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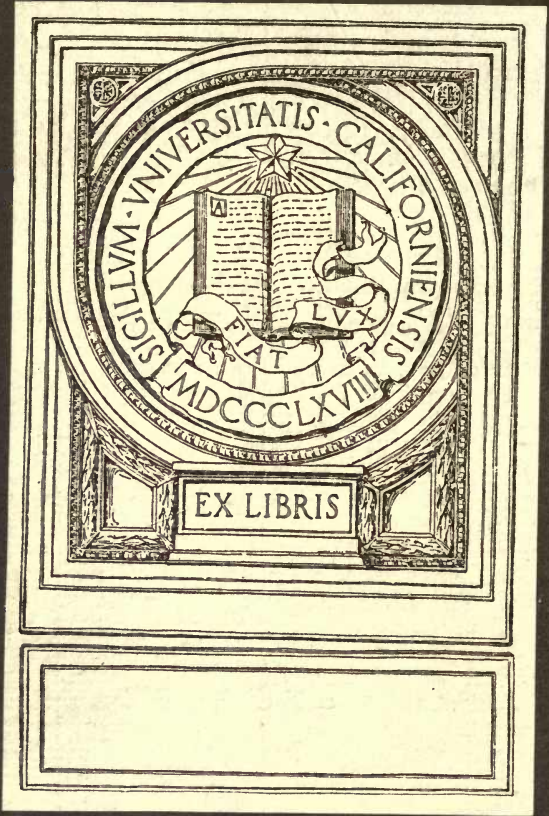
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**ABNAKEE RUGS**

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**BY HELEN R. ALBEE**













# ABNÁKEE RUGS

A MANUAL DESCRIBING THE ABNÁKEE  
INDUSTRY, THE METHODS USED, WITH  
INSTRUCTIONS FOR DYEING.

BY

HELEN R. ALBEE



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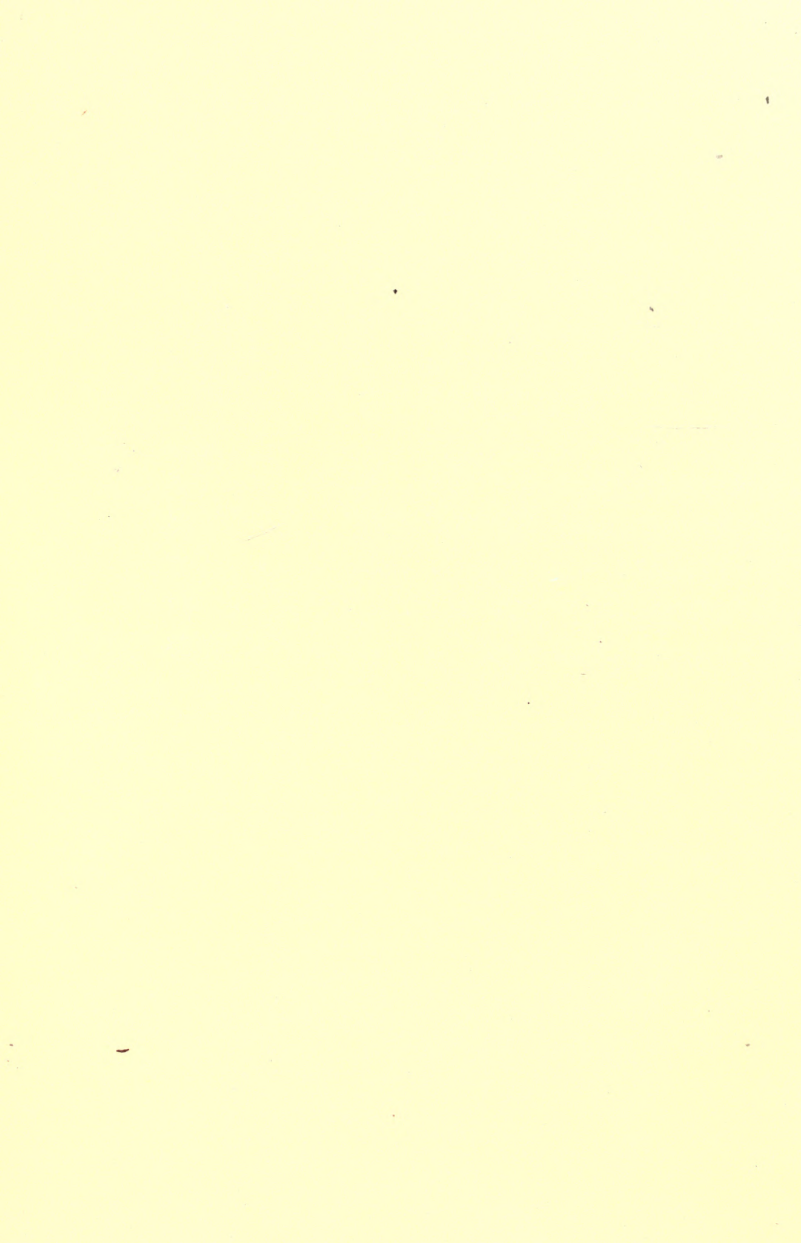
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# ABNÁKEE RUGS

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## INTRODUCTION

THE industrial experiment known as the Abnákee Rug Industry is the result of a chance interview held in a New York studio. The subject under discussion was the relation of the individual to society at large, and particularly the duty a trained craftsman owes to a rural community, if he has made one his home. This is a question which eventually must find more and more place in thoughtful minds.

In the ebb and flow of humanity prosperous people from the cities are seeking homes in the country in greater numbers than ever before, at the same time that energetic men and women bred in the country are seeking their fortunes in the cities. It is needless to enter upon the problems resulting from this drift to the cities. One does not need to be much versed in economics to know that it means overcrowded population, great numbers of the unemployed, increasing difficulties for the individual to get even a foothold, save in the most menial employments, and all the attendant evils of close quarters, bad ventilation, disease, increasing pauperism and crime. When the prosperous meet this surplus population in cities, they seldom get beyond questionable forms of charity and philanthropy,

which, statistics go to prove, have served rather to increase the pauper spirit, while they have not reduced disease and poverty.

It is to consider the other side of the question that this pamphlet is written. How shall educated and trained men and women, who go into the country, use their influence to keep the country-bred youth at home? It is obvious the most important thing is to give them congenial and remunerative employment, as it is to seek employment that they have left their homes. A recent investigation made by a New England governor results in the significant statement that New England cannot compete in agricultural products with the great Western states; that she must depend upon her commercial and industrial enterprises, not only in the large cities, but also that they must be developed throughout the rural communities if New England is to retain her population and wealth.

It was a consideration of these conditions that pressed home the question of my own personal responsibility to a little community where I had made first a summer home, later deciding to remain throughout the year. Previously to going into the country, I had studied the principles and application of design to various textiles, and had been successful in disposing of them to manufacturers. I had for years worked in various ways with oil, water, fresco and china colors, and had given a course of talks on the principles underlying line, form, and pattern. Such was my equipment when I faced the problem of finding some profitable employment which the women in the farmhouses about me, who had many leisure hours at their disposal, could do in their own homes. That this employment should be

of an artistic nature was to my mind the first requisite ; for, if there is any one thing which the average American mind needs, it is an awakening of the artistic sense. Beauty of form and color are not a daily necessity with us. As a people we are ingenious, fertile in resources and imitative ; we are rapid in execution and quick-witted to devise new conveniences and to meet new conditions ; but for some mysterious reason, the artistic feeling which is so evident in Oriental, in some European, and in nearly all savage races is a thing unknown to us as a nation. In proof of this, compare any dish or bit of earthenware made by the Japanese, costing but a few cents, with a dish of like cost made by an American. The comparison is mortifying. The Japanese has given a beauty, a finish, to everything he touches, no matter how insignificant its value, while our cheap American productions in earthenware, glassware, our cheap textiles and furniture, our moderate priced wall papers and carpets, — in short, every sort of commodity produced by the common, average mind and bought by the common, average public are tawdry to the last degree. They are overloaded with meaningless ornament, they are for the most part crude in color, and utterly commonplace in conception.

It is hard to understand this lack of taste, which is well-nigh universal, not only among the working classes, but among many who have had superior opportunities, when a fine instinct for form and color is discernible in many savage tribes. Ruskin, in speaking of the fact that semi-civilized nations colored better than the English, that an Indian shawl and a China vase are inimitable, says, "It is their glorious ignorance of all rules that does it ; the pure and true instincts have

play and do their work. The moment we begin to teach a people any rules about color and make them do this or that we crush the instinct, generally for ever." I doubt if art education has had anything to do with America's lack. Rather has it been the preponderance of our inventive genius, which is the natural result of an intelligent people meeting the stern requirements of pioneer life as it has had to be met in every state in the Union, that has almost dried up the sources of music and poetry as well as art, while trying to minister to pressing material needs. In our desire to express utility with economy we have overlaid any æsthetic tendencies that survived Puritanism. Whatever the real cause may be, certain it is that the North American Indian, those of Central and South America, and the South Sea Islanders show finer perceptions in their use of simple ornament in textiles, pottery, carvings, and weapons than do the greater portion of America's native population. Nearly all the best designers in this country are imported, and our leading mills frankly and openly copy foreign designs. It is only here and there that an American has an original talent for design, and with all our producing (I believe it is our present boast that we lead the markets of the world), we do not reach that beauty in design which is found in the cheapest cotton fabrics from India and Japan, in the silks of China and Japan, in the brasses of Benares, in the shawls, carpets, and rugs from India, Turkey, Persia, and Arabia, in the thousand and one articles of merchandise upon which these older countries impress their instinctive interpretation of art principles. Nor are these things produced by artists in the East, but by the humble native population working at a few cents a day.



