OCCUPATION THERAPY

A MANUAL FOR NURSES

BY

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"Occupation is the very life of life."—Harold Bell Wright

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The nurse should, however, realize that much more of interest may be learned from other sources. She is urged to provide herself with an armentarium which should consist at least of the following:

Playing cards,
Dominoes or card dominoes,
Cribbage board,
Scrap book with puzzles and catches,
One or more picture puzzles,

and may well include also

A bed table (see p. 124 for directions in making).
Studies in Invalid Occupation by Susan E. Tracy. Boston, 1910, Whitcomb & Barrows.

She is also urged to cultivate a particular craft in order that she may herself have a hobby and also that she may have special ability in instructing her patient.

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CONTENTS

Occupation Therapy

HISTORICAL.

While considerable has been written upon the history of occupation as a therapeutic measure in the care of mental cases, it is impossible to give credit to any physician as having been the first to apply it, or to name the form of occupation so used. Probably its beginning was so gradual, and yet so general, that it is impossible to give any one person credit as discoverer, or dignify any form of occupation as having been first used to restore a mind diseased. Possibly the credit belongs to a number of patients, each one of whom found a tranquillizing influence in work casually undertaken and so continued it in the form originally begun, or in other ways. The physician, if he was intelligent, noted the cause of the improvement which ensued and applied the remedy to other cases. Probably most psychiatrists past middle age have had such experience. Occasionally we have had the big men of psychiatry writing of their experiences and of the value of occupation or work as a therapeutic measure. Notable instances

are Isaac Ray[1] and Lauder Lindsay,[2] but too often such opinions have been buried or dismissed with few words in annual reports where they are inaccessible after a few years.

This is proved by the fact that one of the papers by Dr. Ray originally appeared in his report to the Corporation of Butler Hospital for 1865, and was reprinted in the *Journal of Insanity*. That other men in other hospitals were alive to the importance of occupation is shown by the following note for which I am indebted to Miss Edith Kathleen Jones, Librarian at McLean Hospital: The importance of various forms of diversion, and especially of manual occupation, has been recognized from its (McLean Hospital) very beginning.

In his report for 1822 Dr. Wyman writes, "the amusements provided in the establishment for lunatics, as draughts, chess, backgammon, nine-pins, swinging, sawing wood, gardening, reading, writing, music, etc., divert the attention from unpleasant subjects of thought and afford exercise both of body and mind (and) have a powerful effect in tranquillizing the mind, breaking up wrong associations of ideas and inducing correct habits of thinking as well as acting."

Another Superintendent, Dr. Bell, in 1839, says that

[1] Ray, I. Labor in Principal Hospitals for Insane in Great Britain, France and Germany. Am. Jour. Ins., 1846, II, p. 359. Ray, I. The Labor Question and Hospitals for Incurables. American Journal of Insanity, 1866, XXII, p. 439.

[2] Lindsay, W. Lauder. Reprint from the Report of James Murray's Royal Asylum, Perth, Scotland, for 1860-1. Md. Psychiatric Quarterly, III, No. 1, July, 1913, p. 10.

"the experiment of mechanical labour was here first introduced, and the safety, expediency and immense utility of putting tools into the hands of the patients entirely and satisfactorily decided." And again, speaking of occupation as a means of cure, "there is probably no other institution in the world where the value of this has been more fully tested than here." Although later, owing to the class of patients received at McLean, mechanical and agricultural labor was abandoned for "some form of busy idleness," yet each superintendent has done his share in developing this method of treatment. For the men, since 1834 there has been a carpenter's shop in which woodcarving and cabinet making have been taught; while the women have had lessons in drawing and painting and have done various forms of fancy-work.

In 1836, according to the report for that year, 50 patients worked in the carpenter's shop 6 hours a day and made 7236 candle boxes which were sold for $907.06. Later the boxes were not sold, though they continued to be made. In 1836, "100 cords of wood were carted by patients from wharf to house, and 200 cords were sawed, split and piled."

In 1910 two rooms in the women's gymnasium were prepared for industrial occupation of a somewhat different type; a teacher of handicrafts was engaged, and instruction is now given daily in baskety, leather-work, lace-making and weaving.

There are now twelve hand looms. In 1913-14 an addition was built on to the women's gymnasium, pro-

viding space for these looms. It is well lighted by windows and skylight. Under it is the room used for pottery making, and a kiln has been set up in a disused kitchen. An appropriation has just been made for a similiar enlargement of the men's gymnasium, in order to provide additional occupations for them. The women are now taught weaving, basketry (reed and raffia), leather-work (tooling, coloring, making), pottery, modelling, casting, knitting, "rake" knitting, crocheting, embroidery, lace-making (pillow and crochet), sewing, bead work, tatting, stencilling, sawing picture puzzles, painting (portrait, still life, coloring pictures, coloring cards for holidays).

In the very interesting Descriptive Account of the Friends' Asylum for the Insane, 1813-1913, Dr. Robert H. Chase says, "No feature in the treatment of the insane is more highly valued than occupation, systematically applied and judiciously carried out. Work is a law of our nature which demands expression in the insane no less than in the sane. To understand this one has only to reflect upon the depressing effect of inaction, then turn to the satisfaction and strength that result from the agreeable use of one's mental and physical powers. It may be seen that from the beginning Friends' Asylum made intelligent and continuous effort to give the patients the benefit that comes from employment and rational diversion." In the Chronology which is in the same volume are found many events bearing upon the occupation and diversion of patients, all showing that the hospital authorities were imbued with the

idea that occupation was a valuable form of treatment.

Fortunately the value of work, occupation, diversional occupation, or whatever name may be applied to it, in helping the sick mind to recovery has been better recognized in recent years, and with this recognition has come a desire for a better understanding of how occupation aids and the best ways in which it may be used. This is easily proved by a reference to the bibliography on page 229.

With increased use of occupation it soon became apparent that there must be persons specially trained to carry out this treatment if it is to be successful. Credit for first giving systematic training in occupation must be given to Miss Susan E. Tracy who gave the first course in Invalid Occupation at the Adams Nervine near Boston in 1906. Soon after, or in 1910, she published her book entitled Studies in Invalid Occupation, which has given a great impetus to occupational therapy. Miss Tracy's book was, however, largely written for the teacher of occupation courses, and that part which applied especially to the mentally sick was written by Dr. E. Stanley Abbott of the McLean Hospital. The introduction, however, by Dr. Daniel H. Fuller, then Superintendent of the Adams Nervine, is an admirable exposition of how nervous and mental cases may be benefited by occupation.

In 1908 a training course in occupation for hospital attendants was organized at the Chicago School of Civics and Philanthropy. Miss Julia Lathrop and Rabbi Hirsch had been members of the State Board of

Control and had been shocked by the idleness on the wards of the state hospitals. Feeling that public interest should be aroused in state institutions and that such idleness should not exist, Miss Lathrop and Rabbi Hirsch resigned from the Board of Control and organized the course. It was a most excellent one and included inexpensive raffia work with instruction in old-fashioned yeast dyeing by Prof. Wartz; book-binding and pasting work; illuminating; stencilling, knotting and weaving; gymnastics and playground work, etc.

The work of Miss Tracy so impressed Miss Sarah E. Parsons, Superintendent of Nurses at the Massachusetts General Hospital, that in the Spring of 1911 a course in occupation was given at the Training School of that hospital under Miss Tracy's direction.

Probably the first nurses' occupation course in a hospital for mental diseases was that given at the Sheppard and Enoch Pratt Hospital in the Fall of 1911. A personal note may perhaps be pardoned here. This hospital was first opened for patients in December, 1891, and in August, 1895, I had the honor to be appointed an Assistant Physician, and have been connected with the hospital to the present. Dr. Edward N. Brush, the Superintendent, had always recognized the value of occupation as a remedial measure and had done all that he could to further it by giving patients facilities in the way of room, materials and necessary tools. In 1895 one man had quite a well-fitted shop for metal working, and had made a number of electric motors and fans besides numerous other articles. Others had done wood-

work. Another man had assisted in the poultry yard. These are but a few of numerous individuals that I recall. A printing office was opened soon after my arrival, which has since become a fixture and is under the entire charge of a patient. Besides doing work for the hospital, a number of charities have been its beneficiaries. In 1903, when raffia work was first introduced, a nurse was sent to learn its use, and in turn taught many patients. Dr. Brush had for some time been searching for a person who was fitted to teach our patients some arts and crafts, and in 1905 found a properly qualified instructor in Miss Grace E. Fields. Under her instruction beautiful specimens of copper, leather and weaving were made by patients, and gradually more homely occupations were added. Some of her especially interesting experiences have been recorded by Miss Fields in the *American Journal of Insanity*.[1] Regular classes in such occupations as bookbinding, stencilling, block printing, metal work, wood work, illuminating, needle-work, reed and raffia work, weaving, etc., have been and are being given. There are at present eleven teachers, of whom two give their full time and the remainder part time to this work. Occupation is regarded as one of the most valued therapeutic measures. A library, with a librarian in regular attendance, and regular lectures, concerts, etc., as well as athletics of various sorts, afford different varieties of

[1] Fields, Grace E. The Effect of Occupation Upon the Individual. American Journal of Insanity, LXVIII, July, 1911, p. 103.

occupations. This personal account is given in order that the reader may appreciate the value which is placed upon occupation by those charged with the cure of mental diseases.

About the same time and during the same month (October, 1911), Miss Reba G. Cameron, Superintendent of Nurses at Taunton State Hospital, began a course in occupational training for her nurses. Miss Cameron has no record of the exact date of her first class, and as that at the Sheppard and Enoch Pratt Hospital was given October 10, 1911, she has very graciously waived any claim to priority. Miss Cameron has an admirable method of instruction. Believing, as do many of us, that occupation is the most valuable therapeutic agent in the care of the insane, she personally gives this course to the junior nurses, in order that they may early in their training realize its importance, and that the patients may also benefit by having trained attention. Six nurses are given instruction in the morning and in the afternoon each nurse instructs a group of patients in the same form of work. This method is said to work admirably.

In 1914, from February to June, a course in Invalid Occupation was given at Teachers' College, Columbia University, by Miss Evelyn Collins, a kindergartner who had had considerable post-graduate training in manual and industrial arts, and who had also had some experience in teaching nervous and mental patients in a sanitarium. This was an elective course and occupied a three hour period during each week. It con-

sisted of lectures, practical work and demonstrations of the forms of handicraft which have been found to be most popular. This course is given each year.

At the Johns Hopkins Hospital, as a part of her training, the nurse is on duty for three months at the Henry Phipps Psychiatric Clinic, during three weeks of which she is given special instruction in occupation by Mrs. Eleanor Clark Slagle,[1] who has had extensive experience in this work, having been connected with the Chicago School of Civics and Philanthropy, and having organized the occupation work in a number of hospitals. The nurse practically has individual attention for four and a half hours daily, a total of eighty-one hours. She is not taught a number of occupations, but thoroughly learns the principles underlying the work. Reed and raffia, simple carpentry, weaving and needle-work are about all of the crafts which it is possible to take up in the limited time. The training which she receives is broad in that she is taught that occupation consists of more than craft training, that all forms of diversion and amusement may be used to aid in the recovery of the patient.

At the present time (November, 1914) these are all of the training courses in which occupations are included that are known to me. A number of hospitals and sanitaria, however, train their nurses in a less for-

[1] Since the above was written Mrs. Slagle has taken charge of the Occupational Centre of the Illinois Mental Hygiene Society, and her place at the Clinic is filled by Mrs. Henrietta G. Price.

mal and, unfortunately, less thorough way, the nurse acquiring what she may through observation. It is practically impossible for her to gain a knowledge of basic principles under these circumstances, and a lecture or two early in her training would be of a great help to both her and to the patients under her charge. It is generally conceded that occupation is the most valuable single therapeutic agent that we have in the care of the mental and nervous sick, and it seems but reasonable that the nurse, who can aid so much in its application, should be taught its principles early in her course.

On the other hand, there are quite a number of able psychiatrists who do not place so high a value upon occupation. In most cases this seems to be due to the fact that not personally having a liking for manual work of any sort they cannot appreciate how much it may mean to others. The criticisms of some of these men have been most helpful to those of us who value occupation, as it makes us more critical of our own work.

With but a moment's reflection it can readily be understood that an occupation which will appeal to one individual will not to another. We probably all know a professional man who has as a hobby gardening, or perhaps photography or carpentry. A dentist of my acquaintance makes clocks. An oculist spends his spare hours during the winter in making a fishing rod, which he tries out during his summer vacation.

Those who have read the Vailima letters of Robert Louis Stevenson may recall that in one of them he speaks of having exhausted himself physically by doing some garden work which he might have had some one else do for six pence while he was earning almost as many pounds by his writing. This has always seemed to me to be an excellent illustration of how strong the craving for a manual occupation may be in a mental

worker. Here was Stevenson in the last stage of consumption, a man pre-eminently doing intellectual work, deriving great pleasure and satisfaction from going out and weeding his garden for a couple of hours. Personally, I know that after my day's work at the hospital an hour or two in the garden with cultivator or hoe will often relieve me of a headache when resting upon the porch will not. The physiological explanation is quite simple. We all know that blood flows in an increased quantity to the organ that is actively functioning, its need of nourishment and the excretion of waste products being greater; therefore, it is but natural that after a prolonged period of mental activity the brain cells should experience a certain amount of fatigue of which we are conscious, and by muscular activity we not only give our brains a rest from mental work by ceasing to do it, but we relieve the cells of actual physical work by diverting the increased blood current to other organs. It would be easy to find instances of this desire for a change in the form of work, and "The Hobbies of Great Men" would make a very entertaining study. It would certainly be interesting to compare the different methods they had of coming off their pedestals. We are apt to invest our heroes with halos and consider them as belonging to a race different from ourselves, so that it is comforting to find that they are human after all. Richard Watson Gilder has recorded how Grover Cleveland spent a number of hours changing a broken multiplying reel to a simple one. He says, "The very difficult, not to say unnecessary char-

acter of the labor (he must be the possessor of twenty reels in all!) appeared to give him pleasure, and nothing more than the production of something simple—that quality so characteristic of his mental habit."

But another individual may prefer music, or to study the Latin poets, as does one celebrated neurologist. In other words, an intellectual occupation is desired rather than a manual one. Sometimes we can hardly dignify the hobby by the term intellectual, as the late Chief Justice Fuller relaxed by reading dime novels, and an eminent internist during his vacation reads the light novels which have been published during the previous winter.

Those having it, whatever the hobby may be, are fortunate in having something which serves them as a safety valve and prevents their brooding and worrying over the petty annoyances of the day's work.

We must, therefore, study carefully to learn what form of occupation is most suitable for our patient, and if no specific directions have been given by the physician it is the duty of the nurse to do this.

It must be remembered that usually the emotions are profoundly disturbed, the patient being depressed, elated or apathetic. Ribot has shown[1] that the power of attention, both spontaneous and voluntary, is dependent upon the emotion, and we can frequently best help our patient by training the attention. This can most easily be done by arousing his interest in something, which may be accomplished in various ways. Frequently it may be accomplished by asking that something be done as a personal favor (e. g., sorting out cancelled stamps, folding papers, arranging clippings, etc.) or that something be made as a gift for one of whom the patient is fond, or by doing something unusual in his presence and persuading him to do it. The tact and ingenuity of the nurse is often most severely tested in getting a patient started on occupation. As a rule the effort should be directed to arouse the patient in something with which he is unfamiliar.

Having succeeded in arousing our patient's attention, we must be careful not to do harm by allowing him to become fatigued. We must remember that his power of fixing his attention is weak, and we must not continue it too long. This principle has been

[1] The Psychology of Attention. Translation, 1896. The Open Court Publishing Co., Chicago.

recognized by educators for years and is the reason for the short lesson periods with frequent short recesses, and for the short working periods in certain vocations, such as telephone girls and the girls who inspect the little steel balls which are used to form ball bearings. This fatigue may be avoided by a *change* of the form of occupation.

The primary purpose of occupation may be said to be to divert the patient's attention from unpleasant subjects, as in the case of one depressed. Or in a case of dementia praecox where the subject is given to day-dreaming or so-called mental rumination, occupation is given to keep the patient's train of thought in more healthy channels. In a case of mild excitement occupation will keep the patient's mind more continuously on one subject than is possible if he has not this stimulus to control his attention. In cases of marked excitement it is usually impossible to use occupation in treatment which is usually directed toward securing rest. When convalescence is begun occupation will be of value.

In cases of dementia of various sorts the purpose may be to re-educate, to train the patient to develop the mental processes by educating the hands, eyes, muscles, etc., just as is done in the developing child.

Another purpose of occupation may be to give the patient a hobby which may serve as a safety valve and render the recurrence of an attack less likely.

Still another purpose which is less often resorted to is that of giving the patient a means of livelihood after

leaving the hospital, it being deemed wise to give up the former vocation. A school-teacher, whose visual defect had forced her to give up her position, was so unfortunate as to suffer an attack of depression. During this she was taught basketry and was especially directed to work by touch rather than by sight, in order to eliminate eye strain. She developed sufficient skill so that her work had a market value.

It is the opinion of some that the patient should be instructed in a craft until he has sufficient skill to take pride in his proficiency. While this is proper, I fear lest some of its advocates lose sight of the fact that specialism is apt to cause a narrowing of one's mental outlook, and also that the individual with a knowledge of many things has more interest in the world in general. I believe it is, therefore, well for the patient to have other occupations besides a craft, bearing in mind that occupation is not restricted to crafts alone. Games, exercises, music, reading, etc., are quite as important. Rest is secured and fatigue is avoided by change. The patient should have a major interest and several minor ones to direct his thought in different channels. It is well to adopt a regular schedule if the physician does not arrange one.

THE MECHANISM OF RECOVERY BY OCCUPATION.

The *mechanism* by means of which a recovery is brought about has been the subject of considerable inquiry. It may be summed up by the word *substitution,* or if one prefers, *replacement.* It is well known that but one idea can occupy the focus of the attention at a given time. Our depressed patient who is brooding over the fancied sin he believes he has committed pays little attention to what is going on about him. Repeated efforts to get him interested in something may fail, but success comes after a time, and we find him watching a baseball game with interest. His attention is so taken up with the desire for the home team to make the winning run that for a little time the depressive idea is driven from the focus of attention, and is replaced by the idea of baseball. Other interests may be given to him and accepted until at last he regains better control of his attention and can voluntarily drive out the depressive thoughts. Possibly the accompanying diagram which was originated by Dr. Farrar,[1] and used in another connection, may help to make this more clear.

It is believed that this diagram is of such value in

[1] Dr. Clarence B. Farrar. The Making of Psychiatric Records. American Journal of Insanity, Vol. LXII, p. 479, January, 1906.

understanding mental processes that the entire legend which accompanied it in Dr. Farrar's paper is given here, although it is somewhat long and is not necessary in the present instance. We are especially interested in the circle A which represents the focus of the attention or the conscious idea. In cases of depression this circle becomes small, owing to the inability to voluntarily fix the attention. In cases of excitement the circle becomes enlarged and ideas slip through it with great rapidity. In cases of dementia the circle is ragged and ideas are not clearly formed. A little study, thought and observation will prove these statements. Hence it is easily understood how occupation helps the patient by training the attention.

SCHEMA TO ILLUSTRATE THE PSYCHOLOGIC ANALYSIS.

Centripetal or sensory paths are represented in blue;
Centrifugal or motor paths in red;
Central or intrapsychic paths in black,
The cerebral hemispheres are represented by the polygon S' 5C M'.

S=any peripheral sense organ; *e. g.*, the retina.
SS'=the corresponding sensory tract; *e. g.*, the path between the retina and cuneus.
S'=the seat of *primary sensation* corresponding to the sense organ S; *e. g.*, the cortex of the calcarine fissure.
M'=any cortical centre for motor discharge; *e. g.*, one of the several centres of the precentral gyrus, or BROCA'S convolution.
M'M=the corresponding motor (pyramidal) tract.
M=the corresponding peripheral motor organ; *e. g.*, the muscles of articulate speech.

SS'M'M=the sensori-motor reflex arc. This is the pure reflex arc which represents the cord reflexes, likewise the reflexes of animals which do not manifest the phenomena of consciousness, and may finally stand for the first unconscious reflex of the infant.

A=the focus of conscious attention; likewise the seat of identification and interpretation of the primary sense perceptions received at S'. A. may therefore be called the seat of *secondary sensation*, or apperception. A. is also the centre through which takes place the reactive process known as a conscious voluntary psychomotor discharge, or act of the will so called.

S'A=the psychosensory tract.

Lesions in SS' or S'A produce respectively peripheral or central

an-
hyp-
par-
hyper- } æesthesia.

AM'=the psychomotor tract,

Lesions in AM' or M'M produce respectively central or peripheral

a-
hypo-
para-
hyper- } kinesis.

SAM=the psychic reflex arc, the arc of normal conscious psychosensori-motor activity as displayed in man and in those animals endowed with associative memory.

The broken line is drawn in to separate the higher and lower nervous phenomena,—the fields respectively of psychism and reflex automatism. Animals possessing only the primary nervous mechanism indicated below the line may be called *protopsychics*, those possessing the upper segment as well, *metapsychics*. Neural processes involving only the lower arc may be spoken of as pure *reflexes*, those involving the upper arc, as *reactions*.

C=the seats of memory pictures; association centers. Images received at S′, interpreted and classified at A. may be said to enter into relations with similar images already present in their respective memory centres. C. may therefore be taken to represent the seats of *tertiary sensation.*

A′=Border consciousness, the inner circle representing the threshold. The relations to each other of the two circles A. and A′, may be illustrated by comparing the inner circle to the pupil of the eye which dilates and contracts, and the area of the outer circle to the iris. Thus images hovering beyond the threshold may be said to become matter of conscious appreciation by the enlargement of the circle A. to include them.

CC, CA, CA′ ACA′, etc.=Thought processes. Acts of associative memory. Lesions in these tracts produce

a-
hypo-
para-
hyper- } psychosis.

In normal resting attention, if such a condition may be assumed, the *status mentis* may be said to be represented by the schema as it stands, the focus of consciousness A, being in direct connection with the receiving center S′ and the discharging centre M′. The centres of latent memory pictures C^{1-5}, on the other hand, while in direct communication with the border of consciousness A′, as indicated in the diagram, are nevertheless not, in the assumed resting condition, directly connected with the centre of conscious attention A. Given this condition, a normal sensori-psychomotor phenomenon might be described taking place as follows: A primary sense impression is received at S′ and transmitted to A. At this point memory pictures between which and the impression occupying A. psychic tropisms may be said to exist, are awakened perhaps at C^2 and C^4. The connections C^2A and C^4A are at once established and we have the complete concept represented by the triangle AC^2C^4A. The entire reactive phenomenon would therefore be indicated thus,—

SS'A (AC^2C^4A)M'M. Such a phenomenon may be called a *conscious process.*

The concept (AC^2C^4A) has now become a unit and may be represented henceforth perhaps by C^3.

If now on the next occasion when a sense impression having a psychic affinity for C^3 reaches S', a state of preoccupation be assumed, the psycho-sensory impulse may be stopped at A' and be at once shunted off without traversing A. at all. The reaction may take place in a similar way and we have the phenomenon SS'A'C^3A'M'M. This would constitute a *subconscious process.*

Assuming in the next place a still greater abstraction of consciousness, we may conceive of psychic events which not only do not pass through the focus of consciousness but which do not even impinge upon the border consciousness, and are therefore perhaps not re-suggestible. Such a phenomenon would be represented by SS'C^3M'M, and might be spoken of as a *paraconscious process.* All the elements of consciousness must be assumed to be variants, and the area of the circle A' may vary within wide limits. The processes described as subconscious and paraconscious may differ from each other, therefore, only in degree.

Finally we have the *unconscious processes* of the vegetative and automatic functions, represented by the lower arc SS'M'M.

