two, with Mr. John D. Mackenzie (whose beautiful black-and-white work is well known among illustrators), at their head, continued to make the designs, superintend the work, and direct the sale of the productions.

From making the small objects already mentioned, the boys progressed to varied and complicated articles. Candlesticks, sconces, inkstands, hoods and blowers for fire-places, corners and finger-plates for doors, brass and copper boxes, picture frames, large tea-trays and beautiful plaques were produced. The articles were at first bought cheaply in the neighborhood. But the market widened, and as the quality of workmanship improved, and the designs became more elaborate and beautiful, the work commanded higher prices, and

orders came from all directions. A depot for the sale of articles was established in several places, and a London agency instituted.

The boys, who, at the beginning, received their instructions and a small percentage on the sales, were given fifty and then seventy-five per cent. of the profits; the remainder going to the maintenance of the rooms and the salary of the caretaker and teacher. The more skilful workers began to earn substantial sums, and advancing from tracing the patterns, they were finally able, in many instances, to adapt and even to originate designs. The time occupied in learning this craft would otherwise have been wasted: stormy evenings when the boats lay at anchor, or day hours that could be spared from other labors.

In Newlyn, the influence of the artists upon the work was naturally very great; their designs being original and valuable. But good designs are now obtainable from many sources, and their transfer to the metal is work which even a child can do. Thus, given a little instruction in the use of the tools, the knowledge of the possibilities of the medium comes quickly, and the "union in one person of designer and workman" is more or less certain, when any facility or taste is developed.

The rough Cornish fisher-lads, with an education far inferior to that offered by our ordinary grammar schools, and with no inheritance of mechanical ability or dexterity, have, in a few years, established an industry which is already recognized in England, and which commands a good sale and fair profits. It is also an employment which they can pursue at odd hours, and which does not interfere with their regular calling of fishers. Therefore, in view of the success attending the work, and the employment and profit it offers to lads who glean but a scanty and precarious livelihood from the treacherous waters, the artists who devoted many prec-

ious hours, amid the deafening noise of the hammer, to the starting and fostering of the enterprise, may well feel repaid for their unselfish labors.



METAL AS A MEDIUM OF EXPRESSION

BY MARY NORTON

WROUGHT metal brings us to a field of work which offers large opportunities to the craftsman. The medium may seem at first unsympathetic and stubborn, but, on the contrary, it is most responsive to those who understand its nature.

Metal offers a wide choice of temperament from which to select our favorites. For my own part, I much prefer the pure metals to the alloys, as with my somewhat limited experience, one element at a time engages all my energies. Every metal should be allowed to preserve its own individuality, and we should seek to define its leading characteristics, while using it to express our own ideas.

In planning work: for example, an interior decoration, it is well to consider first, what kind of metal can best be employed, with respect to both use and ornament; second, which of several metals is preferable in color and texture in relation to the other furnishings of the room; third, but by no means least in importance, what style of design is best suited to both the use and the metal selected. If iron is chosen as filling all requirements, a design must be made, especially adapted to the qualities of that metal. We can no more make a design suited to iron, and work it out in copper, than we can weave a pattern for gingham into a brocade, and expect

the result to be satisfactory. The characteristics of the two metals are too different to allow similar treatment.

It is quite as impossible for the artist who has never worked in metal to design therefor, as for the workman who has no artistic feeling, to carry out a design. To obtain good results the artist should also be the artisan. It would seem impossible for even the most skilled workman fully to carry out a design which he did not conceive and to which he is not fully sensitive. It is, however, not always practicable for the artist to be his own workman, and there are many parts of the work which can be done almost as well by the workman as by the artist. But after these more or less mechanical parts are accomplished, the artist must finish the work, or must always see in it a great lack which every intelligent observer will also feel, although he ignore the cause. And let me say here that it is to the intelligent observer, as much as to the craftsman, that the "lesser arts" owe their revival and to whom they are looking for appreciation and support. The artist who can find an artistic workman is fortunate; for the training school of the modern artisan is the factory, in which even those who are employed to do hand work must pay more attention to the quantity done in a certain length of time, than to the quality, as long as the latter meets the fixed requirements. This is very apparent in the silver work of to-day, or, at least, it is there brought more closely to our notice. The desire to save time may account, in a measure, for the great number of tools used by silver-smiths in chasing; which number is so great as to reduce the work almost to the function of the die, and the workman to the machine.

Technique, in this respect, is not the skilful use of many tools, but ingenuity in the use of few.