It is difficult to see how the artistic sense is to be awakened to such an extent in us that it will find a spontaneous, national expression; but with all our lack, we have, as a nation, a quick imitative spirit, a genuine desire for self-cultivation, an eagerness to appropriate that which appeals to us as best, and these qualities may, in time, help us to assimilate the art of older countries and give it a new and fresh utterance. I believe many influences are working to this end among us; foreign travel, international expositions, an increase of art galleries and art schools, an increase of wealth and leisure, which enable people to cultivate and enjoy the æsthetic side of life. And not a little is being done through the Arts and Crafts societies that are springing up on every side. These are reaching out to encourage and foster all kinds of handicrafts, to educate the public taste as well as to emphasize the intrinsic value of hand-work if coupled with beauty and honesty, a value which most persons have quite forgotten, so universal are the machine-made things in our market. The exhibitions of these societies are discovering to the public many modest, earnest efforts that have been going on for several years in out-of-the-way places to establish industrial enterprises that are called, variously, village industries, farmhouse industries, fireside industries. But they are all one in purpose, which is to use the unemployed time and labor of rural communities to create some artistic product. Some of these industries produce embroideries, some wrought iron and illuminated books, some hand-woven textiles; some are at work on pottery, carved chests, leather and bead work, basketry and lace. All sorts of commodities are represented, and the work

generally is excellent in design and workmanship. These exhibitions have revealed the fact that though these enterprises were previously unknown to each other, they were prompted by the same impulse and are unified by a common aim. They are quite apart from the usual commercial ventures, and each has been much influenced by the peculiar conditions of the place where it was started.

I would here suggest to any one who may desire to join in this industrial movement and find occupation for people in a certain locality, not to imitate any one industry that has proved successful, but rather to make a careful survey of the field before choosing a handicraft to be developed; for a community may have natural skill in one certain direction and show no aptitude in any other. In studying individuals one may soon discern in what direction the industrious ones find expression through some kind of hand-work to which they are peculiarly adapted. The work they have voluntarily engaged in gives an excellent clue to their natural capacities. In such instances it will be wiser to foster the native craft and infuse it with artistic principles than to begin work on wholly unfamiliar lines.

There is, however, another matter of importance to consider, and that is the question of securing raw materials suitable for manufacture at a reasonable price. For example, a prairie country is not so well adapted to the manufacture of ornamental wood work, such as carved chests, panels, pyrography, etc., as one where native woods can be procured in the immediate vicinity. Raw wool can be secured more easily in a grazing country than where forests abound. Pottery

or terra-cotta work is better where the native soil yields the suitable clays. While these commodities can be carried to certain places which do not produce them, yet it involves an industry in an unnecessary item of express or freight charges, which soon grow to be of formidable size in the cost of manufacture.

In reviewing the situation in my own neighborhood, I found that a certain domestic production was made in almost every farm-house—the hooked rug. As a means of using up old clothing and converting it at the same time into a warm, durable covering for the floors, these rugs had long served a useful purpose. But the very fact that they were made out of odds and ends, from materials that often ran short before the pattern was completed, of neutral color, which, while suitable for wearing apparel, yet lacked the warmth and harmony of color necessary to a beautiful rug—all these conditions contributed to make the results unsatisfactory, and are some of the reasons why the hooked rug, as seen all over New England, Nova Scotia, and Canada was so rarely artistic. Still another reason was that the only stamped patterns procurable were of meaningless design when they were not absolutely ugly; but they were sold in every country store and were almost universally used. As a result, generations grew up with the false idea that absurd scrolls springing from nothing, impossible flowers, cats and dogs, blocked patterns, were beautiful just because these were the only standards of beauty set before their eyes. They were wrought into rugs with such loving care and patience that both sentiment and common custom gave them the stamp of endorsement as beautiful patterns. What had been made by the mother was

treasured and admired by the daughter, and with no personal knowledge of what a fine rug was, as made by nations older and wiser in art than were our own Puritan forefathers, it is small wonder that false conceptions of both form and color became fast rooted.

Yet these same old hooked rugs, with their violations of good taste in color and design, contained all the possibilities that have been developed in a newer production, known to Arts and Crafts societies over the country as the Abnákee rug. It only needed some one who had faith enough in the humble hooked rug to put into it new material, one with a knowledge of design sufficient to give an original stamp to the work, with an eye for color to secure harmonious effects, and the courage to give the conviction form, to revolutionize the old product, and place it on a level where its merits and artistic worth should rank it with many rugs of foreign make. The Abnákee rug has done more than merely to win recognition of art critics and a place in various exhibitions over the country. While it was doing these two things, it was also proclaiming far and wide that as a new handicraft this work could be introduced in many places, and give employment in rural districts wherever a suitable person could be found to foster and direct the work. It suggested, too, that if one person had been able to give a distinctive character to the new form, other workers who followed their own ideas might develop still further perfections, each one adding an original touch to his product, and in time America might show as beautiful and varied rugs as Oriental countries can boast.

But such ambitious aims were not in my mind when I undertook to elevate the hooked rug. I saw no

further than a small handful of people for whom I wished to find a home employment during their leisure hours, nor did I dream of any further market or wider influence than I could find right among the colony of summer people who frequent the hotels or have cottages in my vicinity. If the influence of my effort has been extended through accounts in newspapers and periodicals to many portions of the country, it has been wholly unexpected, and has followed lines of natural growth, and has not been a result of the usual advertisements. I speak of this as a proof of the eager interest which is manifested in any new handicraft, and how ready the public stands to welcome and encourage any expression of individuality along novel lines. It is to answer the questions of endless correspondents who wish to know something of the details of the Abnákee industry that I write this brief account of the work and of the methods used. While I have been only too willing to serve the unknown inquirer, thinking perhaps a letter might drop as a seed, such as had been dropped in my mind during the conversation I mentioned in New York, which grew into my industry, — yet, with all my desire to be of service, there is a limit to the time and energy one can spend on correspondence; hence, all that I can say is given here as a final word.

## AN INDUSTRIAL EXPERIMENT

THE first step in the industry was to procure materials. Nothing seemed simpler than to buy all-wool goods at moderate price ; yet to find the right thing was a problem that took many months to solve. The price at retail was too great to be considered, and the mills to which I wrote paid no attention to my letters ; nor was the quality of any goods I examined suitable for my purpose. I wanted a cheap, soft all-wool flannel of firm but open texture. I found such a flannel was the most difficult commodity in the market to obtain, as it has been almost superseded by cotton outing cloth and part-cotton flannel ; and the knitted underwear now so universally worn had still further displaced the use of cheap flannels. So for months I pursued a weary search for an honest material that I could afford to buy. Having no precedent for the establishment of such an enterprise as I had in mind, I worked it all out theoretically. I determined to buy a quantity of cloth at wholesale, and distribute it to the women at cost price, for which they should pay me when I had disposed of their work. I expected to give gratuitously a year or more of time to furnishing them with designs, in advising with them about colors to be used, in directing the work generally ; at the same time letting the individual have free scope for her own original ideas. As I could not afford to advance materials and buy the product too, I planned to take their work when fin-

ished, pledging myself to find a market for it among my friends, and in that happy event I should pay them for their work, and get the money back for the flannel I had advanced. Then I should reinvest in more flannel and we should all start again ; and after I had worked them along until they had confidence in themselves, I should drop out and let them carry it alone. It was a delightful scheme as I pictured it, an ardent enthusiast on the one hand, and a small population with much leisure and no opportunity to get employment on the other ; nothing seemed easier than to fuse them into a successful whole.

As I had almost no money to embark in the scheme, little else than my years of artistic training and a great desire to serve others, and as I expected no personal profit from the enterprise, I fancied those whom I wished to benefit would be willing to meet me half way ; but it was soon evident that I had entirely mistaken the situation. Without exception the native inhabitants listened with apparent interest as I unfolded my plans to them, but they would commit themselves to nothing. I did not understand their indifference, and grew more zealous in my efforts. By this time I had found a flannel such as I wanted, and began to make several rugs after my own designs, thinking this would prove the sincerity of my purpose, as well as show them the character of the work as I planned to have it done. I was still met with an impenetrable reserve that could not be aroused into enthusiasm. It was several months before I chanced to learn the dismal truth.