It will at once be seen how both the variations in normal mentality and the various pathologic states can be graphically represented by slight alterations in the several centres or connecting lines of the schema. For example, in a normal psychic state the border consciousness A' may be compared with a filter through which pass to A. only those memory impressions which have a necessary affinity with the image at the time occupying the focus of consciousness, all other memory images being repressed in the subconscious sphere. In the state of the so-called *maniacal flight*, on the other hand, the filter-function of A' may be said to be defective or absent and a great variety of centres stands at once in connection with A. This condition would be represented by extending all the lines C^1A', C^2A', C^3A', etc., until they touch the

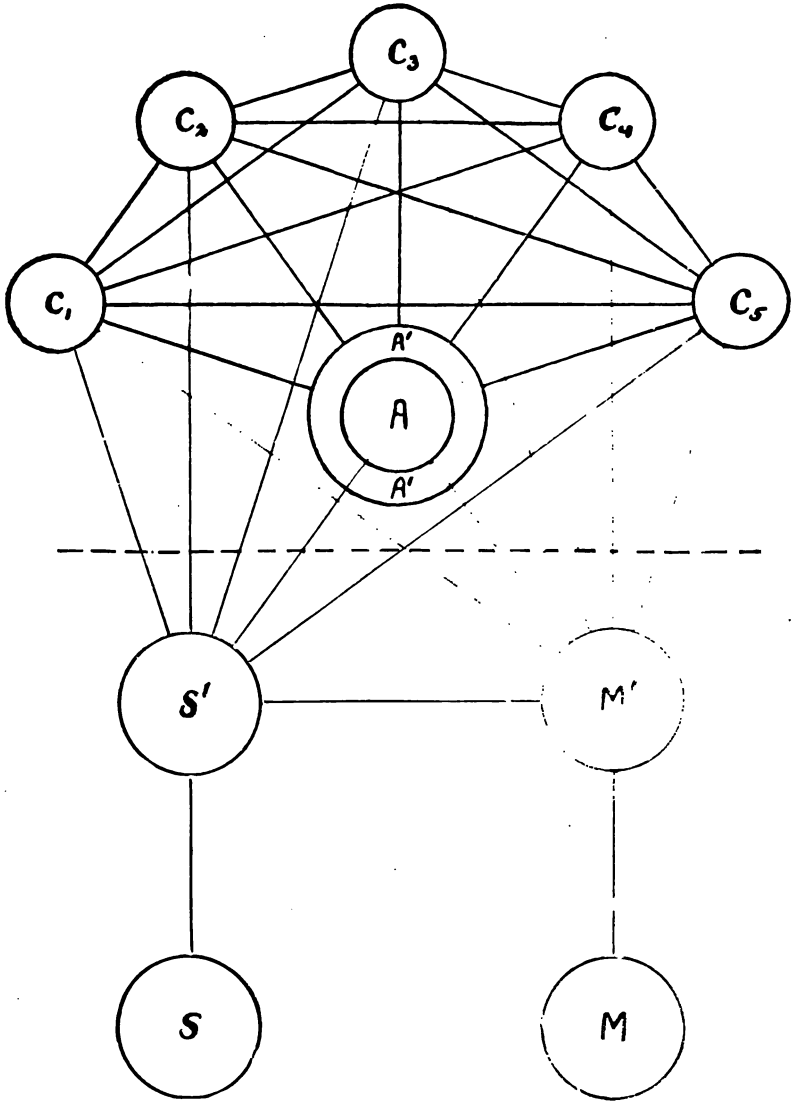


Fig. 1.—Schema to Illustrate the Psychologic Analysis.

inner circle, or, what amounts to the same thing, by conceiving the circle A. dilated until it coincides with A'.

Other pathologic variations will readily suggest themselves.

According to Bertschinger,[1] recovery in cases of dementia praecox, or schizophrenia, as some prefer to call this condition, takes place in three ways, one of which is by desymbolization; that is, subconscious thoughts are brought into accord with the facts of external reality. Surely there is no better way of accomplishing this than by manual occupation. Experience easily proves this, and Dr. Smith Ely Jelliffe,[2] in an admirable article, has recommended that "in the general run, books should be neglected for occupations in the nature of manual and muscular training." Other authors might be cited but it seems unnecessary.

[1] Bertschinger, H., Heilungsversuche bei Schizophren. Allgemeine Zeitschrift fuer Psychiatrie. Band 68, 1911, p. 209.

[2] Jelliffe, Smith Ely. The Signs of Pre-dementia Praecox: Their Significance and Pedagogic Prophylaxis. American Journal of Medical Sciences, Vol. CXXXIV, p. 157, August, 1907.

THE NURSE IN THE HOSPITAL.

The nurse in the hospital has certain advantages and disadvantages which are not met with by her sister who is specialling a case in a home. Among the first may be mentioned the possibility of occupying the patients in "gangs"—here, example is a great incentive. Patients are less apt to sit by idly when their companions are working. Then, too, it is much easier to cause patients to forget themselves in games where there is more competition than is possible in two-handed games. In the latter the patient is very apt to think that he has absolutely no chance to win, and is less likely to make the effort. The chief disadvantage is that there is less opportunity for individual attention, and in certain cases this is especially unfortunate.

Usually in hospitals there is a director of occupation, often one of the physicians, who superintends the various industries and crafts, and selects the kind of occupation that the patient shall have. The nurse may feel that this lessens her responsibility in occupying the patient who refuses to do the work prescribed, but if she is really conscientious she will know that such is not the case, and if she fails to get a patient interested in a prescribed occupation, it is her duty to discover the reason, and, if possible, to find another in which the patient will be interested.

In hospitals it is important that things should move

on a regular schedule in order that everything should work smoothly and that there be no confusion. This becomes so much a matter of habit to us that we may fail to realize how beneficial this regular life may be to patients, but it is generally conceded that in the majority of cases, and especially in dementia praecox, a regular life has much to do with improvement or recovery. For this reason it is important that classes or occupation periods be conducted on a regular schedule. This is usually arranged by the director, but it is the nurse's duty to see that the schedule is lived up to.

The question of rewards is one which is important and concerning which it is desirable to have some accurate information which the nurse can often obtain better than anyone else. Do patients work with more interest if there is some prize offered? What form should this take? Should it be some tangible trifle or should it be the granting of a privilege? These are but few of the questions which have been asked and which have not yet been answered authoritatively. It would seem, however, that as a rule the granting of a privilege is better than a small prize, though it may be well to hold an occasional party at which the patients make things in competition for a prize, such as a box of candy, ornament, etc. The idea of competition is stimulating to some persons and discouraging to others, so that it seems that a judicious mixture of the two methods may be best.

In some hospitals there are at times special classes conducted under the direction of a non-resident teacher

who is an expert in her craft. Such a person may in the enthusiasm for the work lose sight of the special object of occupation therapy, which is to develop the initiative of the patient and not to make him a trained craftsman. The last is a very secondary object.

It is a good plan for the director or teacher to keep record of the likes, dislikes, and capabilities of the patients in the form of a card index. A form for one of these cards which has been successfully used is shown below, but may possibly be better adapted to local conditions by some changes. The charge nurse can do much to aid in keeping these cards accurately.

OCCUPATION CARD.

Name .....Former Occupation .....
(Underscore occupations in which patient expresses an interest.) Crocheting, Sewing, Tatting, Knitting, Drawn-work, Quilting, Embroidery, Weaving.....
Other Occupations? .....
Does she play Checkers, Dominoes, Croquet, Cards (What Games)? .....
Has she musical ability? (Give full details.).....
.....
What kinds of books does she read? (Give full details.) .....
.....
Can she read aloud acceptably?.....
Does she wish to do her own sewing?.....
Her own laundry?.....

Would patient be helpful in teaching or assisting other patients in classes or groups?.....
Do you know of any other special interest or ability?
.....

(Reverse.)

Does patient write a good hand?.....Does she need to wear glasses?.....Is she willing to work in sewing-room, laundry or other department for a half day?.....For a whole day? .....

Make a note of all special requests for materials; of spontaneous efforts at occupation, or of other facts helpful in planning therapeutic employments.

A record of the patient's attendance, manner of work, interest, etc., should also be kept by the teacher of the particular class attended, and these records should form a part of the patient's clinical history when discharged, as from them may be derived information of considerable value to the physician. It seems better that these should be in the form of frequent notes and comment rather than a set form, as in the latter case much that is of interest may be lost. Miss Field's paper, previously referred to, gives an admirable example of what may be done.

PUZZLES, CATCHES, ETC.

It will be well for the nurse to start her occupation armamentarium by collecting a number of catches and puzzles and placing them in a scrap-book, which she is directed to make later on page 160. Their especial value is that they may be used to first engage the attention of the patient, cause him to take an interest in the nurse, and accept more willingly the suggestions made for other forms of occupation.

Picture puzzles, the dissected or cut up pictures, which have been so popular in present years are always of value and should be freely used. Directions for making them will be found on pages 128-130.

The following catches are offered because they have been found useful, but there are a great number which are as good and which the nurse may find to be as useful.

If the B mt put :

If the B . putting :

Ans.—If the grate be (great B) empty, put coal on (colon). If the grate be full, stop (period=full stop) putting coal on.

To whom and where would the postoffice send a letter addressed thus?

Wood
John
Mass

Ans.—John Underwood, Andover, Mass.

What did the Frenchman mean when he wrote these?

P
J a J

Ans.—Jai a-petit. Jai souper (sous p).

If you know that your patient is somewhat familiar with Latin, he may be asked to translate the following:

I Sabilli, heres ago
Fortibus es in aro
Nos es billi Thebe dux
Buthew usent, Thewust rux.

Ans.—I say, Billy, here's a go,
Forty busses in a row.
No, sez Billy, they be ducks.
But they wasn't; they was trucks.

How do you pronounce Phthologynyrrh?

Ans.—Turner. Phth=T as in phthisis, olo=ur as in colonel, gn=n as in gnat, yrrh=er as in myrrh.

MATCH PUZZLE.

A good puzzle game can be played with matches. It will cause a great deal of amusement. The questions to be solved are these:

1. Arrange ten matches so as to make a man out of them.

2. Out of eleven matches make one.

3. Arrange ten matches so as to make a monkey out of them.

4. Take nine matches and make a donkey out of them.

5. Turn eleven matches into seven dozen.

6. Make a boat out of seven matches.

7. Arrange ten matches so as to make only two.

8. Make a tub out of seven matches.

Ans.—The matches are arranged to form letters and words. Thus the answer to 1 is MAN, four matches forming the M and three for both A and N, a total of ten. The only exception is 6, where a crude boat is outlined. A further catch is the substitution of a synonym in 3 and 4, as APE for monkey, and ASS for donkey. The answer to 5 is expressed in Roman numerals, as LXXXIV. (See Fig. 2.)

WHAT CITIES ARE THESE?

All of these are cities in the U. S. except 17, 18 and 23. 17 is in China, 18 in Great Britain, and 23 is in Arabia.

1. Where all have been.	1. Boston.
2. A great engineering feat.	2. Wheeling, West Virginia, on the Ohio.
3. An improvement on the ship which grounded on Mount Ararat.	3. Newark.
4. A military defence, and a Paris dressmaker.	4. Fort Worth.
5 A city whose end and aim is "go."	5. Chicago.

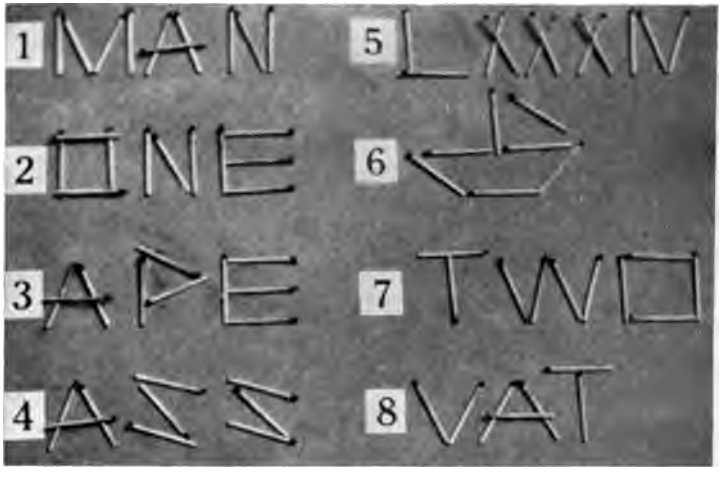


Fig. 2.—Answers to Match Puzzles.

6. Our board of city fathers, also a precipice.	6. Council Bluff.
7. An accident which results in a ducking.	7. Sioux Falls.
8. An exclamation, an appeal to maternity, a laugh.	8. Omaha.
9. An opera encore.	9. Sing Sing.
10. Named from the king of France who reigned from 1226 to 1270 A. D.	10. Louisville.
11. A deceased farmer who was twice dictator of Rome.	11. Cincinnati.
12. Named for an ancient city whose downfall after a long seige avenged the abduction of a woman.	12. Troy.
13. A place for the lingerers.	13. Tarrytown.
14. A famous father.	14. Washington.
15. A high place, and what all children love.	15. Montgomery.
16. A superlative and rushing water.	16. Grand Rapids.
17. A girl's nickname, and relations by blood or marriage.	17. Nankin.
18. A purely American product, and a continuous structure.	18. Cornwall.
19. A girl's name, and a Roman garment.	19. Saratoga.
20. Harmony.	20. Concord.
21. Not a short twig.	21. Long Branch.
22. Divide the soil.	22. Cleveland.
23. A noted blade.	23. Damascus.
24. A match of the olden time.	24. Flint.
25. Unparalleled surgery.	25. Lansing.
26. Adam's Ale.	26. Clear Water.

These last two series are excellent because they lead the solver on from one to the next.

READING.

It is very important that the nurse learn to read well. If her voice is harsh or shrill, or her pronunciation is bad she should strive to overcome these defects. The first by listening to others speak and so educating her ear to detect what tones, inflections, etc., are pleasing and unpleasant and then by listening to herself correct her faults after noting them. In reading, as in singing, the simplest and probably the best method is to listen to one's self rather than try to achieve the mechanical stunts in which some teachers delight. If the nurse notes that she is prone to mispronounce words she should regularly read the dictionary and so learn their proper accentuation. Although, like the Irishman, she may find it rather "desultory" reading.

The choice of what is to be read must be left to the nurse's tact, and it is very difficult to give any general rules which will apply to the majority of cases. Sometimes when the patient is mute and depressed the physician orders the nurse to read for half an hour from a certain book, possibly a dull one. The recurrence of this each day at a regular time may finally irritate the patient, who wishes to be undisturbed in his misery, so that he begs the nurse to stop, when a bargain can be made that he shall speak. Or, the book being less dull, the patient may gradually show an interest, even beg for a longer reading, to learn if the villain really gets

her. Here he may be persuaded to read to himself, or some other advance may be gained. About the only rule that can safely be made is that the book must be entertaining, and even this only applies when the reading is done for diversion and not for a special purpose, such as is noted above. There are so many good books that a choice does not seem difficult, but when actually confronted with the necessity of picking out a volume which will amuse or divert and yet not contain anything which will bring up an unpleasant association, the task becomes difficult. One would hardly pick out the "Lunatic at Large," and yet it would be much more entertaining and diverting to a peevish lady who has become depressed through having alienated her husband than would a "sweet pretty" love story. The nurse should know something about the book she reads either from her own or others' knowledge of it. In a hospital the librarian is able to give information about suitable books. When there is no librarian to consult, the nurse's tact must aid her in a choice, although she will get much help from a list compiled by Miss Jones, entitled, "A Thousand Books for the Hospital Library," [1] the foreword of which contains many helpful hints and which is also interspersed with brief comment on the works named.

There are a number of books, poems, etc., which may be helpful to patients. One who was depressed said

[1] Jones, Edith Kathleen. A Thousand Books for the Hospital Library. 1913. American Library Association Publishing Board, 78 E. Washington Street, Chicago. 25 cents.

that what started her on the road to recovery was reading "Success comes in cans, failure in can'ts" in the daily motto frame on her ward. The following poem might be helpful, especially if the book of the same title should be on hand.

EVERYBODY IS.

Way down deep within their hearts
  Everybody's lonesome.
Far within their secret parts
  Everybody's lonesome.
Makes no difference how they smile,
How they live or what their style;
Once in every little while
  Everybody's lonesome.

People first in big affairs—
  Even they are lonesome.
Maybe like to put on airs;
  Just the same, they're lonesome.
Men for whom existence blends
Every good; who gain all ends,
Still reach out their hands for friends;
  Everybody's lonesome.

Women, silk-clad, jeweled fine,
  Yes, they, too, are lonesome.
When their gems the brightest shine,
  They are just as lonesome,
Some must serve and some command,
All still seek, with groping hand,
Love, and *friends who* UNDERSTAND;
  Everybody's lonesome.

Though your gift of friendship's small,
Everybody's lonesome.
It may answer someone's call;
Someone who is lonesome.
Give and give with might and main,
Give your hands and join the chain;
And your gift will be your gain,
Some time when you're lonesome.

—*Detroit News.*

It is difficult for us to realize how much the emotion fear enters into and controls our daily lives because as a rule it is subconscious and we do not recognize it without thought and self-examination. We do not speak to the stranger beside us on the car because we *fear* that he will think us presuming, or may answer in a way to humiliate us or hurt our feelings. We do not help the old woman pick up the contents of her spilt market basket because we *fear* lest we appear ridiculous to some passing acquaintance. It is fear which causes many people to become reserved, stiff, dignified, etc. It also causes many young people to become what Dr. Hoch has called "shut in." That is, they are afraid to express their emotions lest they be ridiculed, and gradually, as a refuge from their lonely, isolated life, they begin to live a dream life and in time a psychosis, dementia praecox, develops. Sometimes a book, such as "Everybody's Lonesome" or something else which may be read, may make an impression and lead to a more healthy manner of thought.

Persons who are neurasthenic and those who are under the influence of some healing fad, such as Chris-

tian Science, New Thought, etc., may be lead into normal ways of thinking by reading a little book called "The Conquest of Nerves" [1] by Dr. Courtney. There are quite a number of other books which may aid patients in mental training such as those by Annie Payson Call,[2] and others.[3]

Mental development may be fostered also by a reading course, or if the patient is able, by some course of study perhaps. The nurse must remember, however, that she is not a teacher but a fellow student, and this attitude should be held no matter what form of work or play is going on. Participation is emphasized by Miss Tracy and is a cardinal principal.

It is an excellent plan to have some form of reading matter within reach of the patient so that he may amuse himself if he so desires. The illustrated periodicals are especially useful for this purpose.

A reading course in the history of art, or of English or American literature, may do much to awaken the convalescent patients' interests. There are many books

[1] Courtney, J. W., M. D. The Conquest of Nerves. New York, 1911, The Macmillan Co.

[2] Call, Annie Payson. Power Through Repose. As a Matter of Course. The Freedom of Life. Boston, Little, Brown and Company.

[3] Cabot, Richard C. What Men Live By. Work, Play, Love, Worship. Boston, 1914, Houghton, Mifflin Co.

Musgrove, C. D. Nervous Breakdowns and How to Avoid Them. New York, 1914, Funk & Wagnalls Co.

Walton, Geo. L. Why Worry? Phila., J. B. Lippincott Co.

Same. Those Nerves. Phila., J. B. Lippincott Co.

on these subjects, too many to name here, but the following list suggests a number of works which are comparatively simple and which are not too elaborate. These or substitutes can probably be procured from the nearest library.

ART.

Reinach, Solomon. Apollo. An illustrated manual of the History of Art throughout the Ages. New York, 1910, Chas. Scribner's Sons, $1.50.

Ars Una: Species Mille. A new Universal and International Series of Art Manuals. These are written by various authorities on the art of various countries and are excellent. Chas. Scribner's Sons.

Masters in Art. A series of monographs published from 1900 to 1909 by Bates and Guild Company, Boston, Mass. Single issues and complete volumes probably can be procured. These are most interesting, and ten plates illustrate each artist-subject.

Artist-Biographies. A series of thirty biographies published in the late 70's by James R. Osgood and Company, Boston. These are not illustrated but are good.

Masterpieces in Colour. Edited by T. Leman Hare. New York, F. A. Stokes Co., London, T. C. and E. C. Jack. These monographs are very good.

The Painter's Series. New York, F. A. Stokes Co. Each gives sixty miniature reproductions of the artist-subject's works. 25 cents each.

Bell's Miniature Series of Painters. London, Geo. Bell & Sons.

ENGLISH LITERATURE.

Brooke, Stopford. A Primer of English Literature. New York, D. Appleton and Company. This is very short, but is an excellent introduction to the subject, or may be used as an outline.

Beers, Henry A. An Outline Sketch of English Literature.

New York, 1886, Chatauqua Press. This is more interesting than the above as it is not so very brief.

Other excellent books have been written by Newcomer, Halleck and Brooke, and are used in schools.

AMERICAN LITERATURE.

Nichol, John. American Literature. A Historical Sketch, 1620-1880. Edinburgh, 1882, Adam and Charles Black.

Simons, Sarah E. Syllabus of American Literature. This is an excellent guide for suggested readings. Unfortunately no publisher is noted and I do not know how it may be procured.

Newcomer, Halleck and Brooke have also written text-books on American Literature.

If any of the above seem to be too ambitious an undertaking, a substitute may be found in one of the following courses, which were very kindly given me by a teacher of literature. After going through one of them the patient may desire to extend the reading and may be persuaded to take up either the English or American literature. It adds interest if the nurse can interpolate bits of collateral reading either about the author or his subject. Pictures may be used to assist in fixing subjects in the associative memory. Those series of prints known as Perry Pictures, Brown Pictures, or Cosmos Pictures can be procured very cheaply. An atlas may make a book of travel, or even fiction, more interesting, for example Kate Douglas Wiggin's Cathedral Courtship, or the Williamson's Motor Maid, or the Chauffeur and the Chaperone, will be more interesting if the routes travelled are shown graphically before us.

BRIEF LITERATURE COURSES.

I. Short Story Course.

The Lady or the Tiger?—Stockton.
The Man Without a Country.—Hale.
Marjorie Daw.—Aldrich.
The Gold Bug.—Poe.
Twice Told Tales.
Great Stone Face, etc.—Hawthorne.
Sketch Book.—Irving.

II. Dialect stories dealing with provincial life in different sections of our country.

1. Negro.
   Meh Lady, or Marse Chan.—Thos. Nelson Page.
   Uncle Remus Tales.—Joel Chandler Harris.
2. Creole.
   Old Creole Days.—Geo. W. Cable.
3. Indiana.
   The Hoosier Schoolmaster.—Edward Eggleston.
4. Dutch Life.
   Knickerbocker's History of New York.—Irving.
5. Middle West.
   Hamlin Garland's Stories.
6. Extreme West.
   Bret Harte's stories.
   The Luck of Roaring Camp.
   Tennessee's Partner.
   Fitzgerald's stories.
7. New England.
   New England Nun.—Sara Orne Jewett.
   The Revolt of Mother.—Mary E. Wilkins.
8. The Brittany French.
   The Unknown Quantity.—H. VanDyke.
9. Western Canada.
   Ralph Connor's Stories.
10. Prince Edward Island.
    Anne of Green Gables.—Montgomery.
11. Mountaineers.—Fox.

III. Children's Stories.
Just So Stories.—Kipling.
Tanglewood Tales.—Hawthorne.
Uncle Remus.—Joel Chandler Harris.
Nonsense Books.—Edward Lear.
Also books by Sara Cone Bryant, Beatrix Potter and Lewis Carroll.

IV. The Ghost Stories of different Nations.
Japan, Germany, etc. (This course would be suitable for very few mental cases whose mental make-up must be well known before it is suggested.)

V. The Fairy Tales of Various Literatures.

VI. Indian Legends and Folk Lore.
Hiawatha.—Longfellow.
Ramona.—Helen Hunt Jackson.

VII. Present-day fiction that is worth while.
VanDyke, Quiller-Couch, Arnold Bennett, F. H. Burnett, K. D. Wiggin, Kipling, Waller, Porter, Bosher, etc.