For example, if in making a line we use a curved tool, all such lines in our work will

bear exactly the same expression ; whereas, when lining is necessary, if we use a straight tool,—sometimes bringing it up to the very end in making a quick curve,—the effect produced will be much fresher and more spontaneous.

In looking at much of the silver-chasing of to-day we find the shape of the tool used more apparent than the feeling which the designer wished to convey ; and here again, the disadvantage of separating the designer from the worker is brought to our notice. In this kind of work, it seems both easy and natural that they should be one.

So much is said just now of the “ marks of the tool,” that we are led to regard the desire for them as a fad, rather than as a real appreciation. Tool marks in themselves are of no value, if they do not aid to interpret the thought ; properly used, their function is not so much to leave their own mark or impression, as to change the whole appearance and quality of the metal.

This is not so apparent possibly in chasing, though too much can scarcely be said against the constant use of the outlining tool. If the whole design is outlined, before being raised, freshness and feeling are almost impossible in the finished work. A continuous line of any account would naturally be bad, but it is made worse by the inevitable spreading which takes place when the design is raised. Very little outlining is really necessary before or after the design is raised, and it is most interesting to note the delightful effects which can be obtained in place of outlining, by a broad flat tool, commonly called the planisher, which is one of the best modeling tools.

In making a spoon, it would seem that nothing is gained by hammering it into shape by hand, if through the employment of such a variety of mechanical devices all life and feeling are lost. One or two hammers, an anvil and a round steel head for shaping the

bowl are quite sufficient to produce a variety of shapes. As the shaping is done when the metal is cold, it requires a greater length of time and more hammering to obtain a desired form than when hot metal is used. Consequently greater refinement is secured.

It is necessary in executing wrought silver to anneal it several times; by this process, the article is brought to a rose-heat and the substance contained in all silver of use to make it sufficiently hard, is burned away on the surface, leaving a coating of absolutely pure silver which is beautiful in color and texture. I see no reason why this should ever be destroyed. In the commercial article, it is always burned away in a bath of acid; as the pure silver is not sufficiently hard to take the polish usually applied, or the oxide, if the latter is desired. Neither polish nor oxide can compare in beauty to the surface left by the annealing, which possesses unmarred all the most delicate impressions given by the workman.

Metal has so long presented to the world the expressionless face of the die that its varied possibilities have been almost forgotten. It is now calling to be redeemed by the forge and the anvil, and those who shall take up this kind of work with the purpose of doing all in their power for the metal as well as for themselves, will be fully repaid for their labor.



EXHIBITION OF THE GILD OF ARTS AND CRAFTS OF NEW YORK



THE recent exhibition of the Gild of Arts and Crafts of New York was an example of the results which can be obtained by merit and perseverance, even though the beginning be very small. This gild, the only organization of its kind in New York City, was founded in January, 1900, with four young women as members; two of these filling the offices of secretary and treasurer. At that time, the society had no constitution and there was no money in the treasury; the four members being personally responsible for all expenses incurred.

During the first year, which was an experimental one, more than one thousand dollars passed through the hands of the treasurer; this coming from actual sales and commissions, or being returns from classes in various departments of designing and crafts-work. Since then, the gild has outgrown its humble beginning, and now occupies a number of studios in the building at No. 132 East Twenty-third street. Its members include workers in sculpture, etching, water-colors, miniature painting, photography, book-binding, stenciling, fire etching, chalk drawing, designing, book plates, wood carving, leather and metal work, needle work, basketry and bead work.

The aim of the gild, as set forth in its constitution, is to advance the union of the Arts of Design with the Arts of Production; with the ideal that the artist and artisan should be one and the same person. It is also purposed to establish shops which shall take the form of permanent exhibition, and sales rooms, where the work of the gild members and pupils, after passing a jury, shall be placed, also to co-operate actively with any organization interested in the progress of education and industry.

Practical and theoretical in-

struction is given by competent teachers in drawing, modeling, book binding, leather and metal work, basketry and other crafts. Just at present, arrangements are pending to secure a permanent home for the gild, where a still broader scope of work can be undertaken, and a permanent exhibition be maintained in connection with the work. The class rooms of the gild are considered as work shops, and are open to the students daily, from nine A. M. to five P. M. Another of the chief aims of the gild is to make design, with drawing, the basis of an art education; combined with these studies, a hand-craft gives the pupils the benefit of mental and manual training, and balances educational with professional work.