My simple conventional designs had not met with approval. I did not use bright colors ; I wove no vines,

no flowers into my rugs ; no cats nor puppy dogs reposed on parti-colored foliage — in other words, I had not reached the standard of the native taste. Further, they had never been able to sell their rugs, and it was not likely that mine, which were to their eyes less beautiful than their own, could be sold, and they had grave doubts if they should ever get the money for the work if it were advanced. In short, I had been weighed in the public balance and had been found wholly wanting. I confess this news was very depressing, and several days of melancholy reflection were devoted to it. Then it occurred to me to submit the question to a bold test by presenting it to the buying public in an exhibition in the village hall. If I could once prove to the native mind that the summer colonists appreciated the work enough to buy it, I might hope to win the former to a reluctant confidence in my plan.

I worked industriously and made about half a dozen rugs of various patterns in dull shades of terra-cotta, old rose, yellow, olive, rich dark blue, and cream color, to which I added as many more made by a young girl, my only convert. This simple statement gives no hint of the labors those first rugs cost me. The native people were really justified in their skepticism of me ; for, at the time I began an effort to win them over to my views, I had never seen a rug hooked nor a yard of goods dyed ; nor did I know anything of either until I began to make my own experiments. It was because I knew nothing of the usual methods of rug-hooking that my own were so different in texture and finish from others. It was a great advantage to work free from traditional influences, for I was thus enabled to



set a new standard. But the weary days spent on my experiments in dyeing! It is not profitable to dwell upon the many failures, nor the quantities of flannel that came out every color save the one I strove for, nor the days of discouragement when I was at the point of throwing the whole scheme over, particularly when I realized that those whom I wished to aid did not care for my help. Nothing but pride saved me from complete fiasco. I could not and would not confess, after spending more than a year of time, during which I had used my utmost knowledge, that I had failed miserably. So I struggled on, studying probable causes for evident results, gradually learning the necessity of keeping an exact record of every procedure and of all proportions of dye used, accompanied by a sample of the color each formula produced. Often I came to a snarl that refused to be unravelled, and all I could do was to wait—just wait until kind fortune should send me some adviser who usually cut the Gordian knot in simple direct fashion. I must here acknowledge my great indebtedness to many friends, who by advice or influence assisted me to information,—to books, to the proper market where materials could be bought, to many things which I should never have found unaided.

It is to save others from going through all the trials and difficulties that attend pioneer work that I have decided to give this complete summary of my labors and methods to the public. To my mind it is a sheer waste of human energy for each person to struggle single-handed with the problems that necessarily arise in any industrial experiment, and the more valuable the new craft is, the more ready should the early workers be to smooth the way for the later ones. It is not

necessary for each one in turn to learn the same painful lessons ; each should place his experience and knowledge as a stepping stone for others. Then only can we expect real progress, for no time should be wasted in beating down the same old useless barriers, when the fresh energies may be better spent upon directing the work intelligently upon new lines.

Clear as the steps now look in the light of experience, at that time everything was uncertain and the way dark. I secured the use of the village hall, and to make up for the small number of my exhibits I made lavish use of vines, flowers and evergreens as decorations. It was with much trepidation that I thus challenged the double uncertainty of pleasing the taste of a capricious public and of overcoming the native prejudices.

The little hall was crowded ; city and country folk came alike, and the success of the enterprise was assured from that hour. Every rug that was for sale was sold, and many orders for duplicates were received. Much as I had dreamed and hoped of the work, I was not prepared for the instant recognition accorded to the rugs. Those I had made for my own use, which I had not offered for sale, proved to be of the greatest value to me. By keeping strict account of the material I had used, I discovered how much cloth it took to cover a square foot of rug, also what proportions of the various colors were required for each pattern. I also had them at hand to explain to workers, who now offered themselves in great numbers, the texture I wished to have them secure, how high the loops were to be drawn, and how much they were to be clipped. In some cases I loaned them, where I wished an exact duplicate to be made. They were of still greater service in helping me

to estimate how many hours of skilled labor went into the execution of each pattern, thus enabling me to fix a price to pay the worker, and also the selling price. I found these two points very difficult to estimate, as there was no precedent for either. I wished to pay the worker as high a price as was compatible with the permanent interests of the industry, and to sell the product as reasonably as possible. Patterns were deceptive, some simple effects were quite as tedious as some of the more elaborate ones, but by keeping a careful account of hours required to complete each new pattern I was able to establish a scale of prices that seemed just. So valuable were these experimental rugs, that I have made it a custom to finish for my own personal use an example of each new design that I have since added to the industry. From these I have secured orders, and have them at hand to send to exhibitions at short notice. As years go by they prove, too, how the colors and texture stand wear and tear. It is with pleasure I note that these examples are growing more beautiful with age, acquiring more of a sheen.

From the day of my first exhibition I saw the necessity of reorganizing all my former plans. The first thing I relinquished was the hope of individuals working independently. I had expected to find fertility of resources and imagination among them, and it was with the utmost reluctance that I abandoned the community idea, with the freedom and independence that it means to the worker. So far from having any original ideas of their own, I found it difficult to get a number of workers to carry out mine successfully, and I saw daily the growing necessity of one person assuming full control. I saw, where I had intended to play with the

management for a year and then withdraw, leaving workers equipped to carry out their own conceptions, and to fill orders that might come, that I had become hopelessly involved with the fortunes of the budding industry, and that a retreat on my part would be fatal to its interests. Who could fill orders for duplicates save the one who had planned the originals? Who could guarantee a uniform product unless one person stood ready to train workers and maintain the standard? I was appalled by the responsibilities I had quite unwittingly made for myself, yet was unwilling to retreat and declare the plan a failure. From that day I assumed the charge of every detail; I furnished all materials, designed patterns, cut stencils, stamped burlaps, dyed goods, arranged color schemes, trained workers, secured a market, addressed correspondents, arranged exhibitions, furnished accounts of the work to numerous inquirers, ranging from members of women's clubs to contributors of various periodicals, and lastly, though it was the first thing required, I furnished the capital and met all expenses as they arose. I do not seem to have a very clear idea just how the finances were managed, for though I had no capital to start with I always paid cash; I did not borrow; I was always hoping to get something ahead to meet the increasing demands for more outlay. To save money I had to buy in wholesale quantities, but as fast as I added to my little hoard of money, it melted into dyes, burlaps, tags, pressboard, wrapping paper, mordants, flannel and — more flannel. I was chronically out of flannel until I quite involved my bank account by pledging myself to take forty bolts in order to secure a certain quality, which otherwise

would have been dyed scarlet and blue and lost entirely to my purposes. It was a long time before I got squarely on my feet, with a little surplus ahead to comfort me when some unusual drain was made upon my purse.

From the day of my exhibition I hired the worker outright, and paid for the work when it was delivered to me. I prepared all materials myself, which the worker took home, spending what time she could each day upon her rug. The price paid was so much per square foot, according to the intricacy of the pattern, and in consequence the workers varied much in what they earned, as some busy housewives could spare fewer hours than others less employed with household duties. Prices were gauged upon the basis of a skilled worker receiving \$1.50 a day, if she were able to put in a full day. Though no one gave undivided time to the work, several were able to make \$1.00 a day and do the housework of a family besides. Some were more dexterous than others, and earned accordingly. Whether the worker was rapid or slow, whether she was lavish and had to be checked from squandering the cloth, or was parsimonious and used it too sparingly, was merely a matter of temperament. When you combine temperament with inexperience, it takes much patience and ceaseless supervision to bring a number of workers into line and secure uniform results. But it can be done, and no one is prouder than the individual worker herself to see that her work compares favorably with the best. In every way I have sought to stimulate a personal pride and sense of responsibility and a desire to reach as high a degree of perfection as possible. I have striven to impress the fact, as each rug goes out

with our label on it, that it carries with it and stakes the reputation of the industry. To bring this home as a personal matter to each worker, she is asked to work her initials on the under edge of her rug, thus placing the responsibility where it belongs, — upon the individual.

In order that they might be identified in the market, I have adopted an Indian name for the rugs, Abnákee, an arbitrary spelling of the name of the Abnaqui Indians, who constituted a great tribe including the lesser tribes of Maine and New Hampshire, among whom were the Pequaket Indians. Thus in a way the name is identified with the place where the industry was established, Pequaket, New Hampshire.

The Abnákee Rug appears upon a woven silk label which is sewn upon every rug as a guarantee of the genuineness of its manufacture. It includes as a trademark the totem or cipher of one of the Indian chiefs, Kirebenuit, who signed a treaty between the English and Abnaqui Indians. I think it is a decided advantage for each industry to adopt some characteristic name and mark by which the public may know its work.

Regarding the industry as it now stands to-day, more than six years after I began my first groping efforts, I can say it has grown beyond the experimental period. The work has extended from floor rugs to wall rugs, including jeweled effects and coats of arms. It also includes chair covers, cushion and couch covers. There are also various practical ways that this method can be carried into portières. No one who knows anything about the old hooked rugs needs to be told that they are durable. I have seen some over thirty years old, —

and still good. Made from the best materials procurable, instead of old rags, the Abnákee should, with proper care, outlast even these.