VIII. The Evolution of the Novel.
Defoe, Swift, Richardson, Fielding, Austen, Stevenson, Dickens, Thackeray, Howells, James, etc. (Heavy course.)
Nineteenth Century Novelists of England.

IX. American Humorists.
Lowell—Bigelow Papers.
Holmes—Autocrat of the Breakfast Table.
Mark Twain—Innocents Abroad, etc.
Artemus Ward.
Bill Nye.

X. Literature reflecting historical epochs.
Scott, Muhlbach, Bulwer-Lytton, Dixon, Churchill, F. Hopkinson Smith, Charles F. Major.

PHYSICAL EXERCISES.

Besides the passive movements, massage, etc., that the nurse learns in her general course, it is necessary for her to have a knowledge of calisthenics. It is well known that unless a part is exercised the motor nerves supplying that part will atrophy, and for this reason active exercises are frequently ordered for mental cases. Sometimes the patient goes to a gymnasium for the exercises, but this is frequently impossible and it is well if the nurse knows calisthenic exercises which she can teach the patient and which can be carried out in the home. Small hand-books giving very good directions can be procured from athletic goods stores, usually at a cost of ten cents. Larger books can also be bought, one being My System, 15 Minutes' Work a Day for Health's Sake, by J. P. Müller (New York, G. E. Stechert & Co.); or How to get Strong and How to Stay So, by William Blaikie (New York, 1898, Harper & Brothers). The nurse can watch the newspapers and periodicals and, with the articles on exercising which so often appear in them, make a very good manual of her own. An especially good article was by Wm. J. Cromie,[1] which appeared in the *Outlook*. The article is well worth reading, but for the benefit of those who

[1] Cromie, Wm. J. Eight Minutes' Common Sense Exercises for the Nervous Woman. The Outlook, July 25, 1914, p. 734.

cannot procure it the following directions are copied by permission.

First Exercise. Secure a Turkish towel of sufficient length to enable you to take a wide reach. The towels used in the illustrations are made of two ordinary Turkish towels sewed together. Take a wide grasp as in position A. Pull strongly upon the towel, up on toes, raising the arms above the head, as in B. Lower to A. This exercise develops the calves of the legs, the arms, the back, and expands the chest. (See Fig 3.)

Second Exercise. From position A pull upon towel and bend knees as in B. This movement reduces fat on the hips and is a good balance exercise. Do not lean forward or backward, but keep erect as in figures. (See Fig. 4.)

Third Exercise. From a pull on towel (lower trunk forward, as in B), bend forward to a stoop-stand position. This corrects round shoulders and flat chest, and stretches all the muscles of the upper body. The hips, shoulders, head, and arms should be in a straight line. Practice in front of a mirror. (See Fig. 5.)

Fourth Exercise. This exercise is performed in four counts or parts. From ordinary standing position, as in first exercise, position A, count 1; charge, as in A, right leg forward. On count 2 pull on towel, twisting body to the right, as in B. On count 3 return to position A, and on count 4 return to starting position. The same, left leg forward, twist to left. This exercise gives strong waist muscles and reduces fat in this region. Both heels should be kept solidly on the floor, and rear leg straight. (See Fig. 6.)

Fifth Exercise. On count 1, from starting position, raise the arms above the head, charging to the right side, as in A. On count 2, keep the weight of the body upon the right leg, bending to the right as in B. On count 3 return to position A. On count 4 return to starting position. Perform the same to the left side, bending to the left. Bend only the charging leg. This exercise is sometimes called the "liver squeezer," and it stretches every muscle in the body. (See Fig. 7.)

A B

Fig. 3.—First Exercise (Cromie).

A B

Fig. 4.—Second Exercise (Cromie).

A B

Fig. 5.—Third Exercise (Cromie).

A B

Fig. 6.—Fourth Exercise (Cromie).

A B

Fig. 7.—Fifth Exercise (Cromie).

A B

Fig. 8.—Sixth Exercise (Cromie).

A B

Fig. 9.—Seventh Exercise (Cromie).

A B

Fig. 10.—Eighth Exercise (Cromie).

Sixth Exercise. Grasp the towel in the rear, as A. Pull on the towel, bend forward, bringing arms up, as in B. When A is again reached, bend backward. This is a good exercise for the abdomen and back. (See Fig. 8.)

Seventh Exercise. Finish the exercising with a deep-breathing movement. Towel back of neck, arms together in front, as in A. Arms back as in B, taking a deep breath while so doing, breathing out from B to A position. (See Fig. 9.)

Eighth Exercise.—Take a sponge or towel bath by saturating either article in a basin of cool water. Wring the water out and quickly wash all parts of the body. Follow this with a dry rub. Saw a dry, coarse towel across the back, as in A, Exercise 8; then up and across the back, first one side, then the other, as in B. Rub all parts of the body until it is in a glow. You are then ready for anything the day may demand of you. (See Fig. 10.)

Simple exercises without apparatus are best, and are more valuable if they can be done to music, which is usually possible in this day of mechanical music. Rhythmic dancing would appear to have great value, but seems to be a little too difficult for any but a professional teacher.

Sometimes the simple clothing which is necessary for freedom of movement makes a self-conscious patient embarrassed, so that this must be overcome. There would appear to be great possibilities in this rhythmic dancing.

The nurse should have some knowledge of ordinary society dances, and especially should she be able to play tennis and golf in order that she may act as adversary. In all playground games competition is desirable as it brings out the best that is in the children, and it would

seem that many mental patients might be helped in this same way. A knowledge of other outdoor sports may also be desirable, for in nursing, as in everything else, the more one knows the greater the resources within one. Participation is important even in the ordinary simple exercises, and the nurse should count aloud in order that the patient may learn to do the exercises rhythmically.

CARD GAMES.

"Those inventions of the Devil," as the English Puritans called cards, have probably been the instruments of quite as much good as harm in the world. Card games are great helps in mental training, and the nurse should have a number at her command with which to divert her patient. There are so many of these games that it is not an easy matter to select them, but there are a few which seem to be especially important for the nurse to know. It is well to know a few simple tricks also, as, like catches and puzzles, they may serve to arrest the attention of the patient and make possible further occupation of this sort.

The history of playing-cards is quite interesting. They are generally believed to have come from Asia, and in a Chinese dictionary, published in 1678, it is said that they were invented in 1120. There is a tradition that they have existed in India from what the old colored woman called times immoral, and that they were invented by the Brahmans. Very ancient round cards are preserved in some museums. Their invention has also been ascribed to the Egyptians and to the Arabs. Just when they were introduced into Europe is doubtful, but in the account books of Johanna, Duchess of Brabant, there is an entry under date of May 14, 1379, as follows: "Given to Monsieur and Madam four peters, two florins, value eight and a half

moutons, wherewith to buy a pack of cards." It is believed that cards came into general use in Europe about the end of the 14th century. Whence they came is a matter of conjecture. By some it is believed they came to Italy from Arabia, by others to Spain from Africa with the Moors. The Crusaders may have introduced them.

Cards have been mentioned in laws, edicts and sermons. In 1397 the working people of Paris were forbidden to play at tennis, bowls, dice, cards, or ninepins on working days. In 1423 St. Bernardino of Siena preached a celebrated sermon against cards at Bologna.

The use of cards for other purposes than gaming dates from 1509, when a Franciscan friar published an exposition on logic in the form of a pack of cards. Grammar, geography and heraldry soon followed, and to these was applied the name "scientiall cards." This branch has been much developed in recent years, and children are taught a knowledge of authors, birds, animals, etc., by means of card games.

There have been several histories of playing-cards written, but most of the above is abstracted from the Encyclopedia Brittanica, in which there is a very interesting article containing many other facts and a bibliography. There is an excellent collection of playing-cards in Memorial Hall, Fairmount Park, Philadelphia, which is worth a visit by one interested.

A Simple Card Trick.—Take nine cards and lay them down singly, face up, in three piles, telling the patient to select one without naming it. Then ask him in

which pile it is. Gather the piles without mixing, being careful to remember in what position relative to the other two that the named pile lies. Again lay them out in three piles, again ask the patient to point to the pile in which the selected card is, and if the first named pile has been laid out last, the named card will be the top card, if laid out second it will be the middle card, an if laid out first it will be the bottom card. The selected card may be said to be found perpendicularly by the first layout and found horizontally by the second. The trick may be made to appear more difficult by taking a larger number of cards, always the square of the number of piles.

There are a great many other simple card tricks which may prove of value, but it is the games which are more important.

In order not to extend this book too greatly the nurse is advised to buy a book on card games, such as that published by the United States Playing Card Company, of Cincinnati, entitled The Official Rules of Card Games, and which may be bought for twenty-five cents. This is not so complete as Hoyle, published by Dick and Fitzgerald for 50 cents, but is adequate and is revised yearly.

There are many forms of Patience or Solitaire, over one hundred and twenty-five having been published, and it is difficult to say which of these is the best. Some of them differ very slightly. I believe that the following are the best to learn at first because they may be said to be graded, Baker's Dozen being quite easy,

Rainbow more difficult, and Klondike or Canfield still more difficult. Special books on solitaire may be purchased, but the U. S. Card Games gives all of the above and more.

It is generally conceded that Cribbage is the best two-handed card game. It has the advantage of being simple, of not requiring any special skill to play it. The method of scoring is easily learned. Cribbage boards on which the scoring is done can be easily made, but they can be bought quite cheaply, and the nurse is advised to provide herself with one. A very attractive little folding one is made by Daniel Low & Co., of Salem, Mass., and costs fifty cents.

Euchre, Draw Poker, can be played by two or more and should be learned. A knowledge of Whist, Bridge, Auction and Five Hundred may prove convenient.

Fan Tan, a form of solitaire for from three to ten persons is a splendid game for ward use.

Dominoes.—Dominoes is not generally considered a card game, but as the pack of card dominoes made by the U. S. Playing Card Company is the most convenient form for the nurse it may properly be placed in this chapter. The unusual form may serve to at once excite the interest of the patient. Directions for playing several games with dominoes accompany each pack. These come in two sizes, one of the ordinary playing-card size and the other smaller, $1\frac{3}{8} \times 2\frac{3}{8}$ inches. The latter is recommended.

STRING WORK.

The material for this may be found in every household. If the family is improvident and has no string box, the nurse has only to ask the cook for the string from the parcels the grocer's boy brings, or the female relatives for that from packages from the department store, and she will have an ample supply. If the patient is a single gentleman without cook or female relatives almost any store will be glad to give a ball of string for a consideration. The commonness of this material makes knowledge of how to use it especially valuable.

String is a general term applied to thin cord or stout thread and is derived from the Latin *stringere,* which means to draw tight. The Old English form is *streng,* the Danish *streng,* the German *strang.*

Our savage forefathers, not having grocers, or department stores, were obliged to use tendons or strips of hide from animals, vines, twigs, etc., for the purposes which we ordinarily use string.

Commercially we have twines, lines, cord, and rope. Twines and lines are forms of string. Cord is between string and rope in thickness (young rope, as a friend of mine calls it), and the name is derived from the Latin *chorda,* French *corde,* meaning the string of a musical instrument. Rope includes all varieties of cordage having a circumference of an inch or more.

String is usually made from cotton or linen, while rope is made from cotton, hemp (which makes the best), and jute which is used chiefly as a diluent for the more expensive hemp. Jute cord in a variety of colors is used in kindergarten work and may be purchased from stores supplying these materials. Rope is made from yarn, which is twisted fibre, twisted so that it will hold together. One or more yarns in three groups are twisted in the opposite direction to form rope.

STRING FIGURES.

Probably all of us have played the game known as Cat's Cradle, but unless we have been so fortunate as to read a most interesting book by Mrs. Caroline Furness Jayne on String Figures[1] we have not realized how much interest is attached to it nor how many of these string figures there are. The game is known all over the world, and the same figure may be found in widely different localities under different names. For example, the figure known as "The Leashing of Lochiel's Dogs," "Crow's Feet," "Duck's Feet," "Tying Dog's Feet," is found in North Queensland, East Africa, North America, and the British Isles. It can also be made in a dozen different ways. It is probable that the word Cat's is a corruption of catch and that we should speak of catch cradle. Dr. A. S. Hadden (quoted by Mrs. Jayne) has made a study of string

[1] **String Figures. A Study of Cat's-Cradle in Many Lands. By Mrs. Caroline Furness Jayne. New York, 1906, Chas. Scribner's Sons, $5.00.**

figures from an ethnological standpoint and has divided them into two types, which he calls the Asiatic and the Oceanic. The string figures of the North American Indians belong to the latter type. The chief difference is in the opening. In the Oceanic type the strings do not pass over the back of the hand, but back of thumb and little finger and across the palm. This is called opening A. In the Asiatic type the string passes around the hand as in the real cat's cradle, and is called opening B.

The descriptions which follow are copied from Mrs. Jayne's book by permission of the publishers.

String figures are made with a piece of string about six feet long, the ends of which must be tied together to form a single loop about three feet long. In some races a thong of skin is used; in the islands of the Pacific a cord made of cocoanut fibre, or of human hair finely plaited, serves as a string. A woven cord which does not kink as easily as a twisted cord will prove most satisfactory; unfortunately, it cannot be spliced, the ends therefore must be knotted in a small square knot or laid together and bound round with thread.

All string games begin with an opening, the object of which is to get the original loop so arranged on the hands that a number of secondary loops shall cross from the fingers of one hand to the fingers of the other, when the hands are held in what is called their usual position, namely, with the palms facing each other, and the fingers directed upward.

REAL CAT'S CRADLE.

As Dr. Haddon has pointed out, the familiar game of cat's cradle probably had its origin in Asia, whence it was introduced into Europe; it has also spread to some extent among the Asiatic islands. It is well known in China, Korea, Japan, the Philippines and Borneo; and it may be known in Java, Celebes and Australia. It is apparently known in Micronesia, Polynesia, and to the Amerinds. In Europe it is recorded from Austria, Germany, the Netherlands, Denmark, Sweden, Switzerland, France, and England. From France it has spread into Northern Africa, for Dr. W. H. Furness found several little Arab girls in the tapestry school in Algiers who played it exactly as we do; they learned it in a French school. Of course, it is probably known in all parts of the world which have felt the influence of European culture.

We have not been able to find any record of the time or manner of its introduction into England, but this must have happened within comparatively recent years, as there are no references to it in the older literature. Moreover, no satisfactory explanation of the name "cat's-cradle" has ever been given; its other name, "cratch-cradle," may refer to the two important stages of the game: the "manger" (a cratch) and the "cradle."

In Southern China cat's cradle is known as Kang sok=well rope; in Swatow the name means "Sawing wood." In Korea it is called ssi-teu-ki=Woof-taking; and in Japan, Aya ito tori=Woof pattern String-tak-

ing. In Germany it has various names: Abheben=Taking off; Faden-abheben=Taking off strings; Faden-spiel=String game; Hexenspiel=Witch's game, and Auf-und Abnehmen=Picking-up and taking-off. In Holland it is known as Afpakken: Dradenspel=Taking-off: String game; In France and Algeria as la scie.

Two persons and one loop of string are required for the game of "Real Cat's-Cradle," which is played by the persons alternately taking the string off each other's hands to produce eight definite figures, which have been given distinctive names, as follows: 1, Cradle; 2, Soldier's Bed; 3, Candles; 4, Manger; 5, Diamonds; 6, Cat's Eye; 7, Fish; 8, Clock. For convenience in describing the game the players will be called "A" and "B." The terms "near," "far," "right," and "left" describe the position of the strings as seen by the person from whose hands the figure is being taken.

(1) Cradle.

Synonym: Sang-tou-tou-ki=cover for a hearse (Korea); le berceau (France); Wasser (Brabant).

First: "A" takes the string and passes the four fingers of each hand through the untwisted loop, and separates the hands; then with the thumb and index of the right hand he turns the left near string away from him across the left palm, and then toward him across the back of the left hand, bringing the string to the right between the left thumb and index. In the same manner, he turns the right near string once around the

right hand. There are now two strings across the back of each hand and a single string across each palm.

Second: Opening A (picking up the palmar string with the middle finger). There is now a loop on each middle finger and two strings across the back of each hand; the "Cradle" being formed by a straight near string, a straight far string, and the crossed strings of the middle finger loops (Fig. 11).

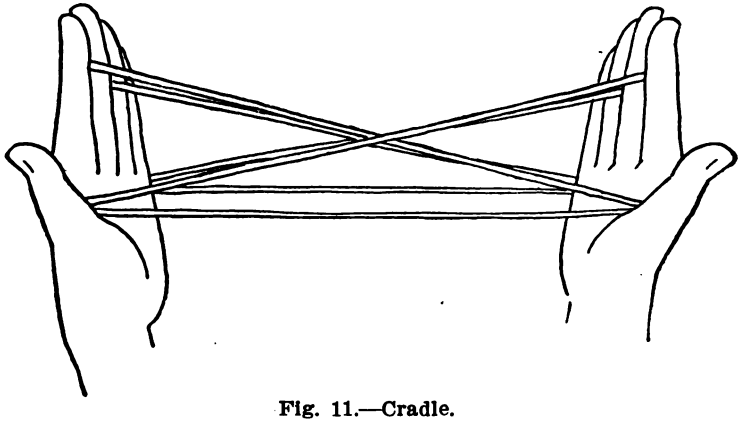


Fig. 11.—Cradle.

(a) Soldier's Bed.

Synonyms: Pa-tok-hpan=chess board (Korea); nekomata=a mountain cat into which a domestic cat is supposed to transform itself (Japan); die Schere (Brabant); les ciseaux (France); church window (England); fish pond (America).

"B" puts his left thumb away from "A" under the right near middle finger string and his left index away

from "A" under the left near middle string, and then, by bringing the thumb and index together, picks up between their tips the two near middle finger strings just

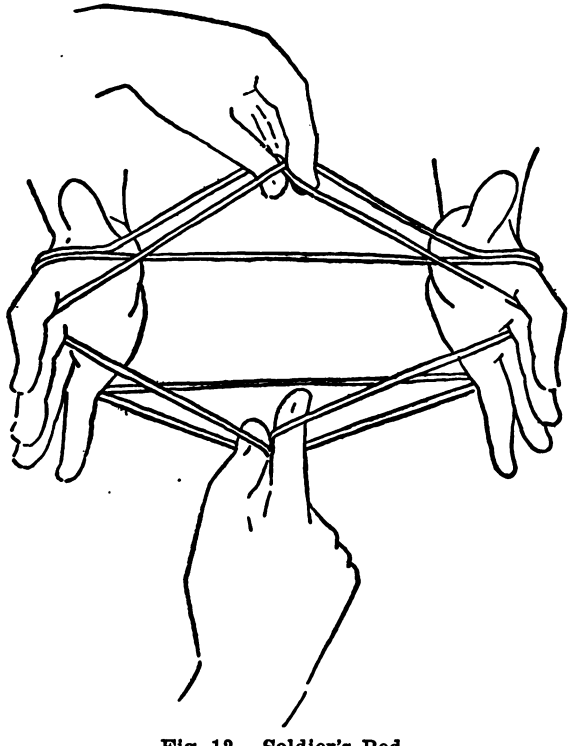


Fig. 12.—Soldier's Bed.

where they cross at the near side of the figure. In the same manner he picks up the two far middle finger strings, by putting the right thumb toward "A" under

the right far middle finger string, and the right index toward "A" under the left middle finger string, then bringing the thumb and index together to hold the two

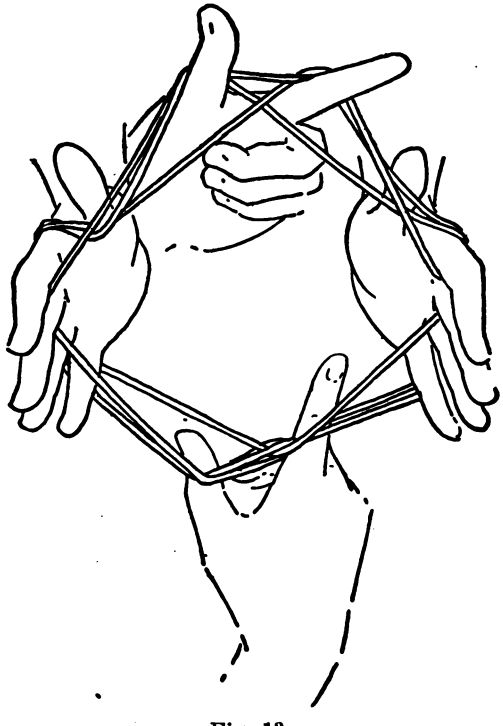


Fig. 13.

strings where they cross at the far side of the figure. Now separating his hands, drawing the right hand away from "A" and the left hand toward "A" (Fig. 12), he carries the thumb and index of each hand, still

holding the strings, around the corresponding side string of the figure and up into the centre of the figure (Fig. 13); then, by drawing his hands apart and separing the index fingers widely from the thumbs, he removes the figure from "A's" hands and extends the Soldier's Bed (Fig. 14). There is a loop on each thumb, a loop on each index, and a string passing across the backs of the thumb and index of each hand. The figure

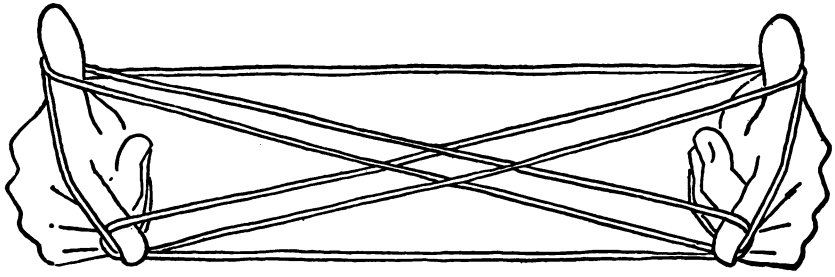


Fig. 14.

is formed of the four finger loops crossing in the middle, a straight near string and a straight far string.

(3) Candles.

Synonyms: Tjye-ka-rak=chopsticks (Korea); Koto =a musical instrument, or geta no ha=the two pieces of wood under the sole of clogs (Japan); mirror (Denmark); les chandelles (France); die Geige (Brabant).

"A" inserts his left index from above into the left thumb loop, near the centre of the figure, and his left thumb from above into the right thumb loop, and then,

bringing the thumb and index together, picks up between their tips the near thumb strings just where they cross. In like manner, by inserting the right thumb from above into the right index loop and the right in-

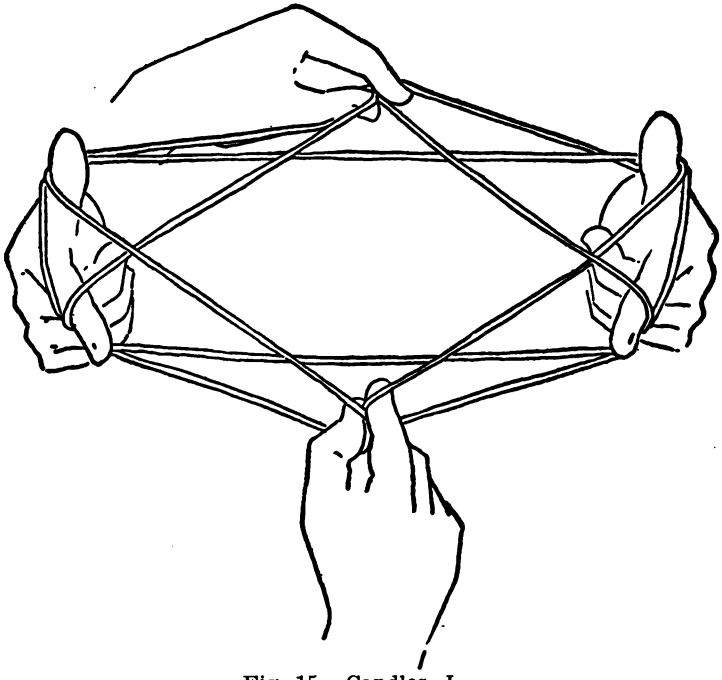


Fig. 15.—Candles, I.

dex from above into the left index loop, he picks up the two far index strings where they cross. He then separates the hands—drawing the right hand away from "B" over, and past, the far straight string, and the left

hand toward "B" over, and past, the near straight string (Fig. 15); and finally puts the thumb and index of each hand (still holding the strings) under the corresponding side string and from below into the centre of the figure, when, by drawing the hands apart and separating the index fingers widely from the thumbs, he takes the figure from "B's" hands (Fig. 16). There

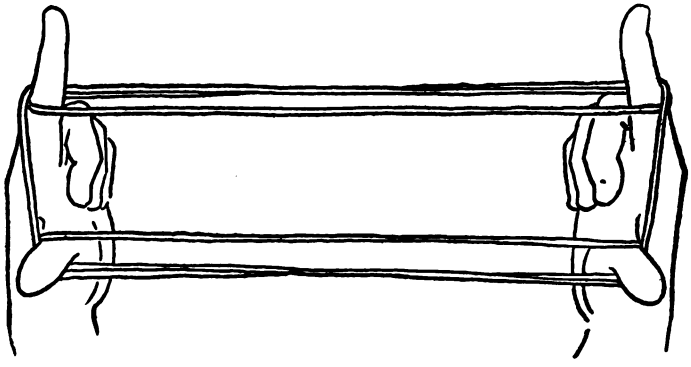


Fig. 16.—Candles, II.

is a loop on each thumb, a loop on each index, and a string passing across the backs of the thumb and index of each hand; the "Candles" being formed by a straight single far thumb string, a straight single near index string, and straight double far index and near thumb strings.