One of the most interesting displays made at the recent exhibition was a collection of baskets, the work of Miss White, Miss Francis and Miss Eppendorf, all of whom are experts, and the first of whom is the author of a work which is a recognized authority upon basketry. These baskets, most varied in color and design, were woven from natural grasses or from corn-husks. No dyeing was used in the work, except in the materials with which the baskets were sewed.

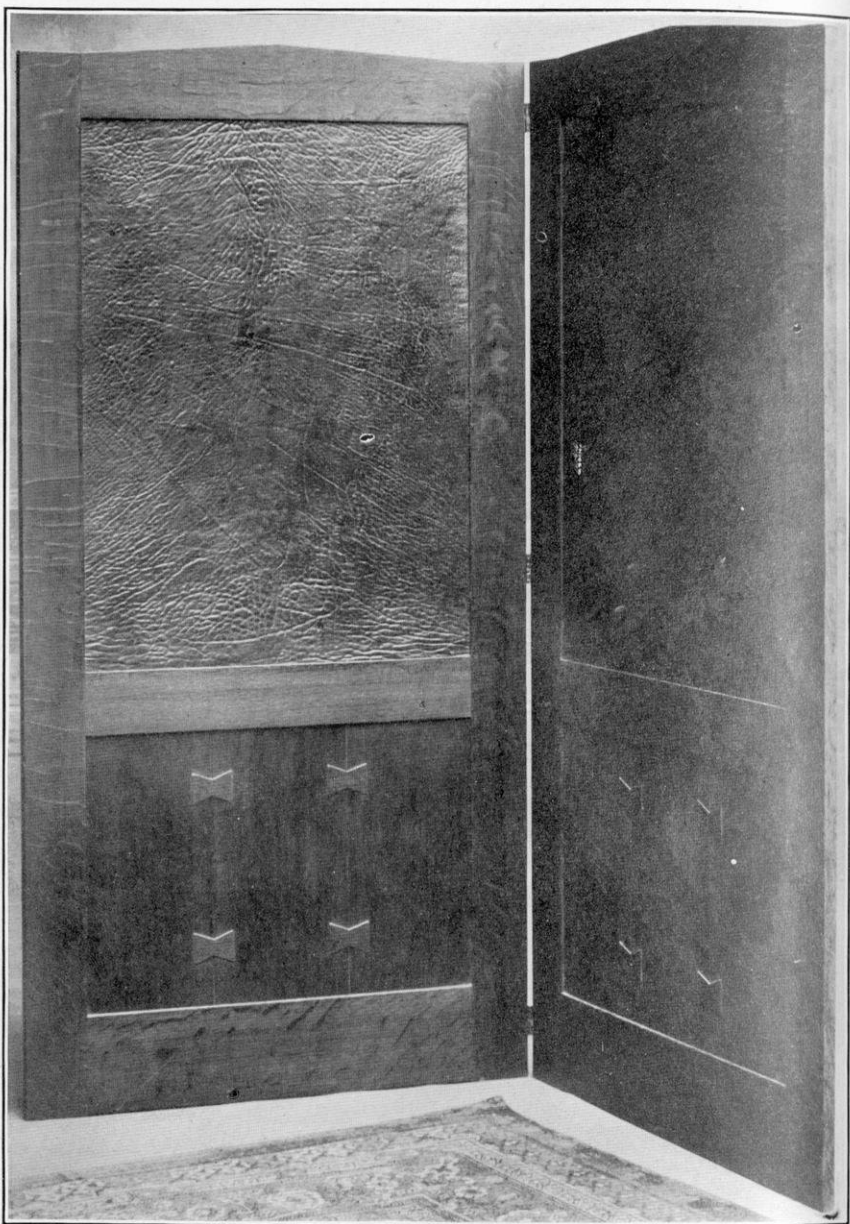
The copper and brass work of the Busck Studios attracted considerable attention, some of the copper pieces being beautifully colored, and many pleasing effects being attained in hammered brass. These studios also showed examples of tooled leather, and a number of copper covers for French earthenware casseroles; reproductions of the latter are shown in this number of *The Craftsman*.

Among the other exhibits worthy of mention were examples of bookbinding by Miss Haskell and Miss Preston: a beautiful piece by the latter being a book-cover of mosaic in colored leathers.

Miss Hicks showed a number of specimens of her excellent work in tooled leather; also a number of cotton cloths for hangings and covers, dyed



*Sideboard in fumed oak with wrought iron hinges, by the United Crafts
Russian copper vessels in overhead cupboard*



Screen in fumed oak and United Crafts leather

by a primitive process employed in the East Indies, which consists of tying small stones or shot into a piece of white cotton cloth in such a manner as to form a design. The cloth is then dipped in a dye vat; the spots protected by the cord which holds the stones in place, remaining white, and thus forming the design.