I have a great desire that others should develop a similar industry elsewhere, and in such an event one suggestion may be of value. Two conditions are necessary for the success of an industry: workers who can afford to work at a moderate wage (for hand-work is slow and cannot compete in price with commodities ground out by machinery), and a public who can afford to buy at fair prices the work produced. These two conditions are best found in some of the small but popular summer resorts among our mountains or lakes, or by the sea-coast. Through annual exhibitions the work can be brought to public notice and readily disposed of; the summer visitor in returning to his home carries back not only the news of the enterprise but an example of the work. If the product has artistic merit and integrity, it will be only a question of time until a regular market is established.

There is one other way that an industry may be started, and it matters not what article is chosen for manufacture, it will probably be the same in its methods. Suppose a rich man or woman wishes to make a memorial gift to the native village from which he sprang. Instead of bestowing a library, a museum, a hospital, or a statue, which doubtless minister to the public good with the least possible responsibility to the donor after he has once made the gift, let us presume he makes a study of the industrial conditions of that village, and after deciding what the young men and women are best qualified to do, he employs a trained artist in that particular branch and places him

in charge of the new industry which he wishes to be fostered. This manager would train the workers and devise fresh original ways in which the new handicraft could be developed. The patron should provide the instructor, also the materials, and give the work full equipment. He should keep an eye to the financial side so that the industry should be self-supporting, and not add to the many philanthropies that are little less than demoralizing alms-giving. As a man of means and influence he could command a market for the product, and place the enterprise upon a permanent basis. With small capital involved he could reach a multitude of young, ambitious people, giving them congenial employment, and as far as his small village was concerned, stem the exodus to cities.

Should he wish to enlarge the scope of work, he could advance individuals as fast as they proved worthy, allowing them to purchase shares in the business, and thus make it coöperative; or, he might, when he found one especially efficient, give him a special artistic training that would qualify him to take charge of a like industry elsewhere. Should the opportunity to direct such industrial enterprises be offered to students in schools of design, many would fit themselves in special lines of work and stand ready to take positions as they presented themselves. Such work would offer especial attractions to original minds, for they would have great freedom in carrying out their own ideas and at the same time make a dignified place for themselves in the industrial world. In such careers many students could make a far nobler name for themselves than if they were added to the long roll of ineffectual artists who never achieve distinction in pictorial art.



There is no limit to the things that a wise benefactor could do with a community when he had once gained its confidence and loyalty. The services of a landscape gardener could be secured, who would by lectures, illustrations, and personal advice help to beautify the village homes. To stimulate personal responsibility, annual prizes could be offered to those who made their premises most attractive with flowers and shrubbery. Public addresses on hygiene, diet, popular science, etc., could be added. One might play the patron saint to a whole village full of people, and, by addressing them on the artistic and æsthetic side, remove his benefactions from any stigma of charity, and at the same time minister to the public needs in the most practical way. I question which would be helped and broadened the most,—he who studied how to bestow his manifold gifts wisely, or those who received his benefits.

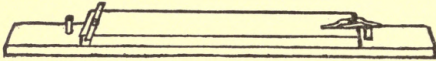
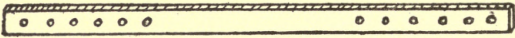
Crotina, a small inland village in southern Austria, is an illustrious example of what a determined spirit can do to regenerate a village. As it was remote from any thoroughfare, and the soil unsuited to agriculture, the native peasantry had remained, even into this century, a brutish, ignorant people. But an Englishman chanced to make his residence in the place, and, having come from India, where all sorts of beautiful handwork are made in every village, it distressed him to see the stolid, degraded condition of the Crotina natives. He selected several of the more promising ones, and began to teach them the rudiments of art, and also started them in certain handicrafts. So successful was he at length that he enlisted the aid of the government, which established an art school and supplied it with instructors. The work that these peasant fingers

made without any hereditary training behind them was so beautiful, that later on the government established and maintained a large wareroom in connection with the school. Graduates from the school had the privilege of submitting their work for exhibition, and if it met with the standards required, it was placed on sale, ten per cent. of the price being retained if it were sold. This small commission helps to maintain the running expenses of the wareroom. I am told by those who have visited this wareroom that the work in carved chests, pottery, wrought iron, burnt wood, and metal work is very fine. I saw a jewel case of exquisite workmanship in niello, and it was incredible that it could have been executed by rude peasant hands. This village is becoming far-famed for its artistic productions, and though the name of the English founder is usually forgotten when the village is described, the handicrafts that flourish there are a living monument to his genius. Certainly of him it could be said in the words of an English Jesuit priest: "It is wonderful how much good a man may do in this world if he does not care who gets the credit of it."

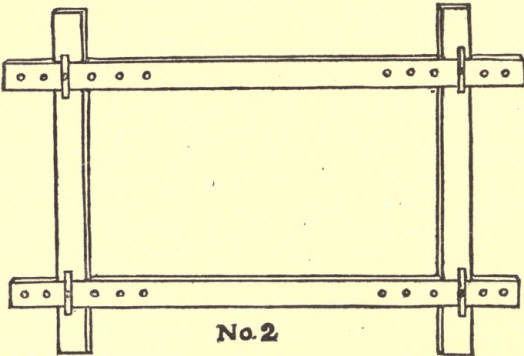
## MATERIALS

### THE FRAME

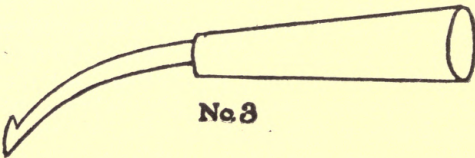
THE first thing which was revolutionized in our method of hooking rugs was the frame used. Usually the frame was large, cumbersome, and of a size that required a strained position, which was not only exhausting to the worker but often painful. The frame I adopted, and have all my workers use, is light, firm, and adjustable. It is made of soft wood, and consists of four pieces; two of them are two inches wide, an inch thick and four feet long, with a row of half inch auger holes bored at equal distances, about three inches apart, down the middle of both ends of each piece (see illustration No. 1). The other two are cross-pieces seventeen inches long with a fixed peg an inch and a half from each end. These pegs should be of such a size as to slip easily into the auger holes of the other pieces, thus making an adjustable rectangular frame. To keep the frame true and well squared, it is advisable to have a piece twelve inches long nailed on each of the cross bars, and accurately fitted so as to come out flush against the lengthwise pieces when the frame is put together. This makes a strong brace to the corners. A wooden button is screwed on within half an inch of each end of these top braces. When the frame is put together, the button is turned so as to cover the pegs, thus holding the latter securely in the holes (see



**No.1**



**No.2**



**No.3**

illustration No. 2). When in place the four pieces make a frame that can take a rug any width from twelve inches up to four feet.

#### THE HOOK

The choice of a hook is very important, for if too small it will not catch the cloth readily, and if too large, it injures the burlap as it is thrust through. If the handle is too small the hand is cramped in holding it, and if too large it is clumsy and retards the worker. The best hook is about five inches long, the handle representing half the length, and can be made of a forty penny nail (about a quarter of an inch thick), filed and smoothed into shape at the end, and given a slight curve which enables the user to hold the hook almost horizontally, and yet the point pierces the burlap vertically (see illustration No. 3.)

#### THE CLOTH

After experimenting with at least a dozen kinds of fabric, I found a certain grade of all wool unbleached flannel twill the best possible material for my use. There is a great difference in flannel twills. If a trifle too heavy in weight the flannel is not pliable, and works thick, as well as being difficult to cut into strips and to shear; whereas, if too light it requires twice as much cloth to fill the same space, thus entailing almost twice the labor on the part of the worker, with no advantage gained. The weight I find best is  $3\frac{1}{4}$  oz. to the yard. This fills rapidly, and when sheared the threads of the twill unravel a trifle and produce a velvety surface. To take the dye well, flannel must be

all wool, and to test its quality, take a thread from both the warp and woof, and burn each separately. If the thread burns quickly, leaving no ash nor odor behind, it is cotton. If it leaves a little crisp as it burns, with a strong smell of burnt wool, one may be sure that it is woolen material. Even a small admixture of cotton will show in the dyeing and fade out as the rug is used. Great care should be used to get a reliable grade. It is necessary to get flannel before it has been submitted to the bleaching process, as sulphur affects the dye, and it should not be exposed to the hot press finish. I found it impossible to get a flannel prepared for the retail trade which met all these conditions, so at length I had it direct from the mills, made to suit my special needs. Of the quality I describe it requires from one and a quarter to one and a half yards to work each square foot of given rug. Workers vary much in the amount they use, as some work more openly, others too closely; but they should be brought to a uniform texture, otherwise, one's rug will be thick, another's light weight.