(4) Manger.

Synonyms: The inverted cradle (England); die Wiege (Brabant).

"B" turns his left hand with the palm facing upward, and takes up in the bend of the little finger the near index string, and draws it over the strings toward "A;" then turning his right hand with the palm up, he takes

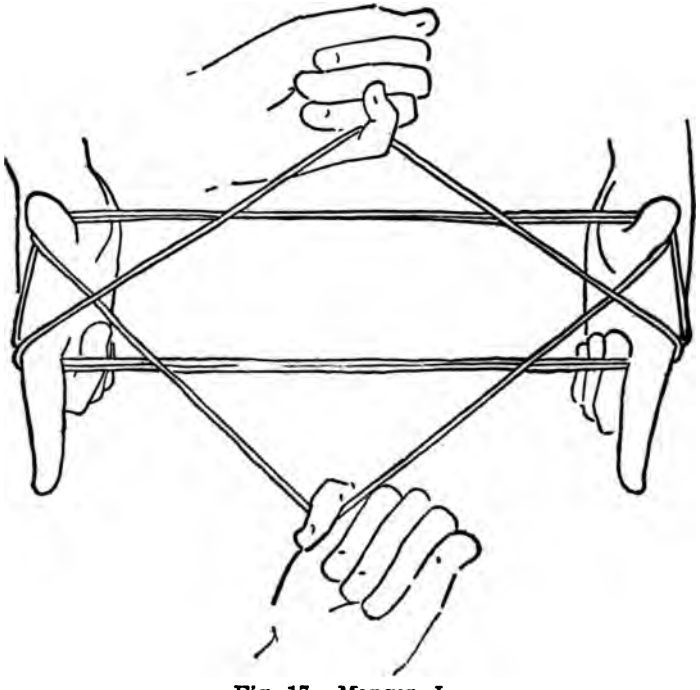


Fig. 17.—Manger, I.

up in the bend of the right little finger the far thumb string and draws it over the other strings away from "A" (Fig. 17). Closing the little fingers on the palms, he passes the left thumb and index from the near side

under the two near thumb strings and up on the far side of them, and at the same time passes the right thumb and index from the far side under the two far index strings and up on the near side of them (Fig.

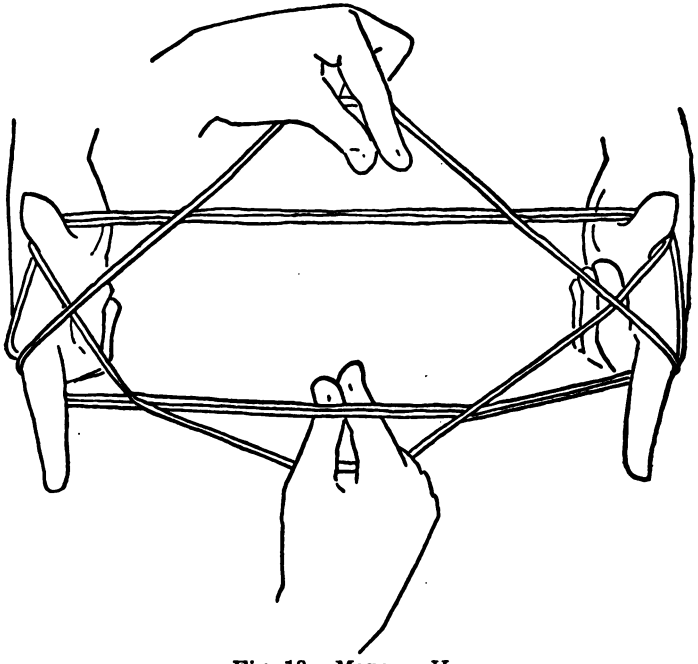


Fig. 18.—Manger, II.

18). Then, drawing the hands apart, and separating the index fingers widely from the thumbs, he takes the figure from "A's" hands (Fig. 19). He now has two strings passing across the backs of the thumb and index

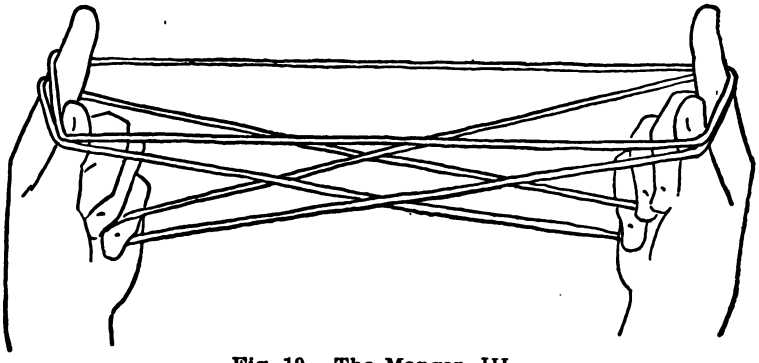


Fig. 19.—The Manger, III.

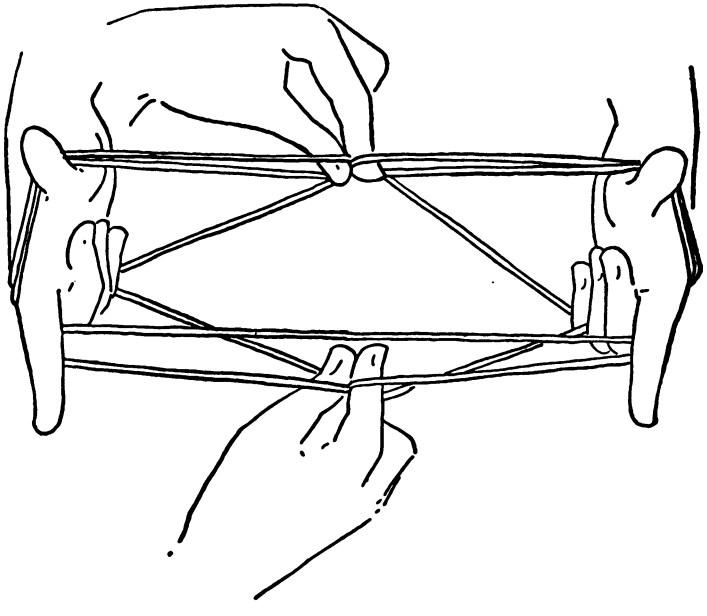


Fig. 20.—Diamonds, I.

of each hand and a loop held to the palm by each little finger. The form of the "Manger" is the same as that of the "Cradle" only inverted.

(5) Diamonds.

Synonyms: Soldier's Bed again (England); les carreaux (France).

"A" now takes the "Manger" from "B's" hands in the same way as "B" took the "Cradle" from his hands, but the thumb and index of each hand (holding between

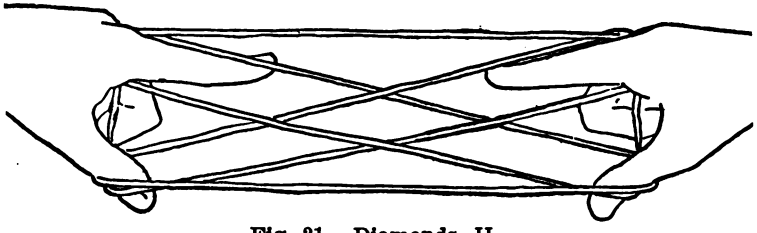


Fig. 21.—Diamonds, II.

their tips the two crossed strings) are brought up around the corresponding side string and down into the centre of the figure (Fig. 20); then, when the hands are drawn apart and the thumbs and index fingers widely separated, he forms a figure exactly like the "Soldier's Bed," but it is held with the fingers pointing downward (Fig. 21).

(6) Cat's Eye.

Synonyms: Soi-noun-kal=Cow's Eye-ball (Korea); umano me=Horse-eye (Japan); diamonds (England).

"B" takes the figure from "A's" hands in the same way as "A" took the "Soldier's Bed" from "B" to form the "Candles" (Fig. 22); but, although he has a loop on each thumb, a loop on each index, and a string pass-

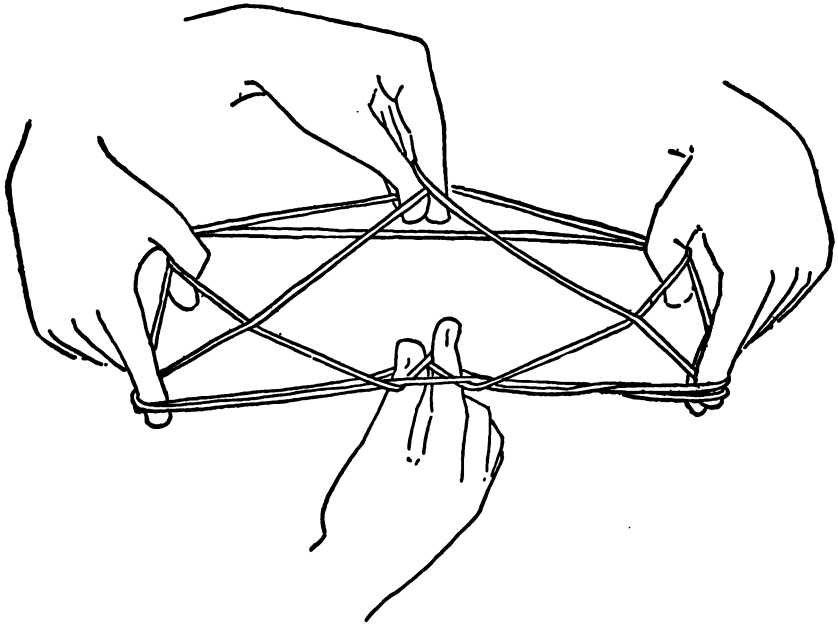


Fig. 22.—Cat's Eye.

ing across the backs of both thumb and index, instead of getting the same figure as the "Candles," the "Cat's Eye" (Fig. 23) has two straight near thumb strings, two straight far index strings and crossed far thumb strings forming a central lozenge and four triangles,

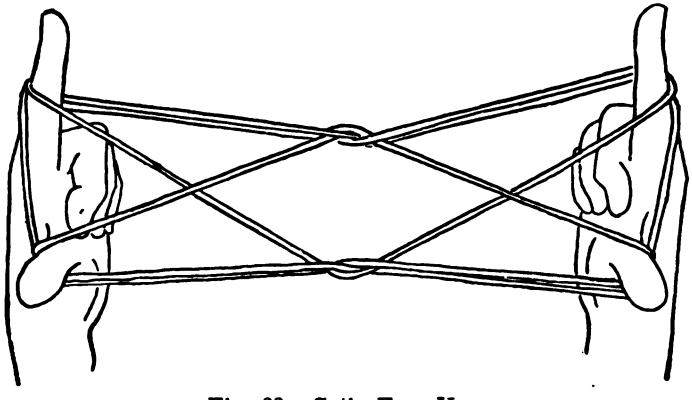


Fig. 23.—Cat's Eye, II.

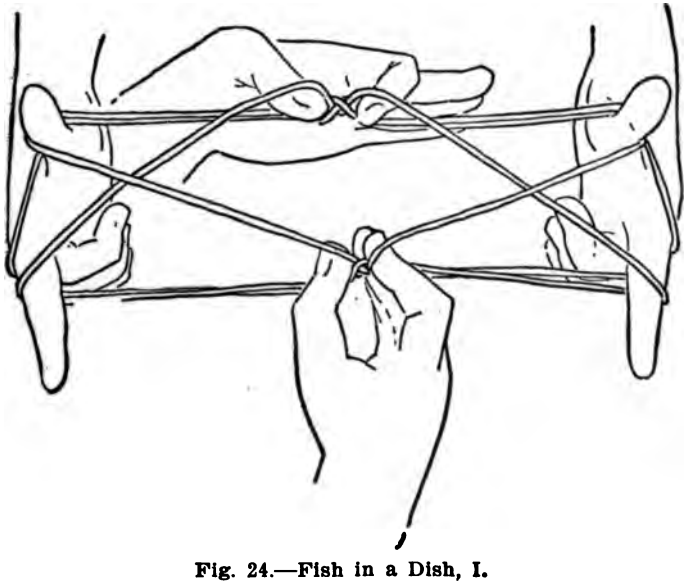


Fig. 24.—Fish in a Dish, I.

produced by the thumb and index loops, which may be called the near and far right, and near and far left triangles.

(7) Fish in a Dish.

Synonyms: Tjyel-kou-kong-i=Rice-mill Pestle (Korea); tsuzumi=a Musical Instrument (Japan).

"A" inserts the right index from above into the far left triangles, and his right thumb from above into the far right triangle, his left index from above into the

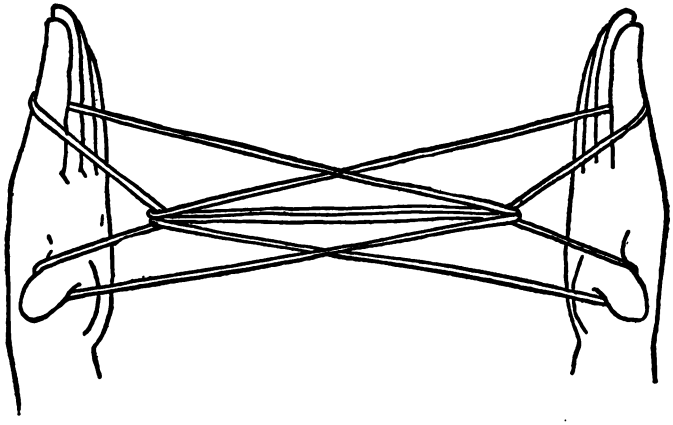


Fig. 25.—Fish in a Dish, II.

near left triangle and his left thumb from above into the near right triangle; then turning the thumbs and index fingers up into the central lozenge (Fig. 24), he draws his hands apart, separates the index fingers widely from the thumbs, and takes the figure from "B's" hands (Fig. 25). The "Fish in a Dish" con-

sists of a large central lozenge, divided lengthwise by two straight strings; and right and left near and far

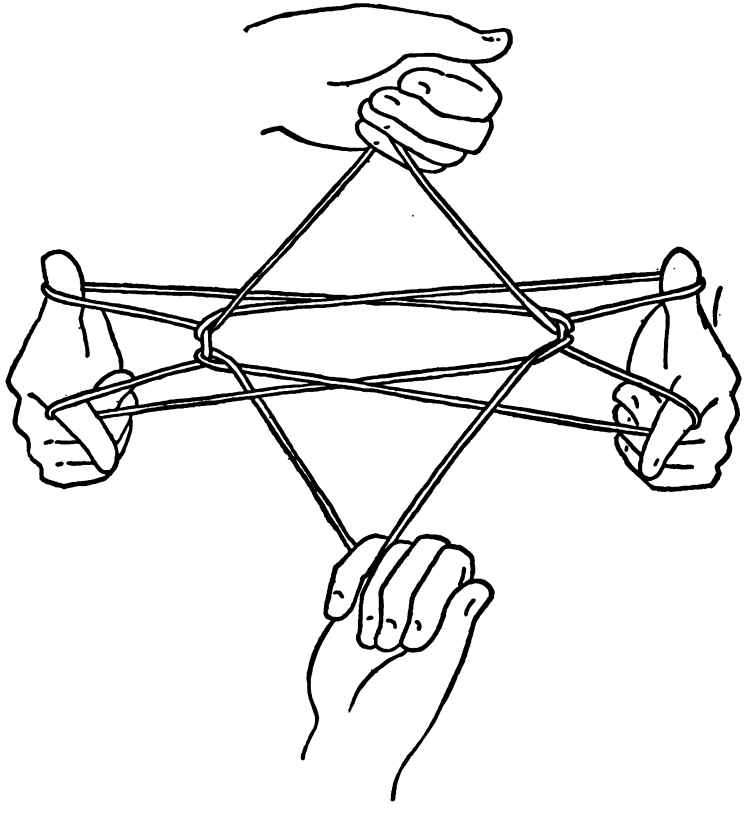


Fig. 26.—The Clock.

triangles. There is a loop on each thumb and a loop on each index, but no string passing across the backs of both thumbs and index.

(8) Clock.

My father, Dr. Horace Howard Furness, tells me that as a child he ended the game of "Cat's-cradle" by forming the "Clock" from the "Fish in a Dish," in the following manner:

First: "B" arranges the two strings which pass from

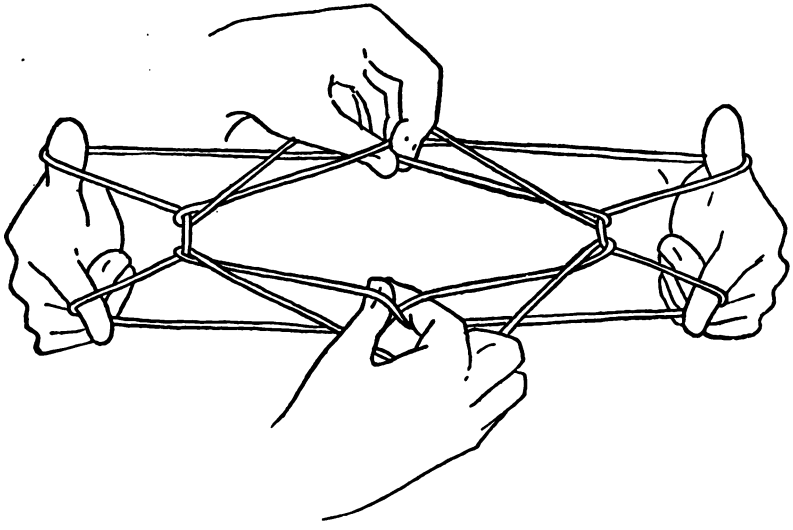


Fig. 27.—Clock.

side to side through the central lozenge so that, uncrossed, they can easily be separated into a near string and a far string.

Second: "B" now turns his left hand with the palm facing upward, and picks up in the bend of the left little

finger the near string which passes through the central lozenge, and draws it over the other strings toward "A;" then turning the right hand with the palm facing upward he picks up in the bend of the right little finger the far string which passes through the central lozenge, and draws it over the other strings away from "A" (Fig. 26). Putting the right thumb from above into the right far triangle, the right index from above into the left far triangle, the left thumb from above into the right near triangle, and the left index from above into the near triangle, "B" turns the thumb and index of each hand toward the centre of the figure and up into the central lozenge (Fig. 27), when, by drawing the hands apart, and separating the thumbs widely from the index fingers, he takes the figure from "A's" hands (Fig. 28).

When the figure is held vertically it is supposed to represent a tall clock.

The "Real Cat's-cradle" is capable of some variation: The Philippine Liano Moros at the St. Louis Exposition always passed from the (6) "Cat's Eye" back to the (4) "Manger" without any intervening steps, as follows: The "Cat's Eye" is on "A's" hands. "B" picks up in the bend of his right little finger the string which passes between "A's" left thumb and index, and lifts that string off "A's" left index only; in like manner he picks up in the bend of his left little finger the string which passes between "A's" right thumb and index, and lifts that string off "A's" right thumb only; then, still holding each string in the bend of the little

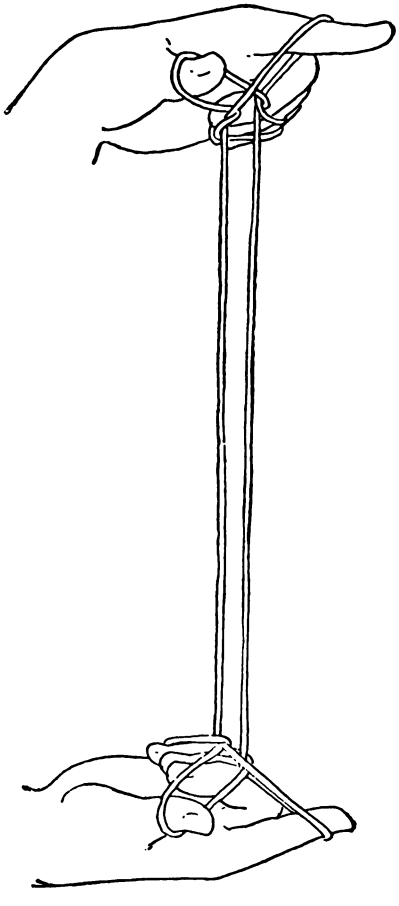


Fig. 28.—Clock.

finger, "B" puts his right thumb and index (held close together) down into the figure, near "A's" left hand, and then up into the central lozenge, and thus picks up from below on these fingers the crossed strings of that side; in the same way "B" puts his left thumb and index down near "A's" right hand and then up into the central lozenge, and thus picks up from below on these fingers the crossed strings of that side. The figure is now taken off "A's" hands and extended as the "Manger." This may be the way that the Koreans, according to Dr. Weir, pass from the (6) "Cat's Eye" to the (3) "Candles." Apparently Japanese and Koreans pass from the (3) "Candles" to the (6) "Cat's Eye" (see Culin, 2, p. 30), but I do not know how it can be done without an intervening figure. It is possible to jump from the (1) "Cradle" to the (3) "Candles" by picking up the crossed strings as if for the "Soldier's Bed," but putting the fingers down into the figure, and separating the hands; then the "Candles" are held, of course, with the fingers pointing downward. We can pass directly from the (2) "Soldier's Bed" to the (6) "Cat's Eye" by picking up the crossed strings from below, bringing them around the side strings and down into the centre of the figure, and then separating the hands.

KNOTTING.

In his excellent little book on Knotting and Splicing, Mr. Paul N. Hasluck[1] says: "From the beginning man-

[1] Knotting and Splicing Ropes and Cordage. By Paul N. Hasluck, 1909, Cassell.

kind must always have used some kind of knot to join animal sinews, plant fibres, or hide strips which, in ancient days were the prototypes of the varieties of cordage now employed." He further states that as lives and property have been sacrificed by ill made knots it is important that all of us should know how to make knots best suited for our purpose. Most of us have probably seen some accident due to a faulty knot, even though it was nothing more serious than a loose shoe string or the spilling of the contents of a bundle of fresh laundry.

The *nip* is the most important thing about a knot, and is the part which is pinched by the pull on the cord and which holds the knot.

A *bight* is a loop formed when a rope is bent back on itself.

I have selected the following nine knots (Fig. 29) as being the most important from the standpoint of occupation, as all of them, aside from any special use which they may have, are useful in making ornamental or useful articles of string. At the same time the first five are classed as useful knots and the last four as fancy knots. There are, however, many other useful and ornamental knots, as will be seen by referring to Hasluck or some other book.