In addition to the exhibit of the Gild, the Volkmar Potteries of Corona, L. I., sent a number of representative pieces; and rugs were shown by Mrs. Douglas Volk, who was also the exhibitor of some interesting woven hangings in silk and wool. These articles were made at Lovel, Maine, where the industries of carding, spinning, weaving, and dyeing are carried on together with the weaving of the tapestries, and where in summer Mr. and Mrs. Volk gather about them a colony of representative craftspeople.



THE timepiece by the United Crafts, shown in the illustration is appropriate for use in an entrance hall, or on a stair landing, the treatment of the dial being unique and attractive in effect. The face proper is of emiered brass; the corner spandrils and the antique numerals of handworked burnished copper forming a pleasing effect. The hands are black and the minutes are indicated by dots of black enamel. The nut brown fumed oak of the case is in harmony with the brass pendulum and weights within. A clock of similar design, but with a finely modulated set of chimes and having three weights instead of two, is also made by the same workers.

Two smaller clocks for mantel use are also products of these workshops. They are somewhat similar in shape; in one of them flushed joints, curved lines and paneled sides are introduced; the lines of the other are severely plain with solid, unpaneled

sides and top. The dials of both these clocks are of emiered brass with numerals of burnished copper. A novel effect is introduced in one of them, in that the wood surrounding the dial is of a contrasting color to that used in the case—if brown oak is used for the case the wood around the face is green rock elm—while copper spandrils are used on the other. Both examples are provided with doors of opaque leaded glass set in the front of the case, the center pane being transparent that it may afford a glimpse of the pendulum within. All of these clocks are fitted with the Seth Thomas eight-day movement and are fine examples of both cabinet and clock-making.



THE first volume of "The Craftsman," (October, 1901—March, 1902) is about to be issued in book form. It will be artistically bound in flexible leather covers, and will constitute the initial work of the new bindery of The United Crafts. It will be sold by booksellers throughout the country, and its price has been fixed at \$3.50 the copy.

The Publishers of "The Craftsman" offer to subscribers five hundred copies of this book upon the following terms: On the receipt of \$3.50 they will enter one subscription to the magazine for one year, beginning April, 1902, and they will deliver the bound volume, prepaid, to any address in the United States.

Subscriptions will be received until June 1, and a receipt for the full amount will be mailed at once to the subscriber, but the bound volume cannot be delivered before June 15.



From the present date, the binding of books will be added to the industries carried on

by "The United Crafts." The re-adjustment of their workshops has afforded the space necessary for the bindery which, it is hoped, will quickly merit public recognition for artistic design and good craftsmanship.

With the leathers dressed in a different department of the Gild, it will be possible to produce a variety of effects not easily attainable elsewhere, and it will be the aim of the craftsmen to do work which shall be pleasing to the bibliophile; especially in the re-binding of old and valuable books.

It is also purposed to send out from time to time limited editions of writings having as their subjects the decorative arts, the more useful crafts, and the materials and fabrics employed in making our homes comfortable and beautiful: in short, treating of all those interests which William Morris named "The lesser arts of life."



The re-apportionment of space already mentioned, has given The United Crafts opportunity to develop the wrought iron industry. In this, according to their established rule, they will follow the Morris principle of joining utility with beauty. It will be their purpose to modify and improve the models now in use for electric light fittings, fire-sets, sconces, candlesticks, lanterns, locks and other articles in metal which are necessary in every household. They solicit correspondence from architects and owners of houses who recognize the good tendencies of the present Arts and Crafts movement.



ALS ik kan. If I can. If we look in the dictionary at *can* we find it derived from the Old English *cunnen*, to know, to know how, to be able. We can trace the family resemblance in the Anglo-Saxon *cunnan*, the Danish *kunnen*, Icelandic *kunna*, German *können*, Gothic *kunnan*, and English *ken* to know.

From the Anglo-Saxon *cunnan* came our word *cunning*, now used in an ignoble sense, but whose original meaning was knowing, skillful. In Exodus we read of one of the tribe of Dan, "an engraver and a cunning workman." It is curious and interesting to notice the fact that everywhere the word seems to carry the double meaning of knowledge and power. This voices a universal instinct. He who knows, can. Carlyle says in *Hero Worship* "king is *kon ning*, *kan ning*, man that knows or cans." But we say "We are tired of kings, we suffer them no more." We shall say it no longer if our eyes are opened and we see the true kings, men who know the best and can do it.