It has been urged by some that yarn can be used to better advantage than strips of cloth in making hooked rugs. I investigated yarn, and these are some of the objections that were conclusive to my mind. Using the same weight of wool in yarn and in strips of cloth, the yarn covered only five-eighths as much surface as the strips did. Again, using the heaviest yarn I could get, it had to be doubled and then trebled in the strands in order to make it thick enough to hold in the mesh of the burlap, and this doubling process made it so difficult to catch with the hook that it took three times as long to hook a square foot as it did to use the

woolen strips. As labor represents a larger item of cost in the making of a rug than the materials, one can see, if the quantity of materials required almost doubled and the price of labor increased threefold, what the financial result would be. The question has also been raised if one ought not to use material at first hand and not after it has passed through the manufacturer's hands. I answer emphatically, no — if thereby a greater cost and less value is involved. Though an industry may be founded upon sentiment, this very sentiment for hand labor may become a snare and a hindrance if pushed too far; and this matter of using homespun yarn in order to say that all the materials used are hand-made and furnished right in the vicinity offers an excellent example of the point in question. Suppose in the farm-houses about me I had my yarn spun by hand. To get the proper thickness, if hand-spun it would require the expensive and very tedious process of two extra doublings and twistings, increasing the actual cost per pound more than twofold the price of my present material. The other alternative would be to have it manufactured specially, as at present the market does not furnish it sufficiently thick. This would require purchasing in large quantities, as special machinery would have to be used. To add further to the difficulties, when the yarn is finally hooked and carefully sheared, if the pile is left long enough to hold firmly in the burlap, the surface, after a little wear, mats down and looks shabby; and if sheared short as a velvet carpet, the loops do not hold. Such has been the experience of my neighbors, who many years ago experimented with their own yarn and finally abandoned its use altogether. It is a very

different matter, when a flat, narrow strip of cloth is pinched into a small hole and springs full width out from it, and is held fast in place on all sides by others crowded close to it, from a round strand of yarn that cannot be pinched in but must fill the space sufficiently to be held in firmly. So from the point of cost of material, the extra amount necessary per square foot and the extra time consumed in working it, to say nothing of its being unsatisfactory in wear, I found the yarn prohibitive. I am speaking now only of the use of yarn in the process of making a hooked rug, and have no reference to its use when woven or knotted into the warp as in Oriental rugs.

#### THE CUTTING

After the material is dyed, it is divided into yard lengths as being the most convenient length for reasons that I shall explain latter. It is then cut into straight narrow strips about a quarter of an inch in width, on the lengthwise — never on the crosswise — of the goods. A safe rule is to cut as narrow strips as the goods will allow, at the same time maintaining a firm strip when worked. By folding a yard over from end to end and then doubling that again, the folded cloth is a quarter of a yard in length and its full width as it lies before you. After getting the edges perfectly even, with a pair of sharp long shears one can cut through the four thicknesses as easily as through one. In cutting let the cloth lay on a table to your right, and with the left hand keep hold of the strip by the end nearest to you, as you cut in long even snips with the shears to the end of the folded piece. The strips should be straight



and of even width. A little practice will make one very skillful and rapid. If one is inclined to cut in a little deeper at the bottom than at the top, by reversing the cloth so that the top is now where the bottom was, the tendency will correct itself ; and thus, by continual turning, the irregularity is remedied. Before long the eye is trained so that strips can be cut with great exactness.

#### DESIGNS

It is of the utmost importance that bold effective designs be chosen for hooked rugs. The fact that strips a quarter of an inch wide are used precludes any fine detail. Where a single fine line is necessary, a triple strand of yarn or worsted can be substituted, although I have never found this necessary. Broad masses of color, simple arrangements of line and form, will be more effective and less expensive to work than elaborate detail. I should advise the study of any Oriental rugs within reach. Observe the few simple colors used, how they are interchanged and superimposed. Note also the value of a firm outline separating the pattern from the ground. If the pattern and ground are both light, the outline may be dark blue, red or brown, green or black ; and if both are dark, the outline is usually cream color, yellow, old red or gray green. Notice too the effect of straight lines of different widths, how they enrich the value of a border ; for most Oriental rugs, unless with cross-stripe effects, have a definite border, with perhaps narrower borders edging it on one or both sides. It is often an advantage to have an outside edge or band of dark color, from half an inch to an inch wide, which serves as a frame or a setting to the whole.

Although I urge a careful study of Oriental rugs as guides to color and line effects, I do not advise imitating the designs. The market is full of them at all prices — prices that cannot be met by American handwork. There is a strong liking in many quarters for goods of foreign and especially of Oriental make, and it is idle to offer to such people an American imitation, no matter how good it is. I should recommend the designer to study savage ornament, semi-civilized design and Indian patterns; also bowls, basketry, and textiles made by the Zunis, the Chiriquians, the North Coast and Navajo Indians and Peruvians. Fine examples are to be found among the Pacific Islanders. Here are fresh and interesting forms and ideas that can be adapted — not copied — to the uses of hooked rugs.

Bold floral designs can be used if in flat colors, with no attempt to add shading and perfume to the flowers. A wooly copy of a rose is at best a poor thing; but the flat form of flower or leaf as seen in the shadow as it falls upon the wall or ground may have a beautiful outline which can be used judiciously if one is experienced in conventional design. There is no greater snare, however, than leaves, flowers, and vines; and unless one has achieved a mastery in the art of design, with a knowledge of what the best artists have done with them, they are to be avoided. Nothing but absurd and meaningless results will follow their use by the common average hand.

The suitability of a design to the purpose for which it is to be used is of great importance. Floors and walls are merely backgrounds to the furniture, pictures and ornaments in a room, and as such should be kept subordinated and free from fussiness, or wearying

intricacy. With this principle in mind, a designer of rugs will use few colors, and those in masses. If a border is used, it is well to have the centre of the rug plain, or at most, with a centre medallion. This gives a restful and at the same time a finished result. If cross-stripe effects are to be used, and their name is legion, due emphasis must be given to spaces where the ground color repeats itself. But above all other things one should strive to find a fresh expression for old forms or seek to interpret new ones with force and simplicity.

#### COMBINATIONS OF COLOR

A careful study of the effects of colors upon each other will show that colors which are in themselves beautiful are often inharmonious when combined. Also, a little of a color may be good, when a larger proportion seems to destroy the balance or harmony. Success in this matter is largely a matter of close observation and experience, although some persons have a natural feeling or instinct regarding color which is seldom in error. Strong colors should never be used, especially greens. Though they may be modest in the piece, when worked in with other colors, they have an unfortunate way of becoming intensified tenfold. The safest tones for an amateur to deal with are dull gray green, yellow green, and a soft, full but dark olive. In striking a certain key in color it should be maintained throughout. Thus if a full rich color predominates, rich dark colors should be used through the whole scheme. If a light tone is the body color, soft light tones of other colors will be found most harmonious.

Thus, for example, a rug for a library, or a hall, in which a good deal of rich terra cotta appears, should have a border or design worked in dark blues, full shades of olive green, and dull yellow. There is an apparent exception to this in the use of dull reds, old ivory and black as seen in Bokhara rugs. But if studied, the cream color is very dull, and is used in such small quantities as to be quite subdued by the black that is used freely in the pattern. Old rose, warm golden browns and olive may be used effectively. A light Gobelin blue may be worked with ivory, old pink, light dull olive, and the outlines can be either a dark yellow brown or very dark bronze green. An ivory centre is lovely with an old pink border worked in green. A tan centre may be combined with old rose, sage green, bronze green, light yellow, cream color, and dark brown outlines. Indigo blue, forest green, and dull yellow are excellent colors when combined. A great variety of beautiful rugs may be made by using only blue and white, and unless one wishes to go extensively into dyeing, it might be well to choose a certain simple color scheme such as blue and white, red, black and ivory, and abide by it. Let it be remembered that white in rugs is not white, neither is it a delicate cream. Unless it is decidedly yellowish or even grayish in tone, when in combination with other colors, it becomes a staring white that is anything but artistic. I dye my cream colors, just as much as I do dark reds or greens.

I have been asked many times what is the best way to plan a color scheme for a rug. This is a point I cannot determine for another. Some may find help in making water color sketches of what they wish to do. In my own work I never use them, as it requires making

a reduced drawing of great accuracy, and much time to color it. Often I plan a combination mentally, and match it up from the dyed flannels I always have on hand. Other times I vary the scheme of some rug I have already made, experimenting with different combinations, using other rugs as if they were books of reference. I have discovered one rather curious thing, which is, that when all my experimenting is done I find some particular color scheme fits a certain rug as no other does. It seems to clothe or to fulfill the pattern as if it belonged personally to it. When I once discover this elective affinity of a pattern for its special coloring, I never make it again save in that one guise.

#### STENCILS

Having drawn a quarter of the design full size, it is necessary to cut a stencil, that it may be used more than once. Heavy brown paper serves very well, if after the stencil is cut two coats of varnish are applied to both sides. For my purpose I use large sheets of press board of medium weight, which, when shellacked, are durable enough to be used a score of times or more. In cutting out the design, after it has been traced upon the press board, narrow strips of the paper or press board must be left throughout the pattern to hold the design together. If the pattern is small it may be cut full width, and half the length, but if large only a quarter of it is necessary, and then by reversing it one can mark out the whole rug. In cutting a stencil it must be remembered that all fine details are lost in the working, and when single lines are used in the design they should be of such width as one or two strips of the

cloth, one quarter of an inch wide, would cover. Careful calculation must be made to determine which portions of the design are to be cut, and which left; otherwise when half done, one may find the pattern cut away from all supports, and nothing left to hold it together.