Probably the simplest knot is the **overhand knot** which is most frequently used to prevent the end of a rope or cord from untwisting, or unlaying, as it is technically called. It is made by bending the rope back to form a loop or bight, passing it under and over the

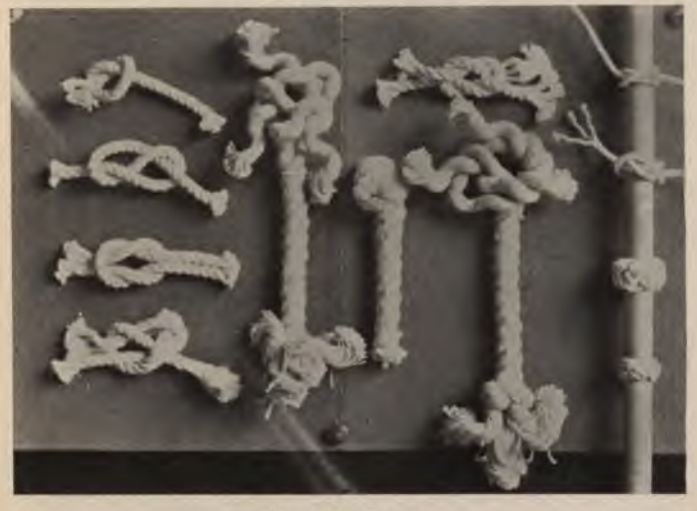


Fig. 29.—Knots.

On the left, at top, is an overhand knot; below a figure-of-eight, reef, and weaver's. To the right of these is a crown knot being formed and pulled taut below. In the middle is a wall and crown, or manrope knot. The lower end of the rope is served. Above is a granny, and the thicker rope below shows a wall knot being formed, and pulled taut. On the stick is tied, above, a clove hitch; below, the beginning of the turk's head, shown complete below. The smaller is in better proportion to the stick, but does not show its formation so clearly.

stem and through the looped portion. When partly made it has very much the appearance of a pretzel.

If the loose end is carried through the loop 2, 3 or 4 times it becomes a double, treble, or fourfold knot, which is larger than the simple overhand knot.

A **figure-of-eight knot** is made by passing the end of the cord back, over and around the standing part or stem, and down through the loop.

A very common and important knot is the **square, true, sailor's** or **reef knot** which is used to join the ends of cord. To tie this take an end in each hand, cross them, laying the left on top of the right, which is brought over and under the left. Bend the ends back on themselves and pass the left end, which is now at the right, over and under the right. It can be seen that we now have two loops which interlock and both the stem and the end lie on the same side of the opposite loop. A very common mistake is after bending the ends back on themselves to pass the left end (now on the right) *under* and *over* the right. This brings the stem and the end on opposite sides of the loop. It is a poor knot as it will not nip until the first portion made has been pulled and, therefore, anything which has been tied together is not held tightly. It is called a lubber's knot or granny and is *said* to be usually tied by girls. To untie a square knot quickly, pull the stem and end of the same side. The description of these knots may appear complicated, although they are very simple and they can probably be better understood from an illustration. A modification of the square knot is

the surgeon's. Make an additional turn of the right end, over and under before bending the ends back. This prevents slipping.

A **weaver's knot** is a modification of the square knot, in which the end of one side does not lie parallel with its stem, but crosses under the stem and lies on the opposite side of the loop which retains it—that is, the loop of the opposite side. Weavers call this the thumb knot because they make it over the left thumb. It is used to join the ends of broken warp. The same knot is used by netters to join the ends of the twine, and it is the same knot which is made by the netting needle. The knot is properly made as follows: The two ends are crossed over the left forefinger, the left lying over the right, and held by the left thumb. The right stem (from the unwoven warp) is then brought over the thumb around the two ends, completely around the left end (which stands up to our right), and so lies between the two ends. The left end is then pushed back under the loop lying over the thumb, the right end and the right stem are then grasped together and the knot pulled taut.

A **clove hitch** is used to fasten a boat to a stake or pile, although it may have other uses. It is formed from two half hitches. Holding the rope in both hands about two feet apart, twist the right hand so that the rope between the hands twists into a ring, the left side lying above the right. Slip this over the stake, make another in the same way, pull tight, and the boat is firmly moored. To unfasten loosen the nip and slide

the rope to the top of the stake, when the rope will naturally fall straight. This has the advantage of being quickly tied and untied.

The following knots are usually classed as fancy, or ornamental, in distinction from the above, which are classed as useful.

The first is the **wall knot,** the second the **crown knot.** They are frequently combined to form a finish to a rope or cord. The rope or cord must first be wrapped with several turns of string which is tied about it at a point where we wish the knot to come. The rope is unlayed to this point. Make a bight with one strand, hold this to the stem, leaving the end free, which is passed outside the next strand which is bent over to form a bight the same as the first, the free end passed outside the third strand, which is bent over it and the end passed outside the first strand and up through the bight which it forms. The ends are then pulled taut and the ends cut off close. The crown knot is made in the same way excepting that the free ends are brought *inside* of the next strand which is then bent over to form a bight as above. It may assist in fixing these knots in one's memory to associate that the ends form a bunch in the centre in the wall knot and that they are all separated in the crown, the end of the latter knot being flat like the crown of the head. Various combinations of these two knots may be made, the most common being a wall and a crown which forms a manrope knot; a double wall, a double crown, or a double wall and a double crown which forms a tack knot.

A **Turk's head** is a very ornamental knot which is formed on a rope, or stick, with a piece of smaller stuff. One of the shoe dusters, to which I have referred (p. 92), had a Turk's head made of cane, and probably all have seen walking-sticks or umbrellas with this ornamentation. The simplest way to make it is to first make a clove hitch loosely. The right end is much the longest, and this is passed around the lower hitch, coming out between the two hitches. The upper hitch is pulled over the lower. The loose end is passed around the upper hitch and comes out between the two hitches, fixing their position. The lower hitch is then pulled over the upper, the loose end passed around the lower and coming out between them. This alternate crossing of the hitches with the interweaving of the loose end is continued until the circumference has been made, when it will be found that the next move of the loose end will parallel it with the right end. From now on the loose end is simply woven in and out alongside of the strand where it naturally falls, until each group contains three strands. The length of cord must be more than nine times the circumference of the object around which the knot is made.

The next knot is the **Solomon's knot** which is used considerably in macramé work. It is simply a square knot tied on a leader, and is considered in detail under Macramé.

SERVING OR SEIZING.

To keep ropes from unlaying, or for other purposes, they are wrapped with twine, and according to the

manner and position various names are given to this operation. What I had always known as serving I found, on studying Hasluck, is end seizing. It is used to prevent ropes from unlaying where an end knot is undesirable, and is easily done. Holding the rope to be seized in the left hand with the end to the right, at about an inch from the end take several turns about it with a piece of strong string, holding the left end of this in the left hand and winding with the right. After three or more turns have been made, turn back the left end and wrap it under. When the wrapping or seizing has come nearly to the end, lay the wrapping cord down and wrap it in for a half-dozen turns. Pull taut, cut off all ends and the rope has a neat finish. If the middle of the rope is being wrapped, when it is desired to finish off, lay in a bight, preferably of the same sort of cord, wrap it in, leaving a loop at the end through which pass the end of the wrapping cord. Pull one end of the bight and this will pull the cord under the wrapping and so fasten it.

BRAIDING.

Braiding is really a form of weaving, and we are probably most familiar with the three fold in the form of "pigtails" on our little girl friends, although it is said that the same little girls when grown up are in the habit of putting their hairs to bed in this same form. As most everyone knows, the three fold braid or plait (from the Latin *pleo,* I fold) is made by taking the right outer cord, or bunch of fibre or hair, and

passing it over the next and under the third. The third strand, which has now become the middle, is then passed under the second in the opposite direction. The first is passed over the second. The third over the first, etc. The process is a bending of the outer strand over the middle one, the bent strand becoming the middle and being bent over by the outer strand of the opposite side, this being kept up until the braiding has been accomplished for the distance desired. Most of us have acquired this accomplishment early in life and it has become somewhat of an automatic movement. When we wish to braid four or more strands in a flat braid it may seem difficult to us, but if we have mastered the principle that it is a weaving it will after very brief practice become automatic. It is easier to work out these braids than it is to follow directions. In beginning to braid four or more we have to start the strands in pairs—that is, the first and third are laid over the second and fourth, the two middle ones (the first and fourth) are crossed, the third is bent back over the fourth, and we have three strands lying to the left. Bend the one to the extreme left back and weave it under and over the other two. Bend the extreme right hand one over the next, which again gives us three strands in the left hand, and the process is a repetition. In starting the five strand braid the first and second, and third and fourth strands are crossed in pairs as above and the fifth is bent back. The rule to start all braiding may be said to cross in pairs, then cross the middle pair, after which it is simple weav-

ing. Braiding is easier to learn if strands of two or four different colors are used, as then any irregularity in the braiding becomes at once apparent. These braids may be used for various purposes and are especially effective when made of paired strands.

A variation from the 4 flat braid is the 4 round, which gives a thicker, stronger and more ornamental cord than the constituent strands. Two persons can do this much more easily than one, and it is more easily learned if two colors are used. The ends of the four strands having been fastened to a stationary object, one person, A, takes the two strands of the same color, one in each hand and crosses them—that is, the right hand strand is put in the left hand, and vice versa; the other person, B, then crosses the other two strands over that made by A. A crosses the cords over B's, and this is continued until the length desired is made. All braiding should be done fairly tightly to appear well.

A different form of braiding, which is used by sailors to make mats and chafing gear is described in Hasluck's book on page 121.

SPOOL KNITTING.

Spool knitting, which some of us learned in our childhood, may be enjoyed by some patients, but the fact that the end product has little value is a serious drawback. Formerly the cord which was woven by this means was used for children's reins, but the fact that it is a dirt catcher caused careful mothers to taboo it.

I have seen an afghan made of these cords which had been sewn together side by side, but it was not as attractive as those knitted or crocheted. The cord may be useful for some special purpose, however, and a knowledge of how it is made can do us no harm. Into the end of a spool drive five pins, or brads, equidistant. Wind the yarn or string, which is the material used, twice around these pins. Then with a stiff wire or fine crochet hook pull the first course over the upper and over the top of the pin. Continue this, and in time the woven cord will pass through the hole in the spool.

A special spool for this work can usually be purchased at toy stores or where yarns are sold. This has four staples on which the knitting is done, instead of the five pins noted above. On account of there being an even number the work must be started differently. The string is carried around each staple instead of across it, although after the start it is carried across in the usual way. The cord made is less of a round than when done on five points, and may appear square.

Certain variations may be made, such as not carrying the string across one space, but going back and forth. Or the work may be done on three or two pins only. Or the string on one pin may be slipped off before carrying the string across it, so that no stitch is taken. This is pulled out when finished to make a sort of edging.

There is a book on spool knitting by Mary A. McCormack, but I am not familiar with it. If the patient

shows a liking for spool knitting this should be consulted.

RAKE KNITTING.

Rake knitting is an improvement over spool knitting, and with it many useful and attractive articles can be made. It is described by Miss Tracy in her book on page 48.

Very attractive bags are made of a special hard finished cord. Soft cotton cord is not suitable for rake knitting, although yarn is excellent material with which to knit.

STRING DOLL.

This is a modification of a tassel. Usually a book or piece of wood the length that it is desired to make the doll is selected and the string, usually white knitting cotton, is wound about it until it is of the required thickness, when the string is cut along one side. This cut portion is laid down carefully and unfolded to its full length. A piece of string is tied firmly about the middle. The bunch is then folded over this cord so that it is entirely covered. Two portions are kept out to form the doll's plaits. String is tied about the remaining portion to form the neck. Two portions are selected to form the arms. Another string tied about the bunch forms the waist. If it is a lady doll we are making, nothing more is necessary than to finish our plaits, tie and cut off the arms at the proper length, and mark eyes, nose and mouth with pencil or black thread. If we desire a boy doll, no portion is left

out for plaits and the end is divided to form legs. One of my pupil nurses made an Indian by using red string which was covered with brown string from the neck to form the clothing. Black and white yarn formed the head-dress. Many varieties can be made in this way.

SHOE DUSTER.

A more useful article is made in much the same way. A handle about 18 inches long is selected and may be ornamented in any way desired. It is notched completely around about a half inch from the end. The cut strings, which should be at least 16 inches long, are tied firmly into this notch at their middle. The upper portion falls over the lower and is tied about the whole bunch below the end of the stick handle. A loop or ring is fastened to the upper end of the handle and it is hung outside of the front door, in order that one may dust their shoes before entering the house. Carpet warp which comes in a great variety of colors can be used, or cotton string. If the desired shade cannot be bought the duster can be made of white string and dyed. The handle can be decorated in many ways. I have seen them wrapped with cane, painted or carved. Some very attractive ones have been on sale in the shops.

MACRAMÉ.

Macramé is a variety of string work which was very popular about 1880. It was so popular and so many articles adorned our rooms and became dust catchers

that there came a revolt and it all disappeared. Recently there has been a revival of it, and bags made of raffia have been used for several years. Some macramé is very beautiful. Louisa Walker[1] says (p. 160): "Macramé or knotted lace is of very ancient origin, and was much used for ecclesiastical purposes in Spain and Italy in the 16th Century. In the time of Queen Mary it was made on a pillow and was used to make ornamental covers for handbags and other articles which were lined with colored silks. The word macramé is of Arabic origin and was applied by the Italians to the ornamental fringe produced by knotting the ends of their coarse towels; a more appropriate term is knotting." The book from which the above quotation is made contains directions for macramé and a number of other attractive things, but also shows many horrible examples of what can be done with string.

Macramé is best worked on a board to which the doubled strings, called leaders, are tacked, or they may be "cast on" a stick by being looped over it. The cord is bent into a bight which is passed over the stick and the two ends are passed through it and pulled taut. This is sometimes called a slip knot, but is really a running knot. The so-called macramé knot consists of plain buttonhole stitches worked over a cord, the leader, which must be held taut while making the knot.

[1] Walker, Louisa. Varied Occupations in String Work. London, 1896, Macmillan.

Seine twine is usually used. This comes in several sizes and colors, and may be dyed if desired.

For specific directions for making articles in macramé I would refer to Louisa Walker's book or some other work especially on the subject. I have, however, thought it best to give the directions for making a macramé bag as it is an excellent exercise in knotting, and when made with raffia makes a useful article. There are a number of so-called "bars" (Fig. 30) which are used in the work which may be applied to other forms. These are shown in the accompanying plate and are rather simply made. As is shown, they are all made on a leader. The first, called corkscrew, consists of a buttonhole stitch to the right—that is, the working string is carried over the two cords which form the leader, around under it, and through the loop formed by itself and pulled taut. The knots which this forms naturally arrange themselves spirally about the leader, hence the name corkscrew. To insure a uniform twist the string is passed back and under the leader at every sixth stitch.

The buttonhole bar is made by a buttonhole stitch to the left and the knots are kept in line and not allowed to fall spirally.

The simple Genoese bar is made by single buttonhole stitches alternating to right and left and is made with two strings, besides those forming the leader.

The double Genoese bar consists of two stitches worked alternately instead of one. Variations can be made by using 3, 4, 5 or 6 alternately.

a b c d e f g h

Fig. 30. Bars.—a, Corkscrew; b, Buttonhole; c, Simple Genoese; d, Double Genoese; e, Waved or Shell; f, Twisted or Banister; g, Solomon's; h, Tatted.

The waved or shell bar is made by making 6 buttonholes to the right or left and pushing them closely together, naturally the cords on the unknotted side will approximate more closely and the bar has a curve. The next six stitches are taken with the other cord on the opposite side giving the waved appearance.

The twisted or banister bar is made by passing the left tying cord over the leader and under the opposite tying cord. This is then passed under the leader and over the first cord. This will naturally fall into a spiral.

The Solomon's bar consists of a series of square knots tied on a leader and is made by passing the left tying cord over the leader and under the opposite tying cord, which is then passed under the leader and over the left cord. This is then passed under the leader and over the opposite cord, which is passed over the leader and under the opposite cord and pulled taut. The next knot is tied beginning with the right string.

The tatted bar is made with a single cord and consists of two buttonhole stitches reversed to each other. It is made by taking the knotting cord over the leader in the ordinary way, *i. e.,* over, under, and up through the loop and pulled taut. Next take the cord under, then over the leader, and down through the loop. A double tatted bar with two strings worked alternately is more effective.

All of these knots and bars may be used to make attractive and useful articles. One of the simplest is a watch fob.

Watch Fob.—To make this take four pieces of No. 16 seine twine about 20 inches long. Double two of them over a hook, or other stationary point, to form the leader. One and a half inches down begin a Solomon's bar, which make for 1½ inches. With the strands in pairs tie a wall knot. One and a half inches from this tie a manrope knot (wall and crown) and cut off ends, leaving about an inch to form a sort of tassel. This makes a useful fob which can be washed or thrown away when soiled as it is inexpensive. If seine twine is not available any form of string can be used. Many variations can be made, using the knots, braids, and bars which have been given. A four fold flat braid with the cords in pairs is very handsome.

Watch Guard.—I once saw a very handsome watch guard made from No. 32 seine twine, and was permitted to take the following measurements from it. It was beautifully made, had been frequently washed, but was still most attractive. Unfortunately I cannot give the length of twine required but would imagine that the eight constituent twines should be at least 10 feet long, and could be coiled to prevent tangling. The two ends were fastened to a ring with a snap hook, and the total length was 52 inches.

8 strings, 10 feet long. Loop 1¼ in. outside; 3 in. of loose tying;[1] 3¼ in. Solomon's knots; 2 crown knots; ½ in. loose tying; 2 crown knots; ½ in. loose tying;

[1] By loose tying is meant that the cords, divided into two groups, are tied as for several square knots or grannies without pulling the strings taut.

2 crown knots; 3 in. round braiding; 2 crown knots; $\frac{3}{8}$ in. loose; 2 figure-of-eight (flat) knots (made with 2 strands of 4 each); $\frac{1}{2}$ in. loose tying; 2 crown knots; $2\frac{1}{4}$ in. Solomon's knots; 2 crown knots; $\frac{5}{8}$ in. loose tying; 2 crown knots; $\frac{5}{8}$ loose tying, 1 crown knot; $3\frac{1}{4}$ in. spiral; 4 in. loose tying; overhand knot (centre). Reverse the above directions.

Macramé Bag.—A beautiful bag can be made with seine twine, although the same may be made with raffia (Fig. 31) and has the advantage of being lighter. It forms the outer covering of a bag made of colored material and is useful for carrying knitting, etc.

To make a medium sized raffia workbag, first take one strand of raffia and on this piece at the centre tie five strands of raffia of the same length and width with a slip knot. Then tie the first strand of raffia used, bringing the cast on pieces together so as to form a small centre ring. This gives six double strands of raffia. On each double strand tie seven more strands (the form of tie being a Solomon's knot). This is the foundation of the bag. Sew it firmly to a round piece of cardboard, the size it is desired to make the bottom of the bag. The strands tied by means of the Solomon's knot will lie half on one side of the double string, or leader, and half on the other. Take the seven strands lying on one side of the leader with the seven of the next set which lie next to it; this, with one from each leader makes sixteen strands of raffia with which to work.

A safe plan is to make the divisions just indicated

all the way around the circle, tying each set in a loose temporary knot.

Leave out the two strings on each side which are farthest from the centre—that is, one of the double strands and the last of those tied with a Solomon's knot. The next strand in the row of Solomon's knots, or sixth, is the strand with which the next tying is done. Gather together the strands from both sides of the remaining five Solomon's knots, lay them down in order, and with the strands from the sixth make a Solomon's knot around them as a leader. This forms one-half of a diamond. Take each of these strands and tie to the seventh string on the same side, using the buttonhole stitch or knot. Slanting the same string parallel with the opposite side of the diamond, on this string tie in order, five on each side, with the buttonhole knot, the number forming the second half of the side of the diamond. The two tie strings are now tied together with a square knot. This gives seven strands on each side of the diamond. On the eighth strand (the one left on each side) tie these seven in the same manner, pulling the knots up close to the first row of knots. Tie the tie strings together as before. This forms one complete diamond. The rest are made in the same manner. When all sections are tied it should form a six-pointed star.

Spread the work out flat, tie all strands in order to a ring of reed, first passing it completely around the ring, then tying with an overhand knot. Another ring may be placed outside of this in the same way.

Fig. 31.—Raffia Bag.

If the bottom is to be quite large, another row of diamonds may be made outside of the first row. These will lie at right angles to the first row.

Divide the strings into sets of fours, using the two outer ones to tie a Solomon's knot over the inner ones. Do this all the way around the ring at any desired distance from it. Again divide in fours, using two from each group, and tie in the same way as many rows as desired. A pretty effect and a better bag is obtained by making these rows of knots close to the ring and gradually increasing the distance between them.

Work out until the size it is desired to make the bag is attained, or until there is remaining three or four inches of each strand. Gather two adjacent Solomon's knots and with a new strand of raffia make a Solomon's bar and at the end bend back to form a loop. Do this all around the bag, thus forming the loops for the drawstring. The latter is braided flat or round as preferred. Two are used, being inserted at opposite sides and running through all of the loops. Tie ends of the draw string with an overhand knot and fringe out to form a tassel.

It will be noted that in the instructions which have been given there has been a gradual development from simple things to more complicated, and by combinations to still more complicated. It is so that we learn and develop mentally, and it is this plan which the nurse should pursue in occupying her patient. She may have to stop for a long time at a certain stage, but this should not discourage her. Any occupation

which begins with simple things and becomes more complicated is what I call a developing occupation and is especially valuable for use with mental cases.

There are many more things which can be done with string and a knowledge of which the nurse must acquire from other sources. The most valuable things are netting, tatting, crocheting and knitting. The last three are especially valuable because they usually require counting and close attention. For the same reason they may be fatiguing. They are all much more easily acquired under a teacher than from descriptions, but the following references are given in case a teacher is not possible.

Netting.—Hasluck, p. 125. Walker, p. 116.

Tatting.—The New Heavy Thread Tatting, *Woman's Home Companion,* May, 1913.

Knitting.—Fleischer's Manual.

Crocheting.—Fleischer's Manual.

Hairpin Crocheting.—Walker, p. 240.

Hair-pin crocheting is recommended as a simple form of work which can be done by bed patients or those who are mentally incapable of doing the more complicated crocheting where counting is necessary. The product is useful and can be joined together to form many articles, or is used as an edging.

WEAVING.

As one studies about weaving one learns that the word loom may indicate a great many different objects, and probably the broadest meaning is, any object which holds threads in such a way that other threads may be woven about them so as to form a fabric. The fixed threads form the warp and the other threads the woof.

In playground work weaving on a pasteboard loom has been used to make doll's hammocks from string. A loom of wood and wire is now supplied for this purpose, but pasteboard is almost as satisfactory. To make a hammock take a piece of pasteboard the size that it is desired to make the body of the hammock and cut notches along each end a quarter of an inch apart. The usual size is about 8 by 12 inches. Take two rings about an inch and a half in diameter, or make them from twisted wire, reed, or twigs, and fasten these to the centre of the pasteboard by tying. Fasten the end of the warp to one ring, pass it over the end notch to the corresponding notch on the opposite end through the second ring, then back to the next notch, to the corresponding notch on the opposite end, through the first ring, keeping this up until one side of the pasteboard is covered with strings lying parallel, a quarter of an inch apart. Strings which are cut a little longer than the hammock is wide are then woven

on the warp, it being possible by varying the color and weave to make many pleasing patterns. If it is desired that the hammock should not have a fringe, the woof is a continuous cord. The weaving can be done more easily and rapidly if the woof is threaded on a needle (Fig. 32). If the ends of the pasteboard are curved convexly the hammock will have a sag and the doll will not be so apt to fall out. When finished the string holding the rings is cut and the hammock slipped off the pasteboard. While simple, the work is interesting and the weaving is excellent training for the attention. If the hammock is made for some particular little girl's doll the patient will naturally take more interest in the task.