#### BURLAP

For a foundation I use heavy jute burlap of the best quality. It comes in pieces of two hundred yards. This seems a large amount, but in an industry it is wise to purchase materials in large quantities, as workers become accustomed to a certain texture and the more familiar they are with it the more freely they work. Though there is a wider weave, the common forty inch width serves every purpose. The quality should be firm and even, not too close, nor yet coarse and open in texture.

#### STAMPING

In stamping a design, lay the burlap out as smoothly as possible upon a table. Place the stencil so that the edge will follow a thread or straight line. Either tack it lightly in place or hold it firm in some way. For scrubbing the design on to the burlap I use a nailbrush with a handle running along the top. For a stamping fluid I use common liquid blueing. I do not attempt to indicate the colors to be used by marking out the pattern in different colors upon the burlap. The whole design is marked simply in blue, and afterward the color scheme is worked out in fragments, with the cut strips of cloth. A single unit of the pattern worked out in color will indicate as much as if a whole side of the rug was finished for copying.

If the stencil has been properly made, the spaces cut out represent the pattern which will appear in blue upon the burlap. A little practice will show just how this is to be done. At least three or four inches should be allowed outside of the edge of the design when stamped, otherwise it cannot be put into the frame. This outside burlap is turned under when the rug is finished, and sewed in a firm neat hem on the under side.

## METHODS OF WORK

### PREPARING THE FRAME

IN putting the frame together, make it two or three inches wider than the stamped pattern you wish to put in it. Double the burlap beyond the edge of the pattern in tacking it on the frame, so as to save any strain from the tacks coming on a single thickness. Do not let the double burlap extend under so far that it will be hooked into the design. Tack the burlap so that the whole end of the pattern shall fall a full inch within the frame, for it is difficult to hook close up to the frame. Keep the burlap taut and firm, without stretching it; also keep the edges straight and true; for if a rug has been tacked carelessly into a frame, when finished it will come out askew and cannot be straightened. Place the frame in a horizontal position, resting on two tables, or on a table and a window sill, sufficiently high to enable the worker to sit in an easy upright position. If due attention is given to the relative height of the chair and the frame, it will save the cramped position and the aching back of which some complain. I urge my workers to maintain a proper position, as they can work more hours at a time with almost no fatigue.



## METHOD OF HOOKING

In holding the hook, take the handle with the right hand well within the palm, with the forefinger extended, and resting on the upper edge of the hook, and the thumb underneath as a sort of a brace, and the other three fingers closed lightly around it. Take the end of a strip of cloth with the left hand, holding it between the thumb and first finger, using the little finger as a gauge, much as a crocheter does with her thread. Hold the end close to the burlap underneath the frame at the point where you start to work at the right hand lower corner. With the right hand, holding the hook a little inclined from the horizontal position, push it through the burlap, catch the end of the strip, and bring it up through the burlap three eighths of an inch. Push the hook through again about two threads distant from the first end brought up, and bring up a loop of equal length, and continue to bring up loops until the strip is used; then bring the end to the top. Thus both ends are brought up, a matter of prime importance, as none must be left on the under side to catch and pull out. Be sure to keep the goods close to the burlap on the under side as it is worked, and see that no stitch laps across another, as this makes a bunch. Do not wrap the strip about the hook to bring it up, but let the hook drop just below the strip, and thus draw it upwards with a slight movement. In bringing the loop up be sure to keep the hook in almost a horizontal position, and press on the hole backward, and toward you, with the underside of the hook, so as to keep it from catching in the meshes in front. This trifling point is imperative for rapid work, else the hook will catch con-

stantly and cause no end of trouble. Pull the loop up with one short quick movement of the whole arm, not of the hand. This movement is upward and slightly backward, and is a very different thing from using a wrist movement, which ends generally in a struggle to twist the loop up through the hole. At first, one will find that the last stitch will be pulled out by this one simple stroke, but by keeping the thumbnail or the point of the first finger of the left hand on the last stitch underneath, one can become so deft that no strain comes on that last stitch, but comes directly on the loose part of the strip as it slips through the left hand. A little experiment and observation will make all this clear.

The chief difference between the new hand-made rugs and the old process is the way the loops are pulled up. By my method they are pulled up a trifle unequal in length, varying just enough so that when sheared all the loops are not cut ; only the higher ones are clipped, and the shorter ones, left between, which are then no higher than the clipped ones, give firmness. The clipped ones fray a little, as all twilled goods will, and in this slight unraveling they give a soft velvety surface that is wholly unlike the old stiff hooked rugs, which consist of straight rows of loops drawn up a uniform height. If the loops, however, are more than the least trifle of difference in length, it involves an unnecessary waste of cloth in the clipping. What is cut off should be little more than fuzz.

Another difference is, that in the new method the strips are not drawn up in straight lines, except to outline a pattern, or in the row at the extreme edge of the rug. My plan is to take three or four stitches up, and

skipping over two or sometimes three threads, take as many down, up and down, thus making an undulating arrangement that covers the ground, without filling every hole. By a little care the loops can be brought up at slightly different angles from each other, so that they catch the light at different angles and diffuse it, which adds to the velvety surface. For a beginner it is always best to work from right to left; but gradually one gains complete mastery over materials and learns to work up and down, to left or right, with equal ease and rapidity. This comes only with time and practice. Do not try to fill a whole frameful from one side. Work from the side containing the end of the rug, to the middle of the frame; then turn the frame around and work from the middle to the opposite edge. As each frameful is filled and clipped, the burlap should be shifted along, keeping the edges true and the corners square, until the whole rug is finished. If the rug is very wide, it is well to work the centre first, then put the border in, running lengthwise of the frame, and work it from right to left until the whole border is finished too.

#### CLIPPING

Use very sharp long shears for clipping, holding them as horizontally as possible, so as not to gouge unequally into the rug. A well hooked rug may be utterly spoiled if badly clipped. By placing the outstretched forefinger of the left hand under the portion which one is clipping, it can be raised a trifle, and there is less danger of cutting irregularly. Cut with long, even clips, just enough to take off the merest trifle from the tops of the loops, and if they have been pulled up

properly, the surface will be very smooth and will look as if every loop was cut ; whereas there are really many that remain uncut. The cut and the uncut ones should make a uniform surface and not show any difference.

#### SHADING

Much skill can be shown by an artistic worker in the use of slight shades of difference in the same color. For example, in the plain centre of a rug, several tones representing shades of the same color will give the effect of a play of light on a silky surface, which is very beautiful. By using material that has been dyed a trifle darker at one end of the rug, and working in gradually lighter tones, the result is surprisingly effective. To do this, each three or four yards should be dyed with these slight differences of tone ; then when within thirty strips of the end of one color (more or less according to the width of the rug), work in a broken line of the next tone all across the rug. Then use a few rows (not worked in single rows, however) of the first color across the entire rug, then a wider broken line of the second color. Broken lines blend better than continuous lines do. The portions of the second line should fall above the broken spaces left in the first line (in the same way that masons lay bricks), then a little more of the first color, using less and less of it, and increasing the width of the second in masses, until the first color has become only broken lines upon the ground of the second color. All the way through any changes of color should be merged in this way. Be sure to work this method from side to side across the rug, as the frameful is filled.

## DEVELOPING A PATTERN

Where a definite design appears in a rug, first work in a careful outline with narrow even strips, following all curves and turning all corners with precision. Then fill in the pattern so as not to crowd the outline and destroy its shape. After the pattern is worked fill in the ground, working carefully into all corners and crevices, for that which is worked outside of the outline helps to maintain the pattern as much as that which is inclosed by it.

## CARE OF RUGS

These hand-made rugs may be swept daily; or they may be beaten if turned upon the wrong side. Do not take hold of the hem to shake them, as the strain at the point where the edge is hemmed may pull the stitches out, which cannot occur if one takes hold of a rug well within the hem. For a few weeks it is possible that an end here and there may work up above the pile. If so, cut it off; but a little wear soon remedies this matter, and as time goes on there is small chance of an end working loose. Simple as it is to keep a hooked rug in perfect condition, the public must be instructed about them, as is done with an Oriental rug. With ordinary care these rugs should last a lifetime.

## DYEING

This is the most difficult feature of the whole handicraft, the actual coloring, and yet for fine effects I should recommend only the use of hand-dyed ma-

terials. Goods dyed by professional dyers are perfectly uniform in color throughout, and rugs made of such material will have nothing of that difference of tone, that play of color, that is absolutely necessary for beauty. Nor can one get the material I have described save in white and dark blue, and unless an order is given to the mills for a whole dip, as it is called, in other words twelve pieces or bolts of cloth of one color, a mill will not dye goods to special order for a purchaser. The cost of having a small quantity dyed by professional dyers is prohibitive, even if taken in five hundred yard lengths. I advise any one who wishes to engage in such work to do his own dyeing, and by-following exactly the instructions I give, excellent results can be obtained. Dyeing is not a thing that admits of carelessness in details or any omissions. It requires the utmost accuracy and method, as the most trifling variation in proportions of colors yields a different result in tone.