This form of weaving can be adapted to make any woven article that we wish. For example, suppose we wish to make a pointed cap, such as used to be known as a toboggan cap, from yarn or worsted. We will make this fifteen inches long, so tie a pencil to a piece of string and fifteen inches from it tie an overhand knot and thrust through it a pin, which place in the corner of a piece of pasteboard and with the pencil draw from one edge a curve. Next measure around your own or some other convenient head and mark half this distance on the curve drawn. From this point draw a straight line to the corner where the pin is attached. Cut off this corner about half an inch and make a broad notch. Cut out the pasteboard and along the curved edge make a series of notches. These should be a half inch apart for heavy yarn and

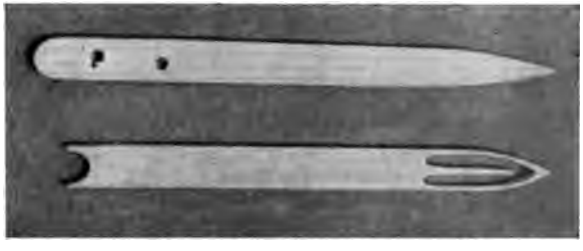
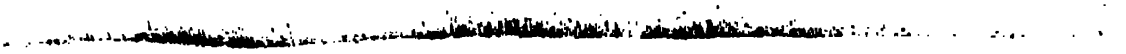


Fig. 32.—Wooden needles for weaving. Above is the needle for simple weaving; below is a netting needle.



less for lighter ones, those at the two edges being half the distance from the edge that they are apart. Fasten the yarn about the first right hand point of pasteboard which lies beween it and the next notch, so that the long end is directly over the first notch, then wind the yarn to the notch on top and down the opposite side to the first right hand notch on the other side. Pass the yarn under the point of pasteboard to the next right hand notch, over the point, down the other side to the next right hand notch on that side, around the point to the next notch, and so back and forth until all of the notches have been filled and the warp lies evenly spaced on the two sides. The weaving is then done around the loom with a continuous thread, interrupted to put in the pattern desired. When finished the pasteboard points are broken off and the form slipped out. The cap is reversed and finished with a cord and tassel. If made shorter, the upper end must be broad and notched with the same number as below. This is drawn together with a drawing string. These looms, already prepared, with directions and materials, may be procured from the school supply stores.

The number of threads in the warp must be uneven, which is easily managed for the hammock, but is more difficult for the cap. Probably the simplest plan is to run an extra thread to one of the notches, but this has the disadvantage of making an uneven place in the weaving. The difficulty may be overcome by having the notch on one side at the same distance from the edge as the distance between notches, and running the

extra thread along the edge where it may be secured with a pin.

The next development as a loom is a wooden frame with notches or brads in the end pieces over which the warp is strung. There are a number of different forms of this loom on the market, among them the Faribault, Todd, Tyndall and others.[1]

There are also a number of hand looms (a hand loom is any in which the shuttle is moved by hand) on which runners, rugs, scarfs, curtains, or other useful and beautiful articles may be woven. Work on these looms should only be undertaken after some instruction has been received, although almost anyone with a slight knowledge of weaving can learn how to work one of these looms from a book of instructions.[2]

Weaving is one of the best occupations there is, and especially on one of these larger looms, for the convalescent or the chronic case in whom there is little mental reduction. In its higher forms it is a distinct craft and requires skill and good taste in the mechanical part of the work and in the selection of design, color, etc. It is quite proper that it be urged as a hobby for one who shows a liking for it.

The Indians wove beautiful blankets on a very crude loom, and most beautiful rugs are made by Persians

[1] Todd, Mattie Phipps. Hand loom weaving. New York and Chicago, Rand, NcNally & Co.

[2] Hooper, Luther. Hand loom weaving, plain and ornamental. Artistic crafts series of technical handbooks. New York, Macmillan Co.

and others on a similar one. A pole is suspended and carries the warp with another pole at the bottom, which is weighted to stretch the warp. Ordinary yarn or worsted will make beautiful Indian blankets when closely woven, and this can be done on a large wooden frame.

Weaving on frames such as are mentioned above can be done more easily with a needle (Fig. 32) about seven or more inches long made of wood, one-eighth of an inch thick, to which the thread is attached by running through one or two eyes in the blunt end. The thread may be almost any form of string or rags. Some beautiful rag rugs are made by twisting two strands of different colors together before weaving them. The preparation of these rags is a good occupation itself.

There has recently been revived an old way of making tidies (which I understand no longer appear in our best households) or mats to be placed on polished tables to prevent their being marred by hot dishes. Frames of thin wood on which to make these may be purchased with notches on the four sides to accommodate the string, or a frame can be made of the size desired and nails driven in the sides an inch apart, about which the string is wound. Usually a soft white knitting cotton is used and is fastened at one nail, brought across the frame and around the opposite nail and the next, again across the frame until all of the nails have been used and we have a series of parallel cords stretching across the frame, which is turned and

another series of cords are wound on at right angles to the first. This winding is continued until the rows of cords are about a half inch thick. They are then fastened together by means of a cord which may be run diagonally across the open square or run parallel with the intersecting cords. The diagonal tying is done twice and makes the mat stronger. A netting needle (Fig. 32) makes the operation much easier, and is usually of one-eighth wood about six inches long, one-half wide, with a broad notch at one end and a blunt point at the other. Back of this blunt point about an eighth of an inch the wood is cut away for about an inch and a half, leaving a tongue in the centre. The cord is held on the needle, brought around the tongue and down the same side, so holding the end under it, over the broad notch, up the other side, around the tongue, down again over the notch, and so on, not crossing itself, until the needle holds all of the cord which it will accommodate. By its use we have the cord coiled, as it were. In tying the intersections of the mat the free end is tied about the first intersection with a square knot, the needle is passed over the next intersection, up through the space towards the knot last tied, over and under itself, making an overhand knot, and pulled taut. Cord is uncoiled from the needle as needed. When all intersections are tied the cords are cut from the nails, trimmed evenly and our mat is finished. If a frame is used without nails the cord is wound over and over it and after tying is cut at the edges to take off the frame.

The diagonal tying is used twice on a tidy, the mat turned over and half of the strings are cut through midway between the intersections. With the handle of the scissors passed to and fro over these ends, they are fluffed out and make a rather pretty effect.

RUG MAKING.

A group of patients and myself once had a good deal of pleasure in making two rugs in the Persian manner from some carpet yarn which we had acquired by donation. The warp of white string was stretched on a frame, then a row of short pieces of yarn (about 3 inches long) were tied to the strings by doubling them over a string and passing the left end over the string, under the next to the right and out, the two ends forming the pile which was trimmed smooth when finished. Various designs were made during the weaving. Between each row of tied yarn a string like the warp was woven to give strength to the rug. A similar rug could be made with waste yarn or worsted. Incidentally a study of oriental rugs might be made to add interest to the occupation.[1]

Besides the rugs which are woven on a loom, there are a number of other methods. First, the old-fashioned braided rug, which may be made of any kind of rags made into braid, and coiled round or oval, the

[1] Lewis, Dr. G. Griffin. The Mystery of the Oriental Rug. Phila., J. B. Lippincott Co., $1.50.

Lewis, Dr. G. Griffin. The Practical Book of Oriental Rugs. Same. $5.25.

edges being stitched together. The rags are cut into inch strips, or an inch and a half for a heavier rug, sewed strongly with linen thread, but not into a hard spot. A small amount is braided at a time, the work being held in the lap, care being taken to make the sides of the braid smooth and to keep the flat part of the braid always on top. The rug is sewed on the wrong side with waxed, heavy linen thread. When made of cotton these rugs can be washed.

Another form is the hooked rug which, when made by an expert, may be very artistic. This subject has been treated so entertainingly and thoroughly by Helen R. Albee[1] that the reader is referred to her little book, as justice to the subject cannot be done here. The work requires a good deal of patience and is probably a better form of occupation for those patients in whom mental reduction has occurred, such as advanced dementia praecox, imbecility, or senility, than for those who are suffering from a functional psychosis. For the latter more varied occupations are better.

Rugs may also be knitted or crocheted with coarse needles from narrow rags. A silk portiere was knitted from the colored selvage of silks.

[1] Albee, Helen R. Abnakee Rugs. 3 Edition, Cambridge, 1909. The Riverside Press. The first edition was published in 1903. Mrs. Albee's address is Silver Lake, N. H.

Miller, Katharine E. Abnakee Rugmaking as a Village Industry. The House Beautiful, X, 287, October, 1901.

LACE WEAVING.

A special loom for making lace can be purchased for about five dollars, and has proved an interesting occupation in several instances. It is not especially difficult.

PAPER WORK.

Like string, paper is a material that is usually available; therefore, a knowledge of its possibilities is important. Paper is defined as a substance consisting essentially of cellulose fibres interwoven into a compact web, made by chemical and mechanical processes from rags, straw, wood, bark, and other fibrous material into thin sheets or strips. It is used as a medium for writing, printing, and wrapping, although various special uses have been devised, such as building, packing, etc. There are five processes in its manufacture: (1) cleansing, (2) boiling, (3) washing, (4) bleaching, (5) beating. This gives a pulp, which is fed into machines, whence it emerges as the finished product which we all know.

Probably the first paper was used by the Chinese in the second century B. C. In 751 A. D. some Chinese paper makers were captured by the Arabs, and introduced its manufacture. From this time a knowledge of its manufacture and use rapidly spread. It seems impossible for us to imagine how we could get along without it in our daily life. Its commonness and cheapness makes us probably esteem it less than we should. The nurse can find much material that will be of use in waste paper baskets or the wrappers of bundles.

PAPER FOLDING.

These forms are used for the same purpose as the puzzles and catches—that is, to attract the patient's attention and interest. Some, however, are useful.

Kindergartners, I understand, begin the paper work with a five-inch square of moderately heavy colored paper, and with this develop many forms. That color is an additional attraction is undoubted, and in all of our work, whenever possible, we should use this to make occupation attractive to our patients. Aside from this there are great possibilities in educating in color harmonies, etc. The object of teaching folding is to teach accuracy of hand and eye.

The first and simplest form is folding the sheet in half, forming what the child calls *a book*. Another fold makes it a handkerchief. Folding twice more and opening it up makes what the child calls a window-pane or a checkerboard. If the "book" is stood on the two edges parallel to the fold, we have a soldier's tent. If the sheet is folded diagonally we have a shawl. If the checkerboard is folded twice diagonally for guide lines and the sides turned up, we have a box or tray. Folding our sheet twice diagonally marks the centre of the sheet and if, after flattening it out, we bring each corner to the centre and fold, then turn each corner back to the middle of the edge and fold, we have a picture-frame. These and many other simple forms may be developed before the patient has his interest aroused.

Reference to kindergarten books will add much interesting information.

A useful paper form is *the cup,* which is made from a square, but preferably larger than five inches, as the latter size results in a very small cup. First fold the square diagonally. Next place the corners on the diagonal at a midpoint on the opposite sides and fold. This results in a pentagon. Turn down one right angled corner and tuck into the outer fold, and we have a serviceable cup with a handle.

A sheet of paper can be folded into an *envelope form.* The two ends are folded down not quite a quarter. Fold down each corner. Fold each side down not quite one-third, and we have quite a respectable looking envelope.

A *fish's mouth* may be amusing to anyone. It is best made from paper twice as long as wide. This is folded once each way to quarter size. Open up and fold down the corners. From where the corners meet fold a diagonal to a quarter of an inch from the middle on each side. Fold across the middle of the long axis towards the flat side. Fold the turned-in corners together and, holding the two points together, force in the middle towards them. The diagonal folds will allow the form to flatten, and upon them depends the success of the form. A slight movement will make a resemblance to the gaping motion of a fish's mouth, and an eye drawn in proper position will increase the resemblance.

There is a very interesting form folded from a

square which by a turn or two can change from a rather geometrically formed *chicken* into a *sail-boat,* or vice versa. A form such as this may serve to excite the patient's interest because it brings about the desire to see if he can do such as simple thing as make this change. From this he may be induced to make other forms. It is interesting as being a very old form, and I have been told that a certain old gentleman in Southern Maryland was in the habit of folding his offering to the contribution plate in this way.

FOLDING AND CUTTING.

Five Pointed Star.

Many uses will naturally suggest themselves for this, chiefly of ornament. Fold the paper once. Fold at the centre of the folded edge at an angle to it, leaving a portion uncovered, the angle of which is one-half of that of the part folded over. It will probably take a little practice to do this, so that it is best to use a piece of waste paper until we have made our pattern. The uncovered portion is folded over the other part, half covering it. Fold this in half. With scissors cut off the irregular ends. Dependent on the angle at which this is done will be the points of our star, which we have when the paper is unfolded. It is the trick which Betsey Ross showed General Washington and which caused the stars in the American flag to be five pointed.

CUT OUT DOLLS, ETC.

Probably most of us were delighted in childhood with the string of paper dolls which some kind relative made for us, all holding hands. A piece of paper is folded over in one direction several times to the proper size, and from the central fold as a midline we cut with scissors as artistically as we are able, a half doll with arm outstretched, extending to the other folded edges which are not cut through. Unfolding gives us a number of dolls in line. A variation is to fold our paper to a point and cut in the same way. This gives us a ring of dolls holding hands. The possibilities of this work are great. Some persons and some children are able to cut out designs in this way much better than they can draw. One summer afternoon I kept a group of children quiet, so that their mother might have a nap, by reading one of the Oz books, after which I cut out the characters in the above way, each child getting one after they were cut apart. Any symmetrical design can be made in this fashion.

PAPER CUTTING.

Many children delight to cut out figures of animals, etc., with scissors, and a patient may enjoy a further development of this. Very effective pictures can be made very simply, although they must be classed as impressionistic. A dark green fir tree on a white ground gives us the impression of a tree on a hill covered with snow. One of my nurses made an

interesting series of pictures showing a tree on a hill during the four seasons. It was made from papers cut from a paper sample book, four pieces comprising each picture, one for the ground, another for the sky, a third for the trunk of the tree, and the fourth for the foliage. Much more elaborate pictures can be made by having a picture postcard model and reproducing on a larger scale with colored paper. Sometimes crepe paper is used because it is more conveniently procured in necessary shades and gives a better effect. Usually a pale blue paper covers the upper part of the foundation paper or pasteboard, and green for grass, or any other necessary color, on the lower part. On these are pasted houses, animals, people, etc., in proper relation. Much can be taught in making one of these pictures. Perspective, color harmony, form, etc., as well as the skill in wielding the scissors, and the ingenuity in acquiring and using the colored paper. A portion of a discarded and torn colored lithograph may supply one shade, and an old envelope another. Pencil and color box are not needed, and indeed, should not be used for this work. Many other forms of this work will suggest themselves. Making chains or other ornaments for the Chistmas tree. Motifs for the decoration of a box or room, May baskets, candy boxes, etc., but probably one of the best ways to use paper cutting is to illustrate a story, nursery rhyme, etc. If it is undesirable to use scissors, the objects may be made by tearing off small pieces. After a short time one can become quite skilful in this.

A further elaboration of this work is making pasteboard models of houses, etc., which may be grouped to form villages, farms, etc. The method of constructing these is very simple. As many sides of our house as possible are drawn on the pasteboard, and after cutting out they are pasted together by means of a narrow edge, which is left beyond the outline for this purpose. Windows, etc., must be drawn, and in this work the use of pencil and color box is to be encouraged.

Another development is the construction of doll's furniture or boxes, which may be covered with cretonne.

CREPE PAPER WORK.

There are great possibilities in this work and many beautiful things can be made. The softness of the material makes it possible to make flowers which are very natural. The Dennison Manufacturing Co. publishes a little book called Art and Decoration in Dennison Paper, Crepe and Tissue, which is full of directions of how to make flowers, lamp shades, etc., and the monthlies often print articles on various uses of it. Crepe paper rope is used as a substitute for reed in weaving baskets, and is also used to decorate or cover pasteboard forms which are used as jardinieres, waste baskets, etc. A coating of shellac or varnish makes the paper less likely to be soiled or spoiled by wetting. Shellac comes in several colors, and according to which is used will be the resulting shade. This will always be darker than that of the paper used.

Crepe paper rope can be bought in various sizes,

but can be made by cutting a strip of paper the entire length of the roll and fastening one end to the small wheel of a sewing machine, one person holding the free end while another works the treadle, the paper being stretched to its full capacity. The strips can also be made by hand. After two have been made they are twisted together in the opposite direction. Two ten inch strips, or half the width of the roll, will make a rope about half an inch in diameter.

To make baskets, wires are covered with crepe paper and are used as spokes (see Basketry). Rope of $\frac{1}{8}$ or $\frac{1}{4}$ inch is used as the weaver.

WALL PAPER.

Wall paper may be used in many ways. Besides buying it by the roll a sample book can often be acquired from a dealer at the close of the season and will be found to contain many possibilities.

Paste.—The following makes an excellent paste: Dissolve a teaspoonful of alum in a quart of hot water. When cold stir in flour the consistency of thick cream, carefully beating up all the lumps. Stir in half a teaspoonful of powdered resin. Pour on the mixture a tea cup of boiling water, stirring well. Cover and keep in a cool place. It can be kept for a long time if the jars in which it is placed are tightly sealed while the paste is hot. Another very good way is to pour melted paraffin on top of the paste after it has hardened. When needed for use take a portion and soften

it in warm water. A few drops of oil of cloves or wintergreen will give a pleasant odor.

In pasting as in painting remember that it is the end of the bristle brush which is most effective in spreading the paste and not the sides.

WOOD WORK.

There is so much that may be done with wood that any selection would necessitate more space than can well be given to it here. In the first place the patient must be capable of being trusted with sharp tools—that is, he must not be actively suicidal, and while every case of depression is potentially suicidal, it has been found that a great many of them can be trusted to work with sharp tools. Apparently the interest in the work causes at least a temporary subsidence of these ideas. The equipment for wood working may vary very much, from a sloyd knife costing 15 cents to a bench and full equipment costing nearly one hundred dollars. Many serviceable and attractive articles may be made with the knife. Nearly a century ago Utica State Hospital had a whittling shop, where toys and other products of wood were made. Knife work is taught in our schools as a part of manual training, and several books have been written giving instruction in this branch.[1] In all of this work it is recommended that a working drawing be made before the

[1] Richardson. Elementary Knife Work, 25 cents. Advanced Knife Work, 25 cents.

Hammel, Wm. C. A. Elementary Knife Work. Advanced Knife Work. Richmond, 1903, B. F. Johnson Publishing Co.

Larson. Elementary Sloyd and Whittling, 75 cents.

Goss, W. F. M. Bench Work in Wood. Ginn & Co., 1887, 1905.

whittling is begun. If the patient does not care to make such a drawing it is proper to allow him to begin on the whittling which his fancy may dictate and later on to show him the advantages to be derived from doing the work properly. Canes and paper cutters can be made from sticks gathered during a walk through the woods. Plant labels, paper cutters, toys, wind toys, and a number of other things may be made from discarded boxes or other soft wood. The cleanness of wood and its delicate odor makes it a delightful material with which to work. Building paper board, such as Beaver board, is also an excellent material for boxes, doll houses, etc., and can often be combined with wood to make most attractive pieces of furniture. The Beaver Co. at one time published a pamphlet giving directions for the manufacture of such articles, but it has not been reprinted since the original edition was exhausted.

A coping saw is a bracket saw which can be bought with 12 blades for 25 cents at any hardware store. With this any fret sawing may be done.[1] although a foot power saw is more easily worked. Both of these forms are excellent for training concentration of attention, the foot power saw especially, as too much pressure, or a loose holding of the wood, causes a breaking of the saw blade, which acts as an alarm and wakens the patient from his wool gathering.

A fret or scroll saw is especially valuable for making

[1] Johnson Ben W. Coping Saw Work. Peoria, Manual Arts Press (20 cents).

puzzle pictures, and is probably used more for this purpose than any other. Various equipments may be purchased and a weekly entitled Hobbies is published in England specializing on this subject, although in it there are other matters of value.

The great objection to most designs which are made for fret sawing is that they are inartistic, and the articles made are dust catchers and have pre-eminently that quality which is best described as "ginger-bready." One should learn to know its use.

It is difficult to overestimate the value of wood working as a means of education, but unless the nurse has had special training in this branch there are many other forms of occupation which she can use better. If she has had manual training she will be at no loss for objects to make, and can construct for herself a bed tray. If her patient is better skilled than she perhaps he can be induced to make it for her as a mark of his esteem. Even if she finds it necessary to employ the services of a carpenter she will find this tray a great convenience to her bed patient. Some prefer that it should have a rim about three sides of about an inch and a half in height, but this adds to the thickness in packing and is not necessary.

The bed table can be made in a great variety of sizes. The one shown in Fig. 33 was intended for a special purpose and is 30 inches long by 12 inches wide. A more convenient size would be one that could be carried in a suitcase, or about 14 x 22 inches. The simple form, shown in Fig. 34 as Bed Table I, can

most easily be made of basswood or poplar, a bill for it would read as follows:

Mill Bill for Bed Table I.

1 piece ½ x 14 x 22 2 pieces ½ x 1½ x 14	Top
4 pieces ½ x 2 x 9 2 pieces ½ x 2 x 13	Legs

The two pieces ½ x 1½ x 14 should be fastened to the ends of the largest piece, ½ x 14 x 22, as battens to prevent warping and to give additional stability to the legs. Two of the pieces ½ x 2 x 9 should be fastened with a lap joint to the ends of each piece ½ x 2 x 13 at right angles to it. These form the legs and are fastened to the large piece with hinges so as to permit their being folded back on it to be out of the way. A more finished looking job can be made by the use of heavier material for the legs as in that illustrated in Fig. 33, where 1½ inch stuff is used; but this adds weight. Or larger pieces, ½ x 9 x 14, may be used to form legs and may have a double ogee cut in the lower side for ornament, but these are not so good as the legs formed from three pieces.

Bed Table II.

A better form of bed table is one which can be inclined to support a book, or paper on which the patient may wish to draw or write (Fig. 35).

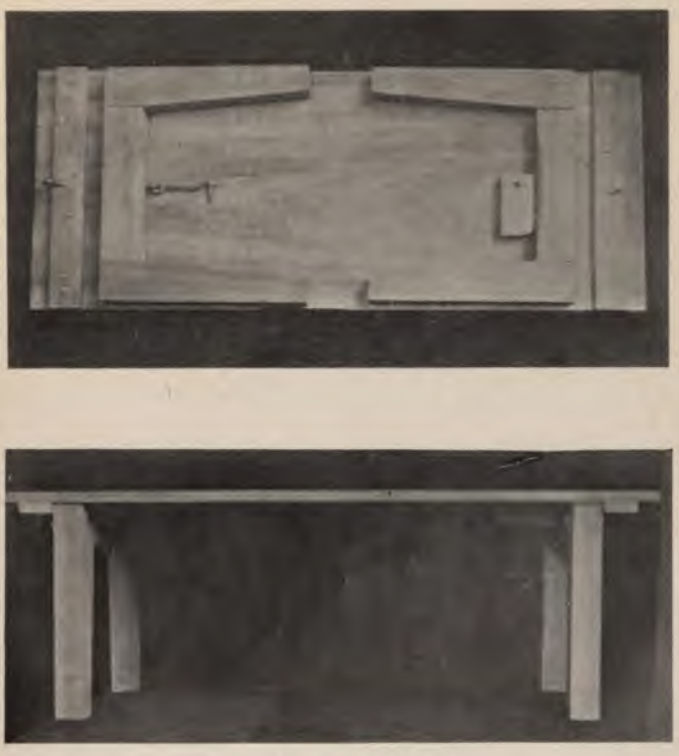


Fig. 33.—Bed Table, I.

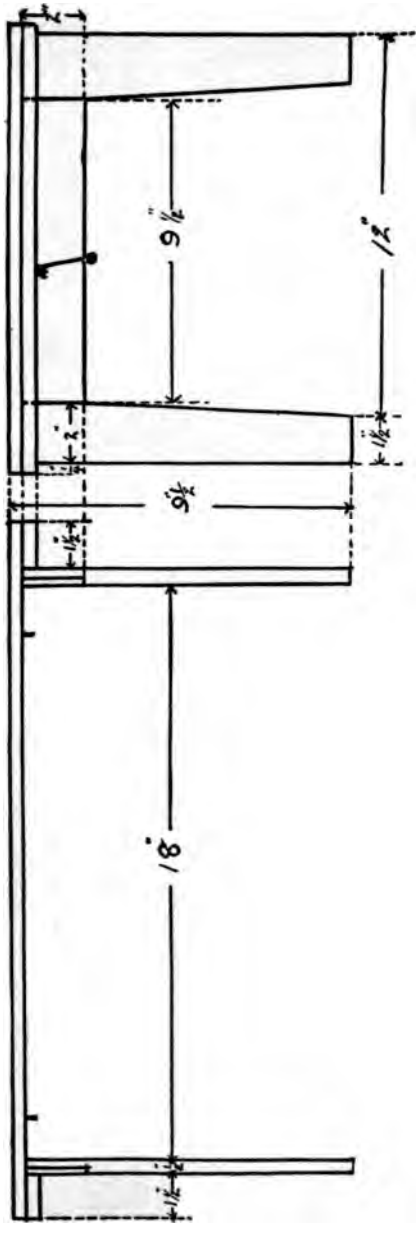


Fig. 34.—Bed Table, I.

Mill Bill for Bed Table II.

1 piece $\frac{1}{2}$ x $13\frac{1}{2}$ x 22 1 piece $\frac{1}{2}$ x 1 x 22 2 pieces $\frac{1}{2}$ x $1\frac{1}{2}$ x 14	Top
4 pieces $\frac{1}{2}$ x 2 x 9 2 pieces $\frac{1}{2}$ x 2 x 14	Legs
2 pieces $\frac{1}{2}$ x $1\frac{1}{2}$ x 8 1 piece $\frac{1}{2}$ x $1\frac{1}{2}$ x 19	Prop
2 pieces $\frac{1}{2}$ x $1\frac{1}{2}$ x 14 2 pieces $\frac{1}{2}$ x $1\frac{1}{2}$ x 22 2 pieces $\frac{1}{2}$ x 3 x 11	Frame

First making the top, the piece $\frac{1}{2}$ x 1 x 22 is rounded on both edges of one side and fastened along one side of the piece $\frac{1}{2}$ x $13\frac{1}{2}$ x 22, to serve as a rest for the book or paper, the two pieces $\frac{1}{2}$ x $1\frac{1}{2}$ x 14 being fastened across the end as battens. The legs are made as for bed table I. The frame is next made by cutting six quarter-inch notches one inch apart on the two pieces $\frac{1}{2}$ x 3 x 11, cutting them but $1\frac{1}{2}$ inches across and the first being $1\frac{1}{2}$ inches from the end. The side of the notch nearest to the end should be at right angles to the surface and the other side slope down to it. The one piece should be the converse of the other. The pieces $\frac{1}{2}$ x $1\frac{1}{2}$ x 22 are lapped on the pieces $\frac{1}{2}$ x $1\frac{1}{2}$ x 14 at right angles to form a rectangular frame with the notched pieces lying inside or between the longitudinal

Fig. 35.—Bed Table, II. At the right the leg is braced with a modified jack knife desk rest, on the left by a hook. The smaller hook just above it holds the frame and the top together when folded.

Fig. 36.—The same table as Fig. 35 closed.

pieces. The prop is made by lapjointing the piece $\frac{1}{2} \times 1\frac{1}{2} \times 19$ at the middle of the two pieces $\frac{1}{2} \times 1\frac{1}{2} \times 8$, these being sharpened at the end, which is to fit into the notches, and fastened to the under side of the top piece with hinges set six inches from the lower edge so that the prop will fall into the notches as the top is raised. The top and frame are hinged together at the lower edge, and the legs hinged to the lower side of the frame close to the end pieces to give stability. When folded this table occupies a space of but $2 \times 14 \times 22$ inches and weighs about six pounds. Hooks of various sorts may be used to hold the legs in position, or a button, but the best arrangement is to saw off two jackknife desk slides about three inches (when folded) as is shown in Fig. 35; or dolphin hinges may be used. It is difficult to arrange hooks so that they will not slip, but the manner of applying them is shown in Figs. 33 and 35.

A very attractive bed table was made by a blind cabinet maker of the Baltimore Workshop for the Blind, who first made a frame with handles as for a glass-bottomed serving tray, and in this fitted a wooden frame caned in octagonal pattern (see page 154). The legs were formed by two U-shaped pieces of iron, $\frac{1}{8} \times \frac{1}{2}$ inch, fastened to the caned frame and folding under it. The great advantage of this tray is lightness, but it has the disadvantage of not having a flat surface on which to work, and of having a number of crevices to harbor dirt, in case food should be spilt. This last objection would appear to be rather theoretical than

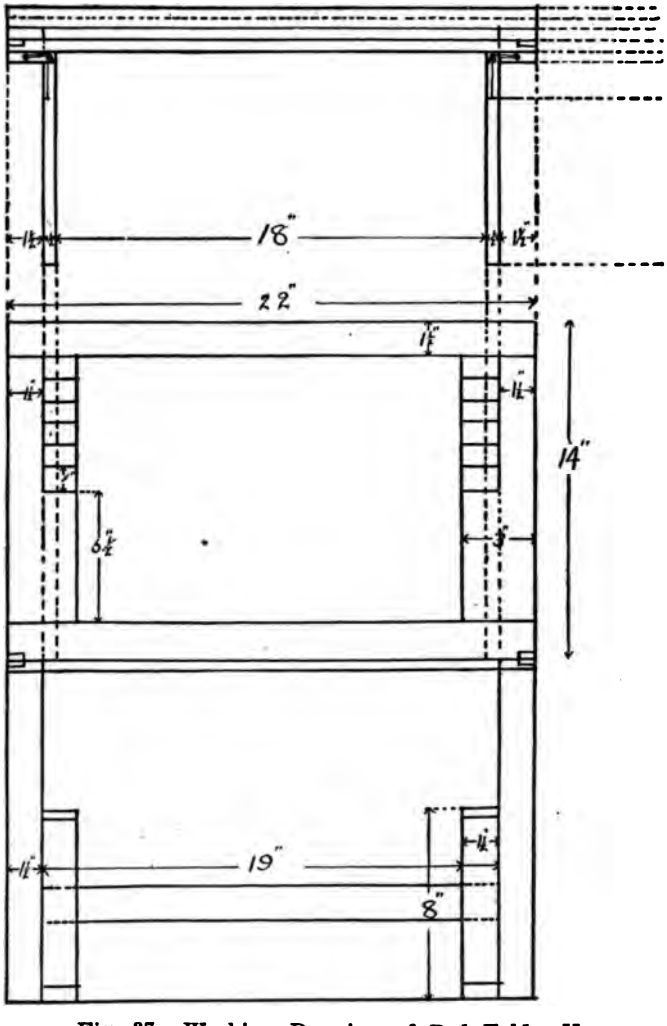


Fig. 37.—Working Drawing of Bed Table, II.

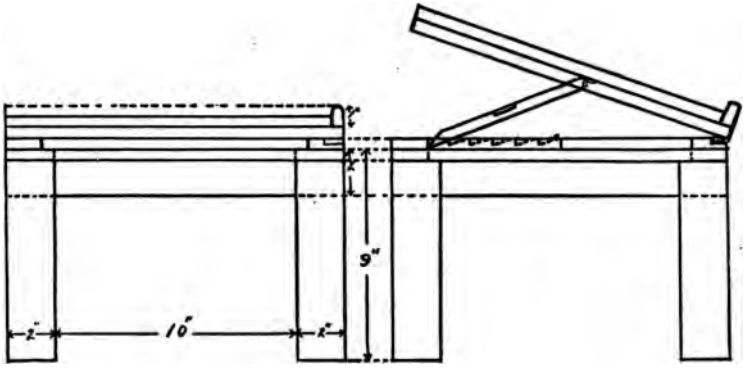


Fig. 37A.

practical, as cane-seated chairs have never been classed as dirt catchers. A bed tray adds greatly to the comfort of the bed patient.

Directions and suggestions for attractive and useful wooden articles are constantly appearing in the periodicals. These, with some book on the subject, should be consulted by the nurse who is interested.

PICTURE PUZZLES.

The solving of puzzle pictures which was so popular an amusement for convalescents in some of our general hospitals a few years ago, is an excellent diversion, and the nurse's armentarium should include one or more of these. A number of patients are known to have been helped to recovery by the use of a scroll saw in making puzzles. Any picture can be used, but the best are those which have distinct outlines and are rather brightly colored. According as they are cut will their solving be difficult or easy. The first step, however, is to mount our picture. Usually poplar or basswood of about one-eighth inch thickness is used, but sometimes this is difficult to procure. Some of the larger hardware supply houses sell what is called triple veneer which is an excellent substitute and indeed is preferred by some puzzle makers. Old cast off cigar boxes may serve to make small puzzles, but if no thin wood is procurable we must use newsboard or some other form of pasteboard. Assuming that we have been fortunate in securing the piece of thin poplar, or better, basswood, the picture is thoroughly pasted on the back and, after being laid on the wood, is covered with a piece of paper and rubbed with the hand or pad of some sort to insure a close apposition between the wood and the picture and to get rid of any air bubbles. When this has been done the wood is turned over and

a piece of paper is mounted on the back. This lessens the tendency to warp. The wood is then laid on a flat surface under pressure to prevent warping during the drying. When drying is completed we are ready to saw our picture with a fret or coping saw. The ordinary blades which are supplied for scroll sawing usually make quite a coarse cut, and what is known as a metal blade (No. 5) will do more satisfactory work. If we wish to make our puzzle an easy one we simply saw wavy lines from top to bottom and then across. The resulting irregular pieces having been cut with no relation to the picture will be found to be quite easily rearranged to form the picture. If we wish the puzzle to be difficult, we saw out according to the design, the saw following lines which indicate contrasts, such as that between the face and a hood, or between the white trouser and green grass, the object being to eliminate any bit of color on one piece which will give a clue to the piece which adjoins it.

It is usually more difficult to solve the puzzle by form rather than color clues. Sometimes it is possible to make forms of animals or objects in the pieces which are sawn up after the first sawing has been done to eliminate the color clues. Practice is needed to reach this point, however.

But if we cannot procure wood and have to use pasteboard we can still make very delightful and useful puzzles. The simplest way is by straight cuts of scissors into irregular pieces. If the pasteboard is not too thick this can be done very well. We can also cut in

curves and follow the outlines of objects as indicated above and produce a more interesting puzzle. It is just as necessary to mount a back on pasteboard to prevent warping, and we should be careful that the pasteboard is sufficiently thin to be cut with the available scissors. A card cutter may be used for this work in the hospital, and on this binder's board may be cut; but most households do not possess one of these unless an amateur photographer is a member of it.

Pictures with a good deal of detail and somewhat amusing in character often make most valuable puzzles, because they appeal more to the solver. One of the most difficult of these puzzles that I ever saw was made from a Japanese print and consisted of about 200 pieces. The peculiar attitudes and unusual coloring really forced one to solve by shape rather than color or design. Periodicals often contain pictures which make excellent puzzles when cut up, and their covers are of especial value.

BASKETRY.

Of the origin of basketry we know little. It is one of the oldest of handicrafts and possibly our ancestors, Adam and Eve, were the inventors. The Roman soldiers at the Conquest of Britain were astonished at the coracles of the Britons, which, as we all remember from the picture in our history books, were basket boats covered with hides. Probably the earliest reference in history is to the ark of bulrushes in which Moses lay when found by Pharaoh's daughter (Exodus 2, 10). Mr. George Wharton James, who is an authority on Indian baskets,[1] is of the opinion that baskets have developed from the net work which was made to protect gourds used to carry water across the desert, and so render them less liable to break. Much folk-lore and tradition has been woven into baskets which the Indian squaws made, and ethnologists have studied them in order to preserve the history of a race that has become so amalgamated with the Caucasian that it has to a large degree lost its identity. The Indian used baskets for many purposes. He had them in a sack-like form for carrying grain, jar-like for storing it, baskets in which to boil acorns by means of hot stones dropped in the water, plaques for food, and, in fact, baskets for every conceivable purpose. They were even used in

[1] James, George Wharton. Indian Basketry and How to Make Indian and Other Baskets. Third Edition. Pasadena, Cal., 1903. Privately printed by the author.

ceremonies and often show the value placed on them by the maker by the bits of ornament added to them, such as wampum, feathers, beads, bits of silver, etc. Efforts have been made to preserve this art, for to such a point did the American Indian carry it, and many persons, both Indian and Caucasian, by collecting the best specimens and by teaching have striven to bring this work back to the high point as shown by some of the older specimens. Even untrained Indians, however, still produce beautiful baskets, but occasionally the desire for an exclusive design or color combination causes the production of something unattractive. Harriet Cushman Wilkie[1] has recorded that one squaw thought she had achieved her ambition for an exclusive design when she offered for sale a beautifully fine white basket, with a border in the black stems of maiden hair ferns as follows:

FINE SOAP FINE SOAP FINE SOAP FINE SOAP FINE SOAP FINE SOAP FINE SOAP FINE SOAP FINE SOAP FINE SOAP FINE SOAP FINE SOAP

The Indian used any material that might be near at hand and we have baskets made of willow, yucca fibre, palm, wood splints, barks, roots, grasses and stems, all of various kinds.

Like the Indian we may make baskets of the material near at hand, although most of us prefer to buy it ready prepared for weaving. There is opportunity for a basket maker to develop some special material or method

[1] Wilkie, Harriet Cushman. American Basketry. The Modern Priscilla, Vol. XVI, No. 4, June, 1902.

of basket making, as has been done with long pine needles for coil work, or with honeysuckle vines.

The most common materials for baskets are reed, raffia, willow, wood splints, and rushes, although bamboo, straw, husks, sweet and other kinds of grass, maiden-hair fern stems, honeysuckle, long pine needles, and crepe paper have been used.

Reed is made from rattan or cane, which is a vine growing, both wild and cultivated, in the East India Islands where there is an annual rainfall of about 128 inches. It is said to grow as long as 500 feet, but 270 feet is said to be an average length. After the vine has grown four years the single shoot that comes up from the seed is cut, and from this 300 shoots come out. These are cut every year, stripped of their leaves and cut into convenient lengths for shipping and handling. The outer smooth bark is shaved off and forms the cane with which we are familiar in cane seated chairs. The inner part, or pith, is made into various sizes from 00, which is about the size of coarse thread, to 10, which is about a half of an inch in diameter. It is to this part that we apply the name of reed. One of the great advantages of reed as a material for baskets is that we may leave our basket incomplete at any stage and come back and finish it at any time without in any way spoiling our basket. Another advantage is that it comes in pieces about 12 feet long. It dyes well and is one of the most convenient of basketry materials. Our dependence upon it was shown at the outbreak of the present European War when, in consequence of the usual

demand and a cut off supply, it coming from Germany, the price in limited quantities rose 30 per cent.

Raffia is the epidermal strips of one of the Palmaceae, Raphia ruffia, which grows in Madagascar, and Raphia taedigera, which grows in Japan. It seems to be a long-leafed grass, usually being marketed about 30 inches long. It is used as binder twine in horticulture and by florists to tie up their plants. It dyes in beautiful shades, but must first be soaked in some mildly alkaline solution such as soapy water. With this material beautiful baskets closely resembling Indian baskets have been made. I have seen others made in poster or chintz designs which were most attractive.

Willow is the most common basket material for commercial use. Botanically it is known as Salix, of which there are many varieties, and has a wide distribution, being usually cultivated in lowlands which can be flooded. After the piece of willow which has been put in the earth has rooted, it is cut off. Numerous shoots are sent out which are allowed to grow until they are about 5 feet long, when they are cut. The cutting, however, must be done in the early spring, when the sap begins to run, or just before cold weather, though some willow growers do the cutting in August. These twigs are bundled and set in boiling water to loosen the bark, which is peeled off by passing the twig between two upright pieces of metal, which pull off the bark without scraping the twig. After bundling, the twigs are ready to be marketed and are sold at about 6 cents per pound. The disadvantage of this material for use

by the amateur is that it requires a certain amount of preparation. For weavers the willow is usually split into three, a knife of special design with three radiating blades sometimes being used to start the splits, although an ordinary knife can be used. The splitting is completed with the finger or a specially shaped piece of wood which forces apart the three pieces. Here is where one realizes that practice makes perfect. These split pieces are then drawn under a knife set horizontally in a block so that it is a certain distance above the board over which the piece of willow is drawn. This makes them of a uniform thickness, and they are drawn between two upright knives to makes them of a uniform width, although the tapering which all willow shows cannot be entirely eliminated except by using very short pieces. A good basket maker takes advantage of the tapering to make some beautiful effects. Besides the disadvantage of the necessary preparation for the amateur, another is the necessity of finishing certain parts before laying the work aside. This is because the drying must take place uniformly. For example, in making a willow basket we may make the bottom, the sides, the border, and the handle in separate operations, but we cannot stop in the midst of any one, or our basket will be unshapely. Willow bends more easily than reed and has a more pleasant feel in working, so that I prefer it.

Wood splints were made by the Indians by shaving off thin, broad strips of hickory. At the present time they are made by machinery from several kinds of wood

and form containers for many uses, among them being berry boxes, clothes baskets, etc. They may be dyed, and from them can be made very attractive baskets.

Corn husks are said to form very beautiful baskets on account of their beautiful colors. They are usually split into a certain width and braided to form weavers, as it is not possible to form them into a basket without some more rigid material as a support. They may also be used in coil work. *Cat-tails* or rushes may be used in the same way. Botanically this is Scripus lacustris. It should be gathered in July, or before the "cat-tails" mature, and should be dried slowly.

Sweet grass is usually bought braided. Botanically it is Zostera, one of a group of aquatic plants which grow in shallow bogs. So far as I know, it grows best in Maine. It also can only be used as a weaver or for coil work, as it is very fine and only about eight inches long.

Maiden-hair fern stem, which beautifies so many Indian baskets, can be procured in most of our forests if we take the trouble to gather it. Its gathering would be an excellent motive for a walk. It is said to be the most perfect black known.

Honeysuckle vines have been used and make very unusual baskets. It would seem that this material might be developed into a substitute for reed by boiling and stripping the bark as is done with willow. This and some other of our common plants offer opportunities to the experimenter. Toughness and length are the spe-

Fig. 38.—Basketry Tools.

cially desirable qualities that basket material should possess.

In the following pages it is assumed that the material used is reed, as this requires less equipment than willow and is therefore the most convenient material for the private nurse to use. It can be purchased in small quantities at any of the educational supply stores.

In doing reed work it is necessary to have three, and preferably, six tools. These are, first, a pair of cutting pliers, either end or side, the latter being preferred by most basket makers, to cut the reed. Scissors will not reach to some parts of baskets where it is necessary to cut the reed. Second, a pair of round-nosed pliers to crush the reed when it is to be bent. Third, a carpenter's scratch or marking awl, which is used to split the reed or to make openings between reeds after it has been woven. Fourth, a specially made tool (Fig. 38) to press the reeds together. This saves the fingers, is very convenient, and costs little. It can be made from a scratch awl by flattening it back of the point and bending it over, or by filing off the corners of a five-inch screw driver and then bending it. This last is probably the better tool, but a broad nut-pick will serve fairly well. The plate makes this more clear. Fifth, a knife will be found to be useful, as will also, sixth, a measure.

The nurse must understand that in the following directions she is given but the necessary rudiments of basketry. As before said, the object of this book is to point the way only, and if a craft is to be followed

out and developed it must be done by reference to some of the many works on the subject. As to the *best* book on basketry, it is like Betsey Gamp's friend Mrs. 'Arris. Personally, I prefer Turner's[1] The Basket Maker for beginners, as it seems to me to point out essential principles most clearly. Marten's[2] Inexpensive Basketry is the best for the beginner in coil work, and has many good suggestions as to obtaining materials. There are so many good books on the subject that almost anyone will give sufficient information to make its purchase profitable.

Spokes are the coarser reeds used as a foundation around which the winders or weavers are woven.

The weaving is almost invariably done from left to right.

A tub or bucket of water and a wet sponge or cloth should always be at hand to keep the reed moist. The reed should always be soaked until thoroughly wet before it is worked.

BASES.

In making a basket we must first begin with the base. These may be woven from the same material of which the basket is made or may be of some other material, usually wood. Poplar is, perhaps, used more than any other kind, but basswood and oak are better looking. A piece of wood of the size and shape that it

[1] Turner, Luther W. The Basket Maker. Worcester, Mass., The Davis Press, 1909. $1.00.

[2] Marten, William S. Inexpensive Basketry. Peoria, Illinois, The Manual Arts Press. 25 cents.

is desired to make the basket is sawed from quarter-inch stuff, and about the edge, about a quarter of an inch back from it are drilled holes the size of the spokes that are to be used. The number and distance apart will be governed by the size of reed used in the weaving. The spokes having been put in these holes, are pulled through on the bottom side until they project for two or more inches. With the round-nose pliers crush each spoke close to the base, bend it over and pass it in front of the next two, and back of the third. After doing this all around the base, the ends are trimmed close. Some persons prefer to insert the spokes in the base by tipping them with glue, but it is preferable to use the above method, or to make a foot by weaving on as much as may be desired. A wooden base is better than a reed base for waste baskets, jardinieres, or for any container which requires a closed bottom.

Reed or woven bottoms are preferable in most baskets. Taking the spokes we find their middle by doubling or measuring, and holding half the number flat between the left forefinger and thumb, cross over them at right angles the remaining spokes. Taking a weaver in the right hand, place the end between the lower group of spokes and the left forefinger, then wind above the upper group and below the lower group until two complete circuits have been made. Continue the winding, going alternately above and below each spoke until the diameter is the size desired. It will be found at the completion of the first circuit of winding of single spokes that the next circuit will bring the winder alongside of

the winder and not on the opposite side of the spoke. This may be overcome in several ways, first, by using a second winder at the completion of the first circuit; second, by using a half spoke so that the number of spokes is odd instead of even; third, by skipping a spoke, which is permissible only for a circuit or two, and lastly, by using the Japanese weave, which consists in passing the winder over two spokes and under one, producing a very pretty effect. Usually in the directions for making the basket it is indicated which one of these methods is to be used.

Having completed the base we are ready to turn up the spokes to form the sides of the basket and make what is called the upset. First, crush each spoke close to the weaving, using the round-nosed pliers, turn them up and continue weaving, keeping the spokes in the position that we wish the sides to take. It is essential to remember that the spokes give the shape to the basket, that the winder serves to give them strength merely, and any irregularity of position of the spoke will give an irregularity in the shape of the basket. It is sometimes desired to make some sort of a finish before beginning the side weaving. Frequently an arrow is made (page 142), or triple weaving, or some other special weave, is used for a complete circuit or two, after which the simple weaving is used to form the sides. These having been completed to the desired height, the basket is finished with a border and a handle if the latter is desired.

In making the base, instead of laying half of the

spokes on top of the remainder and binding them together, we may split half of the spokes at the middle with the awl and push the remaining spokes through them; this, of course, makes the bottom flatter than is possible when the spokes are bound together. Willow bases are usually made in this manner. In making the upset sometimes the spoke is cut off, and a spoke is inserted on one or both sides of it. This may be done for many reasons, but willow baskets are practically always made in this way. The sides of the basket having twice as many spokes as the base is so much the stronger, and the bottom is better because it is not crowded with spokes.

In making the sides of a basket there are a number of weaves that we may use. Single weaving is most commonly used and consists in placing the weaver alternately before and behind the spokes.

Double weaving is done by using two weavers at the same time and laying them together before and behind alternate spokes, the weavers lying side by side, parallel, and not crossing each other.

Pairing is also worked with two weavers, one being placed before and the other behind the same spoke, and the weavers being crossed between the spokes.