#### PREPARING THE CLOTH

In the first place it is desirable to use only flannel that has not been sulphur bleached and hot pressed, as it takes the dye better. All cloth must be thoroughly damp before going into the dye bath. I have found the easiest way is to plunge the flannel into scalding water, dipping it up and down with the aid of two stout sticks, so as not to touch the hot flannel with the hands. When thoroughly soaked, so that no white dry spots are left, take the flannel out and drain thoroughly, and lay each length aside to cool, until the whole amount has been scalded. I usually cut the cloth in three yard

lengths for the following reasons. As almost every rug varies from the others in our manufacture, and most of them are made to order to match certain color effects desired by the purchaser, the materials for each rug are dyed separately. In such cases it is well to have just the amount of each color required to make the pattern; for small quantities of odd colors left over are rather difficult to use, and they accumulate to an astonishing extent, though they can be redipped and dyed some dark blue, brown or green for outlines if desired. I find for convenience three yard lengths make a good unit, which can be increased or divided as one needs. Another reason for choosing this length is that a pound of cloth represents a fractional portion of five yards, and in distributing cloth to workers and getting returns it is convenient to compute in yard lengths, and not in fractions of yards; also six yards at a time is an easy amount to handle in the dye bath and it is well in dyeing a large quantity to do as much as one can at a time without crowding the cloth. So for my own convenience I have adopted, not the usual pound of cloth, but three or six yards as an arbitrary unit of measure. If one wishes to vary this it can be done by estimating one yard as weighing  $3\frac{1}{4}$  oz. in making other computations.

#### DYE KETTLES

In dyeing use only brass, copper, granite or porcelain kettles, unless one goes into it on a large scale and uses regular machinery. Brass and copper vessels are to be preferred, while iron or tin showing iron are to be carefully avoided, as the mordants have a great affinity for iron and ruin the color. I use a large brass

kettle holding about five gallons, which takes six yards at a time without crowding, and, as I have explained, that is all an average person can handle conveniently when the cloth is wet.

#### MORDANTS

For mordants I use Glauber salts and sulphuric acid, and with the weight of cloth I use, it takes 3 oz. of Glauber salts and  $\frac{3}{4}$  of an oz. of sulphuric acid (full strength) to each six yards of flannel. I use a one ounce Phenix graduate (American standard) measuring glass, and as full strength sulphuric acid has about twice the specific gravity of water, one should measure by the scale engraved on the right hand side of the glass. The left hand scale is based upon the standard unit of weight, which is water.

In using sulphuric acid I dilute it in a little cold water in a cup by pouring the acid on to the water, as sulphuric acid in uniting with water causes a chemical reaction. Where a large quantity of acid is used this reaction is accompanied by a sudden burst of steam, if the water falls upon the acid. But in a small quantity as this, there is no possible danger of accident if the acid is poured on the water. Sulphuric acid should be closely stoppered and used with care, as it is corrosive, eating holes in cotton or linen fabrics. With ordinary precautions it can be used without the least difficulty.

Glauber salts are too well known in commerce to need description, and are used to neutralize the acid. The two in combination do not injure woolen fabrics, but merely set the dyes.

In preparing the dye bath allow three gallons of



water, and  $\frac{3}{4}$  oz. of sulphuric acid ; stir thoroughly and add 3 oz. Glauber salts to six yards of cloth. Then add the dyestuff in required proportions. Stir thoroughly as each ingredient is added, for the evenness of the dye depends upon the thorough distribution of the mordants and color in the dye bath. Generally it is advised to strain the dye before it is added, but as an even tone is not the desired result for this special handicraft, I never follow this suggestion.

#### TEMPERATURE

The proper temperature for introducing the color in the bath is not over 150° F., but if one has not a bath thermometer, the temperature must be very hot, yet far below boiling point. Temperature plays a great part in dyeing, for if the dye bath is too hot when the cloth is introduced, the dye, having a great avidity for wool, will be absorbed unequally by the cloth, the ends and outside folds of the cloth absorbing more color than is desired, and the inner folds will have less. I am not discussing the process of dyeing as it should be done on a large scale with vats and suitable reels, etc., but as it is likely to be done by an amateur, in a small way. When the bath is too hot, the cloth takes the dye unequally and is quite spotted. A little irregularity is necessary for a play of color, but it should be secured in a definite way and only to a certain degree, and not as the result of accident. If the cloth has come out spotty, it may be redipped, having added more dye and mordants to the bath, but it will come out a darker shade. If the bath is anywhere near the boiling point before the cloth is dipped, reduce it by adding a quart or two of cold water.

Having prepared the bath, gather the cloth in the right hand at half a dozen places along one selvedge, and drop it in, spreading it at once, using two stout sticks, lifting it up and down continually so as to expose all parts to the dye. The temperature should be increased to the boiling point and continued for three quarters of an hour. Then lift the cloth up, and drain it, then rinse in cold water, wring dry, but do not press with an iron, as the soft wooly texture is very desirable. When a quantity of the same color is desired, the same water can be used again by adding acid and Glauber salts, together with more dyestuff with each fresh dip of cloth. It must be stated, however, that the color will not be so clear with succeeding dips, but that does not matter, as a difference is desired. The process of dyeing is very delicate and the utmost precision must be observed in following proportions and directions regarding temperature, etc. Dyeing is more successful in clear weather than on rainy days, and soft water is required to get good results. If water contains much lime or earthy salts it is unfit for dyeing, and must be neutralized by acetic acid. In such cases it would be still better to use rain water.

#### DYES

There is a curious conviction prevailing in some quarters that beautiful durable colors are obtainable only from vegetable dyes. My first experiments were with barks, mosses, etc., but the difficulty of getting them, the enormous amount necessary to dye any quantity of goods, the tedious process in their use, and the fact that after all only a narrow range of colors is ob-

tainable from them, compelled me to abandon them altogether. I began to investigate chemical dyes, and to gain information I applied to one of the largest woolen mills in New England, one which maintains a high reputation for the class of goods it manufactures; also to two wholesale houses dealing in all kinds of dye-stuffs; and finally to one of the best experts in color in the country. Their verdict was unanimous, and is summed up in the opinion of the expert which he expressed in a letter to me on this question.

“In regard to the use of vegetable dyes, I would say that they have almost disappeared from commerce, certainly for the purpose of dyeing fabrics.

“We know, of course, that there are strong prejudices still existing in the layman’s mind in regard to the use of aniline colors, who supposes that they are not only fugitive, but that the resulting tones are harsh and unattractive. This, unfortunately, was so twenty-five years ago, and the impression made then upon the layman’s mind has not been changed during all these years; but I can assure you that all the beautiful silk goods, tapestries, cloths, and all the colors which we see in fabrics to-day are made, without exception, from aniline colors, which are immeasurably more permanent than are the vegetable dyes used up to, say, 1875.

“I have in my library all the principal books written on the subject of dyeing with vegetable colors, and to show the disuse into which they have fallen I mention the fact that not one book on this subject, that I know of, has been published since about 1875. There is no demand for knowledge of this kind since that date, and the methods and the products used have all become obsolete.”

My own experience of several years justifies this estimate of aniline colors, and with the small range of eight colors—a dull and a bright red, a dull and a bright yellow, a dark and a brighter blue, one green, and a drab, I have been able to reproduce all the lovely faded tones seen in Oriental rugs of the best class, as well as to match any bit of wall paper, carpet, tapestry, or threads of yarn from a rug, that have been sent me by purchasers who wished to have certain predominating colors in their rooms matched in the rugs they ordered. Though the dyes come in large cans, weighing several pounds, they are in such a concentrated form that half an ounce of dull red will dye six yards of flannel a deep, rich terra-cotta, while a quarter of an ounce will dye from eighteen to thirty yards of the lighter tones of old pinks, blues, yellows, and tans.

In making each experiment I have kept a formula of the quantity of dyestuffs used pure or in combination with other colors, and attached to the formula is a sample of cloth dyed by it. Thus I have an exact record of various proportions required for different colors and the various tones of each color. By following these proportions I can secure the same results month after month. These formulas are the final results of many experiments and many failures, but by maintaining the same quality of goods I can now dye with assurance of getting the color I wish.

#### DIRECTIONS FOR DYEING

In using my range of eight colors I provide myself with large, strong glass bottles in which I keep my diluted colors. I use a pint measure for diluting the dyes. In

preparing the fluid I put one half or one quarter of an ounce of dry color, whichever amount the formula calls for, into the pint measure and mix it thoroughly with a little cold water. The reason for using cold water is that the dyes are a tar product, and if mixed with hot water first, they are apt to grow waxy under the heat and not dissolve readily. Having dissolved them I fill up the measure with hot water, stirring all the time. This makes a pint of liquid which is of uniform strength under all circumstances, and every formula is based upon this invariable pint measure of water. These formulas I have tried over and over again. They are made with special reference to the grade of flannel I have adopted, and doubtless will vary in results if used on other weights or weaves of wool goods.

The dyes called for in the following formulas have not been offered before to the retail market, nor are they to be confounded with certain crude brands that have been sold in small packages containing only one eighth or one sixth of an ounce. These cannot be substituted for my colors, and any attempt to do so would be disastrous in results.

In conclusion I desire to state that having been almost discouraged before finding suitable materials to make my first experiments in hand-made rugs, and believing that others will be met, and perhaps deterred by the same obstacles, should they undertake a like work for their own personal use or as an industrial experiment, I have decided to place my experience at the disposal of others and furnish at a moderate cost both flannel and dyes such as I use in the Abnákee Industry.

## DYE FORMULAS

### NO. 1. DARK TERRA COTTA

Dissolve  $\frac{1}{2}$  oz. of dull red in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of green in 1 pint of water.

Take full pint measure of dull red dye and 4 table-  
spoonfuls of green dye to 6 yds. cloth.

Mordants:  $\frac{3}{4}$  oz. sulphuric acid and 3 oz. Glauber  
salts. Boil  $\frac{3}{4}$  of an hour.

### NO. 2. FULL TERRA COTTA

Dissolve  $\frac{1}{2}$  oz. of dull red in 1 pint of water.

Use full pint measure of dull red dye to 6 yds. of  
cloth.

Mordants:  $\frac{3}{4}$  oz. sulphuric acid and 3 oz. Glauber  
salts.

### NO. 3. LIGHTER TERRA COTTA

Dissolve  $\frac{1}{2}$  oz. of dull red in 1 pint of water.

Use 22 tablespoonfuls of dull red dye to 6 yds.  
cloth.

Mordants:  $\frac{3}{4}$  oz. sulphuric acid and 3 oz. Glauber  
salts.

### NO. 4. RICH OLD RED

Dissolve  $\frac{1}{2}$  oz. of dull red in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of green in 1 pint of water.

Use 24 tablespoonfuls of dull red dye and 3 tablespoonfuls of green dye to 6 yds. of cloth.

Mordants : Same as No. 1.

#### NO. 5. DULL OLD ROSE

Dissolve  $\frac{1}{4}$  oz. of dull red in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of bright blue in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of dull yellow in 1 pint of water.

Use 16 tablespoonfuls of dull red dye, and 1 tablespoonful of bright blue dye, and 3 tablespoonfuls of dull yellow dye to 6 yds. of cloth.

Mordants : Same as No. 1.

#### NO. 6. OLD PINK

Dissolve  $\frac{1}{4}$  oz. of dull red in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of dull yellow in 1 pint of water.

Dissolve 1 oz. of dark blue in 1 pint of water.

Use 6 tablespoonfuls of dull red dye, and 3 tablespoonfuls of dull yellow dye, and  $1\frac{1}{2}$  teaspoonfuls of dark blue dye to 6 yards of cloth.

Mordants : Same as in No. 1.

#### NO. 7. FULL YELLOW

Dissolve  $\frac{1}{4}$  oz. of bright yellow in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of dull yellow in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of green in 1 pint of water.

Use 6 tablespoonfuls of bright yellow dye, and 5 tablespoonfuls of dull yellow dye, and 2 tablespoonfuls of green dye to 6 yds. of cloth.

Mordants : Same as in No. 1.

## NO. 8. RICH DULL YELLOW

Dissolve  $\frac{1}{4}$  oz. of bright yellow in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of dull red in 1 pint of water.

Use 12 tablespoonfuls of yellow dye, and 6 tablespoonfuls of dull red dye to 6 yds. of cloth.

Mordants: Same as No. 1.

## NO. 9. DARK TAN YELLOW

Dissolve  $\frac{1}{4}$  oz. of dull yellow in 1 pint of water.

Use 14 tablespoonfuls of dull yellow dye to 6 yds. of cloth.

Mordants: Same as in No 1.

## NO. 10. LIGHT OLIVE TAN

Dissolve  $\frac{1}{4}$  oz. of bright yellow in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of dull yellow in 1 pint of water.

Dissolve 1 oz. of dark blue in one pint of water.

Use 6 tablespoonfuls of bright yellow dye, 4 tablespoonfuls of dull yellow dye,  $1\frac{1}{2}$  tablespoonfuls of dark blue dye to 6 yds. of cloth.

Mordants: Same as No. 1.

## NO. 11. OLD IVORY

Dissolve  $\frac{1}{4}$  oz. of bright yellow in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of drab in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of green in 1 pint of water.

Use  $\frac{1}{2}$  teaspoonful of yellow dye, and  $\frac{1}{2}$  teaspoonful of drab dye, and 1 teaspoonful of green dye to 6 yds. of cloth.

Mordants: Same as in No. 1.



## NO. 12. RICH NAVY BLUE

Dissolve 1 oz. of dark blue in 1 pint of water.

Use full pint measure of dark blue dye to 6 yds. of goods.

Mordants: 1 oz. sulphuric acid, 3 oz. Glauber salts.  
Boil 1 hour.

## NO. 13. DARK PERSIAN BLUE

Dissolve 1 oz. of dark blue in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of green in 1 pint of water.

Use 10 tablespoonfuls of dark blue dye, 6 tablespoonfuls of green dye to 6 yds. of cloth.

Mordants: Same as in No. 12.

## NO. 14. GOBELIN BLUE

Dissolve 1 oz. of dark blue in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of green in 1 pint of water.

Use 6 tablespoonfuls of dark blue dye, 4 tablespoonfuls of green dye to 6 yds. of cloth.

Mordants: Same as in No. 12.

## NO. 15. LIGHT GRAY BLUE

Dissolve 1 oz. of dark blue in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of green in 1 pint of water.

Use 2 tablespoonfuls of dark blue dye, 4 tablespoonfuls of green dye to 6 yds. of cloth.

Mordants: Same as in No. 12.

## NO. 16. LIGHT SAGE GREEN

Dissolve  $\frac{1}{4}$  oz. of green in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of bright yellow in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of dull red in 1 pint of water.

Use 10 tablespoonfuls of green dye, 2 tablespoonfuls of bright yellow dye, and  $1\frac{1}{2}$  tablespoonfuls of dull red dye to 6 yds. of cloth.

Mordants: Same as in No. 1.

## NO. 17. LIGHT OLIVE

Dissolve  $\frac{1}{4}$  oz. of green in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of bright yellow in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of dull red in 1 pint of water.

Use 16 tablespoonfuls of green dye, 4 tablespoonfuls of bright yellow dye, and 3 tablespoonfuls of dull red to 6 yds. of cloth.

Mordants: Same as in No. 1.

## NO. 18. DARK MOSS GREEN

Dissolve 2 level teaspoonfuls of green in 1 pint measure of water.

Dissolve  $\frac{1}{4}$  oz. of bright yellow in 1 pint of water.

Use full pint measure of green dye, and 15 tablespoonfuls of bright yellow dye to 6 yds. of cloth.

Mordants: 3 oz. of Glauber salts and 1 oz. of sulphuric acid. Boil  $\frac{3}{4}$  of an hour.

## NO. 19. GOLDEN BROWN

Dissolve  $\frac{1}{4}$  oz. of dull yellow in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of dull red in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of green in 1 pint of water.

Use 20 tablespoonfuls of dull yellow dye, 5 tablespoonfuls of dull red dye, 15 tablespoonfuls of green dye to 6 yds. of cloth.

Mordants: Same as in No. 18.

## NO. 20. DARK BRONZE

Dissolve  $\frac{1}{4}$  oz. of green in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of dull red in 1 pint of water.

Dissolve 1 oz. of dark blue in 1 pint of water.

Dissolve  $\frac{1}{4}$  oz. of bright yellow in 1 pint of water.

Use 8 tablespoonfuls of green dye, 12 tablespoonfuls of dull red dye, 4 tablespoonfuls of dark blue dye to 6 yds. of cloth.

Mordants: Same as No. 18.

Redip in 4 tablespoonfuls of green dye and 5 tablespoonfuls of bright yellow dye.

Mordants: Repeat the one above.

These formulas can be taken as the basis of many other tones and shades which can be secured by a slight alteration of proportions. By adding a trifle more dull red, green, indigo or drab liquid dyes, a color can be darkened. By using less of these than the formulas call for, the colors will be lighter. By using more of dull or bright yellow a color can often be made richer without darkening it. Beginners are cautioned against making changes until they become

familiar with the dyes. In making new experiments, try them on yard lengths, carefully subdividing any given formula for both dyes and mordants, and increasing the proportion of any particular color desired. If the cloth should fail to take up the dye properly after boiling the full time, increase the quantity of acid, lifting the cloth out when adding the acid to the dye bath.













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