Triple Twist, or weaving, is done on the same principle as pairing, but with three weavers. These are placed behind three consecutive spokes and, beginning with the left hand one, are brought in succession before two spokes and back of the next, each being laid on top of the other two weavers.

The Rope Twist is a variation of the foregoing principle, four weavers being used, each passing before three consecutive spokes and behind the fourth, each being laid on top of the other three weavers. This same principle can be applied to a larger number of weavers, but is apt to give too loose an appearance to look well.

The Japanese Weave is made with a single weaver, which goes before two spokes and back of the third. This principle can also be extended to make a number of variations, but it must be remembered that the looser the weaving the weaker the basket.

Usually combinations of the above are made to give beauty to the baskets. Other materials than reed are also used such as braided straw, braided rushes, wood splints, etc.

THE ARROW.

The arrow is used like triple weaving to ornament the basket, and is only used to make a complete circumference, for when repeated its beauty it lost. In making the arrow it is necessary to have three winders, each not less than two and a half times as long as the circumference. It is usually necessary to insert but two extra ones if the original winder is sufficiently long. These are inserted in separate interspaces, and the left hand winder is passed under the other two before the next two spokes, behind the third and out, repeating this to the beginning. Then make the reverse by passing the *right* hand winder before two spokes, behind one, and out. Do this with the other two winders. Then take the *left* hand winder, pass it over the other

two, before two spokes, behind the next and out. Repeat this to the starting point, which it is well to mark with a pencil or thread. The extra winders are passed to the inside of the basket and cut off at the finish.

BORDERS.

A basket requires a border to give it a neat finish, and there are a variety of these. The border often serves to strengthen the basket, especially when they are made in what appears to be a complicated way, and give what may be termed a heavy finish to the basket. Borders are always made with the spokes, which are usually bent down close to the weaving, and thus hold it close and so make the basket firm. Open borders, or lattice borders, as some call them, are not bent down close, and as a consequence the basket is not so firm as it should be, and presents a somewhat unfinished appearance.

The simplest open border is made by cutting off all of the spokes to a uniform length of about three inches, bending each one down and pushing the end down beside the next spoke. This gives a scalloped effect.

A much better effect is obtained by pushing the end down beside the next but one spoke. This gives the effect of overlapping scallops.

Some of the open borders can be made very attractive by using paired spokes which are left quite long and inserted three or four spokes beyond their origin. This gives a loosely woven effect which may be very attractive, as in Madeira baskets.

The following border may be made either open or

closed, the difference being that when made closed all of the spokes are drawn tightly down to the weaving except the first three, which are left open to permit the threading of the last three through them. It is customary to bend these first three spokes over pieces of waste reed of the same size as the spoke. In making this border closed, the length of spoke above the woven side should be six inches. Take the first spoke and bend it down at one and a half inches above the edge of the basket when it is to be made open, or if the border is to be closed, crush all of the spokes close to the edge, then bend it over the piece of waste reed, pass it behind the second spoke before the third and behind the fourth, leaving the end at the front of the basket. Work each spoke in the same way until all are down but the last three. Take the first of these, bring it down behind the second and before the third, then thread it from behind under the first spoke used. Take the second spoke, bring it behind the remaining one and thread it before and behind the first and second spokes used. The last spoke is threaded behind and before and behind the first three spokes, which will complete the pattern. The ends may be cut off, but it is better to finish with what is called the single plait, which is made by bringing up each spoke behind the next, the last being threaded under the first. A variation is to work this with the basket turned upside down and the movements reversed.

Another closed border is made by laying the first spoke behind the second, leaving space for threading the

ends of the last spokes. Lay the second spoke behind the third. Pick up the first spoke and lay it before the third and behind the fourth. Take the third spoke (which is still upright), bring it down beside the first and behind the fourth, making one pair of ends turned down. The spokes forming these pairs must each in turn be kept side by side (the longer of the two being the right) and held flat under the thumb until the next pair is turned down. Pick up the second spoke, bring it before the fourth and behind the fifth. Take the fourth (which is still upright), and bring it beside the second and behind the fifth, making the second pair. The longest of the first pair must now be brought before the fifth (which is still upright) and behind the sixth, the fifth being brought down beside it as before. The shortest spoke of each pair is left to be cut off at the front when the work is finished, or to be threaded through to the inside and cut off there, making the edge still more substantial. Proceed on this principle until all of the upright spokes but one have been brought down, and if correctly worked, there will always be two pairs of ends after the first pair is started, but never more than two. Take the longer of the first pair and slip it behind and under the first spoke. the last upright spoke being brought down beside it in the usual way, and passed under the same spoke. Two pairs of ends will still be left. Take the longest of the first pair, lay it in front of and beside the first spoke, bringing it out to the front under the second spoke. Take the longest end of the last pair, bring it in front of

and beside the second, pass it under the third and the spoke in front of it. This border requires a spoke length of eight inches and is sometimes called a commercial border. The same kind of a border may be worked with three, four, five or more spokes as easily as with two, always remembering that the number of single spokes turned down at first determines the number of pairs, and that these must never vary until not one upright spoke is left. The ordinary border seen on a commercial basket is made with five spokes and is called a five plait. It requires a spoke length of ten inches, and is a very handsome and substantial border.

A very simple border is made by bringing the first spoke back of the second, in front of the third and fourth, and inside of the basket, repeating this for each spoke. The ends are hidden by passing over the next, under the third, and leaving, or cutting off, if necessary.

Various other borders will be learned as the basket-maker progresses, but these are probably the most necessary that she should know.

HANDLES.

Handles may be made in so many different ways that I prefer to give but one which is commonly used on commercial baskets, is strong, and is generally incorrectly made by the novice. Directions for making individual baskets usually tell how the handles should be made so that details of other kinds are unnecessary here. Handles are usually made of a large size of reed or

willow which should be specified when ordering. A piece of this of the required length is sharpened at both ends, which are forced into the basket beside two spokes which are directly opposite to each other. A long piece of reed is then inserted between the weaving beside the handle, passed around it three times and inserted between the weaving on the opposite side of the basket and on the opposite side of the handle, at a little distance from it. It will be seen that the three turns about the handle divide it into five spaces, and these should be made as equal as possible, the middle turn being exactly in the middle of the handle. The reed is then carried back alongside the first turns, through the weaving on the opposite sides, and so on, back and forth, until the entire handle is covered, the reed always lying alongside and never crossing the previous turn. It will also be noted that in passing through the weaving that on one side subsequent turns are brought farther from the handle, while on the other they come nearer to it, which is the reason for the reed being passed through the weaving at a little distance from the handle at the completion of the first turn—that is, to allow space for subsequent threadings of the reed. In light, ornamental baskets but three turns of the reed are sometimes made with excellent effect.

Directions for making the baskets which follow are given in order that the nurse may have something definite to go on until she acquires some skill in basketry. The first is a favorite of mine because it brings in a number of principles.

JAPANESE FLOWER BASKET.

For spokes use 16 pieces No. 2 reed, each 32 inches long. For winders use No. 1 or No. 2 reed.

Arrange the spokes in fours to make a double cross retaining them in position by a winder alternating for four complete turns; then skip one set of four and continue winding for four complete turns. Repeat for four more turns, next divide the spokes with the winder into pairs, making a complete turn. Start a new winder which, alternating with the first, continue winding always keeping the inner winder ahead of the outer, keeping a flat surface until the diameter measures three and a half inches. Then crush the spokes, turn up sharply and make an arrow. Continue winding, bending in gradually to make a curved surface or more abruptly to make a flatter one until at a height of one and a half inches the diameter is two and a half inches, or fits a narrow tumbler. Finish off with an arrow.

The handle is made by dividing the spokes into two groups, each of which may be twisted or interwoven in a variety of ways.

Overlap the ends of these two groups and fasten with raffia. Finish off by wrapping the handle with No. 1 reed or with the half round reed used for this purpose. The total height of the basket will be about ten inches.

MADEIRA FRUIT BASKET.

Cut 24 spokes of No. 4 reed each 55 inches long. Find the middle of each. Split six of them at the mid-

dle and thread six other spokes through the split, making a cross. Treat the remainder in the same way, making another cross. Lay one cross on the other, so that their centres coincide, but the eight groups of spokes are equidistant and bind them together temporarily with raffia or string. Bend a well-soaked piece of No. 2 reed in the middle and loop it over the bottom group of six spokes, then with one strand weave under and over until the loop is reached, then do the same with the other strand until three rows are woven. Next separate the spokes into groups of three and continue the under and over weaving until the strands end when replace with No. 3 weavers and continue until the diameter measures six inches. Finish with an arrow. Mark off sixteen inches on each spoke and see that they are thoroughly wet.

Take one group of three spokes and lace it under the next set to the right, over the second, under the third, over the fourth, under the fifth, and down through the arrow at the base of the fifth set to the sixteen inch mark. Repeat with each group of spokes. Great care must be taken to keep the sides of the basket even. It may be placed against the body and moulded with the arms.

Turn the basket bottom side up and weave four double rows of plain weaving with a No. 3 weaver. Wet the spokes again and turn each group over the first set to the right, under the second, and tuck the ends under the bottom, which should be convex in shape.

For a handle take two 30 inch pieces of No. 8 reed,

soak well, and insert on the outside of the basket down into the extra weaving on the underside and fasten in place with raffia. Using three weavers at a time make a six ply coil over the handle, catching into the lace work of the basket on the way over and back. There should be nine turns about the large reed, and it will be more firmly attached to the basket if but one long piece of reed is used, as is directed on page 146.

COIL WORK.

Most of the Indian baskets were made by this method even though willow was used to make them. By means of a thread and needle, a rope or bundle of grasses, or other form of fibres, is coiled about itself to form the shape that it is desired to make the basket. The thread is some form of fibre which possesses toughness and length, and is not composed of twisted short fibres such as we usually conceive thread to be. Cane and raffia are the threads which are usually used for this work, the former for large pieces and the latter for smaller and more ornamental forms. When raffia is used a length of reed is usually used for the coil, as it makes a firmer and more stable basket than when a bundle of raffia is used. Usually No. 5 reed is used and is shaved at one end to form a point. After being thoroughly soaked to make it pliable, it is wrapped with a strand of raffia and bent back on itself to form a circle as small as possible, or button, and is held by wrappings or stitches of raffia. There are quite a number of these stitches to

which various names have been given, sometimes that of the tribe of which they are characteristic.

The figure-of-eight, or Navajo, stitch is perhaps the one which is used more frequently than any other, but is said to be an invention of some white woman and not an Indian stitch. As the name indicates, it consists in making a figure of eight with the thread about the two parts of the coil. In making a pattern with a color it must be remembered that both parts of the coil will show this color.

The Lazy Squaw stitch is made by wrapping the raffia once about the outer coil, then once around the outer and one below, making what may be termed a long and a short stitch, which is continued. Here the color will also show on two coils. In using a color with the natural raffia the one which is not used is turned down and covered with the coil by the one that it is desired to show.

The Hopi stitch is made on a *soft* coil after the first circle, or button, has been made by thrusting the needle through the upper edge of the coil below, pulling the thread tight, making a wrapping about the outer coil, sewing through the upper edge of the coil below, and so continuing. When it is desired to add a color, the natural raffia stitches are made two or three farther than the place where it is desired to place the color, and these extra stitches are then covered over with the color.

The Knot stitch is made by bringing the threaded needle up between the outer coil and the one below to

the left of the stitch which last bound the coils together. Then cross over this stitch to the right, going down between the coils to the right, then up, back of the crossed stitch, and over so as to wrap the outer coil again. Then wrap the two coils, make the up stitch on the left, cross over, down between the two coils on the right, up, back of the crossed stitch, and over again. It is simply crossing the long stitch of the lazy stitch. With this, color shows on two coils as with the lazy stitch.

The Havasupai stitch is the one most commonly used by the Indians. Mr. James states that fully four-fifths of the Indian baskets are made with it, and that both willow coil and splints are used. After the button has been made, the thread is passed around the outer coil, and under a wrap on the inner coil, an awl, or pricker, being used to make the opening for it. Colored splints are inserted at this point and passed to the outside of the outer coil.

The Open Poma stitch, as it is called by Mr. James, and which is very fully described by Mr. Marten, consists in making the wraps about the outer coil at some distance apart and binding the outer coil to the inner by passing the thread under the wraps of the inner coil. As the basket increases in size, extra wraps are added which are not fastened to the inner coil. The effect of this is very attractive, as the stitches make a spiral effect. The little baskets made of straw which contain figs, are made in this way and can be used as a model.

In all coil work the finer the thread, the finer the

work. The Indians are said to have placed over fifty stitches to the inch. Some workers prefer to use the raffia dry and other wet, the last giving a firmer basket but an uneven one if it is allowed to dry out between working hours. The needle used for raffia work is blunt pointed, has a large eye and is known as Rug or Tapestry Needle No. 18.

Basketry is one of the most valuable occupations that we have, and is a most excellent way of training the attention. Yet it may be discontinued at any time so that the patient need not become fatigued. It educates in form, color, and manipulation of hand, and may be of value in many other ways.

Firth. Cane Basket Work, Part I. London, 1899, T. Upcott Gill; 65 cents. Cane Basket Work, Part II. Same; 65 cents.

The Pine Needle Basket Book; 75 cents.

Knapp. Raphia and Reed Weaving; 50 cents.

Priscilla Basketry; 25 cents.

Buck, Martin McCrae. Reed Baskets, their many uses and how to weave them. The Craftsman, XXVII, 86, Oct., 1914.

Tinsley, L. R. Practical and Artistic Basketry; $1.00.

Morse. Basket Making; How to Do It; 25 cents.

Hasluck. Basket Work. Cassell & Co.; 50 cents.

Blanchard. The Basketry Book. Chas. Scribner's Sons. $2.00.

Turner, Luther Weston. The Basket Maker. New York, Atkinson, Mentzer & Co.; 75 cents.

White, Mary. How to Make Baskets. New York, Doubleday, Page & Co.; $1.00. More Baskets and How to Make Them. Same. $1.00.

CHAIR CANING.

Chairs bottomed with cane in an octagonal pattern are no longer so common as they were in the seventies, although there has been a revival of this form in recent years. Woven cane bottoms are more generally used than this older hand work. It is used as an occupation in some hospitals and as an industry for the blind. As a form of weaving it has a distinct value.

The cane, as before stated (p. 133), is shaved from the outer part of rattan. It comes in varying widths and may be procured at upholsterers' supply houses.

It must be thoroughly soaked before being used. The chair having been cleaned of the old cane, the worker sits before it on a low stool, or stands before the chair, which is supported on a low bench, or box, to a convenient height. The centre must first be found and a length of cane is started at the front or back, being kept in the hole by a tapering peg, of which the worker should have a number. It is run straight across to the back, or front, until all of the holes are filled. It may be necessary to use several holes on the side in order to fill up the space, as the front of a chair is wider than the back. The cane should not be put in tightly. The next rows are woven horizontally, or from side to side. The third set are woven the same as the first, in the same holes, and on top of them. The fourth set is again woven horizontally, over the upper

vertical cane, and under the lower one. The upper vertical one always being pulled to the right. We are now ready for the diagonal canes. These are started from the front left corner to the back right and always pass under the vertical pairs and over the horizontal. The remaining diagonal canes run from the front right hand corner to the back left, always passing over the vertical pair, and under the horizontal. The chair is finished with binding, which is heavier than the ordinary cane, and is laid over the holes and held in position by a piece of finer cane which is brought up through the hole, over the binding and down through the hole and across underneath to the next hole, although it may be done only at every other hole if preferred. The ends of cane are twisted twice under the next loop and bent sharply to keep them from slipping.

BOOKBINDING.

Bookbinding is an excellent craft for the mental or nervous convalescent because it is a "developing task," by which I mean that the work begins with simple operations which gradually become more difficult and call for greater mental effort. In the final process, that of making the casing, much artistic ability may be brought out, yet a lack of such ability does not prohibit its use. I have always thought it an excellent occupation for women because they more than men possess the ability of doing neat work, but it is excellent for many other reasons. Probably everyone cares for books. While some few persons may have but one or two of which they are fond, the ability to care for them and repair them when worn is an accomplishment that all people would like to have. Bookbinding is not at all difficult in its simpler forms.

The history of bookbinding as given in the Encyclopedia Brittanica is most interesting. Binding or covers to protect written or printed matter have always followed the shapes of the material on which the printing or writing was done. The first known bindings are Assyrian cuneiform tablets which date from the eighth century B. C., encased in an outer shell of the same shape, bearing a title. Papyrus rolls were often preserved in rectangular hollows cut in wood. Bark books, the next writing material, which is still used by some

uncultured nations, were folded back and forwards on themselves like the sides of a concertina. In Pompeii, in 1875, were found diptychs (di=two, and ptisso=to fold) of wood hollowed on the inner sides, filled with blackened wax, and hinged together at the back with leather thongs. An *orihon* is a scroll written on one side and so folded that the folds come between the columns. These folds were fastened together along one fold, usually by "stabbing." This forms a link between the roll and the book as we know it. Stabbing is the earliest method of binding and also the most amateurish. Vellum was next used in book making, and in the fifth century several sheets, four or more, folded once, were stitched through the back. Next these were fastened by the threads about a strong strip of leather or vellum held at right angles to the line of the backs. This is the same method of binding that is used to-day for flexible backs. It was soon found that these backs needed protection, so strips of leather were fastened over them. The vellum leaves curled so much that wooden boards were fastened to each side, the loose ends of the back strips being fastened to the boards which hinged upon them, and the protecting strip of leather at the back was drawn over the boards far enough to cover the hinge. This was the mediæval "half binding.' The boards were usually kept together by a clasp in front. The next step was that leather was used to cover the boards, and this was found to give opportunity for decoration. They were first "blind" stamped—that is, without gold leaf—and the

tools with which this was done were cut intaglio, so giving a cameo form to the impression. Later binding became more elaborate, gold, silver, enamels, silk, embroidery, and other materials being used to enrich and decorate the books. In the sixteenth century pasteboard was used in place of wood for the sides, thus decreasing the weight. Gold tooling on leather also was invented and by its use most artistic bindings have been made. Mr. Cobden Sanderson, Miss Prideaux, and Miss McColl are probably the best known of modern binders, and it will be noted that two of these three are women. Frequently ornaments of different colored leather are inlaid in bindings, giving a very beautiful effect.

At the present time most books are bound by machinery, but the steps are practically the same as in hand binding, excepting that of casing. These are:

First, folding the sheets which form the signatures, so called from the sign placed on the front page of each to guide the binder.

Second, gathering these in proper order.

Third, sawing the backs to mark places for the stitches.

Fourth, stitching the signatures together.

Fifth, glueing the back.

Sixth, rounding the back. This gives it a convexity which helps to preserve its shape. When it is not done the back of the book takes a concave form and the cover does not fit so well.

Seventh, backing, or putting on the piece of fabric which reinforces the back and forms the hinge.

Eighth, casing, or putting on what we call the cover. It is here that the difference between hand binding and machine binding is marked. In the former the cover is made on the book, in the latter it is made separately and placed on the book. As a matter of fact, at the present time only very large books or those bound by devotees of the craft are "bound," all commercial bindings being "cased." The last is more easily done and concerns us here as it requires much less skill.

PAMPHLET BINDING.

By pamphlet binding we mean the binding of a single signature, no matter of how many pages it may consist. It is now usually done by a machine known as a wire stitcher which holds the sheets together by means of one or more pieces of wire like staples. When it is done by hand, linen thread is used (binders' thread comes in a number of sizes) and the stitching is done as follows: Holding the folded sheets in the left hand, the threaded needle (a No. 1 sharp) is passed through the sheets at the middle of the fold until about three inches of the thread remain. The needle is then passed through the fold in the opposite direction at a point about half way between the centre and the edge, and in the opposite direction at a similar point on the other side of the centre. It is then passed through the central hole, coming out on the opposite side of the long stitch, the two ends then being tied over the long

stitch and the ends trimmed off. It simplifies the process to make the first and second stitches together, by one movement, by bending the folded sheets at a point half between where it is desired to place the two.

Stabbed binding is seldom used, as a book so bound does not open well. It is only used when single sheets are to be bound or when an odd effect is desired. Here the sheets are placed together and stitches or metal fasteners are passed through them at the left side, so binding them together. Tape or thongs may be used, and are passed in and out and over the ends when a quaint effect is desired.

SCRAP BOOK.

A scrap book is always useful and can be used by the nurse to hold her collection of catches and puzzles, or any clippings or directions which she may wish to keep as occupation notes. It can be made without any special tools or apparatus.

Several sheets of tough wrapping paper can usually be bought at a neighboring store, or those which have been used can be smoothed out with a hot iron. These are folded to the size which it is desired to have the page. Extra pieces of the same paper the length of the page and about two inches wide are folded in half along the long axis and are placed between the pages so that the fold coincides with the fold of the back of the signature. This is necessary to make the back as thick as the pages will be when the clippings are pasted in it. When the signatures have all been prepared we are

ready to stitch them together. Sitting at a table with the left side towards it, open a signature in the middle and place the fold near the edge of the table, holding it in position with the left hand. This gives a hand on each side of the fold. With the right hand pass a threaded needle through the fold about one or two inches from the end, pulling it through with the left. With the left hand thrust the needle back again at a point about two inches from where the first stitch was made. We are now ready for our "fiddle strings" which may be of soft string or tape two or three inches longer than the thickness of the book. One of these is laid next to the thread and the needle passed back to the inside of the signature, close to the other side of the tape or string, although when the latter is used some prefer to pass the needle through the same hole by which it has passed out. The number of fiddle strings used depends on the size of the book, but two should always be used. After they have been placed about three inches apart, the thread is brought out about one or two inches from the end of the signature, another signature is placed on top of it and is treated in the same way, the stitching being done in the opposite direction. When the thread is finally brought out above the starting point the two threads are tied with a square knot. We are now ready to stitch another signature which is laid on the second and sewed to the tapes. When the end is reached the thread is brought down between the first and second signatures around the stitch holding them together. This is what is called the "anchor stitch." We are now

ready to sew on another signature, or if but three are to be used it is fastened off by making two half hitches about the stitch between the first and second signatures. While doing this sewing it is necessary to keep the signatures in such position that their edges will be even. This can be done more easily if the signatures are clamped together before being stitched, the points where the needle is to be passed marked and then sawed through the folded sheets. This is best done with a back saw, but a coping or other fine toothed saw can be used. While sawing is a convenience, it is not necessary in making the loosely bound book on which we are engaged.

After we have stitched the signatures together, the back—that is, the folded edges where we have done our stitching—is smeared with glue and a piece of cheesecloth three or four inches wider than the back of the book, and from one to three inches shorter, is placed on it so that it is in the middle of the back and the projecting edges are even. More glue is applied over it and the whole back is then covered with a piece of waste paper cut its exact size. This prevents the back of the case from sticking to the book and forms a flexible back.

We are now ready to make the case. Two pieces of pasteboard are cut which should be a half inch longer than the page of the book and of the same width. A piece of waste paper of the same length as the pasteboard and the width of the back is also made ready to line the back. The material which is to be used for the

cover is next prepared. Let us suppose it to be a piece of chintz. This is cut three inches longer than the length of the pasteboard, and three inches wider than twice the width of the pasteboard plus the width of the back plus a half an inch. It will be noted that the width of our chintz is greater than its length. The paper lining of the back is now covered with paste or thin glue and placed exactly in the middle of the chintz and smoothed down. The pasteboards are then pasted and placed one to the right and the other to the left of the paper strip and a quarter of an inch from it. Care must be taken to have the top and bottom edges of these three pieces on the same straight lines. With scissors make a straight cut, cutting off the corners of the chintz at an angle of forty-five degrees, at an eighth of an inch from the corners of the pasteboard. Paste is now applied to the top of the three pieces and the upper edge of the chintz turned over and smoothed down. The lower edge is pasted down in the same way and then the two sides. Before turning over the latter the folded portions are pressed together, and in this way the mitre is made neatly. To fasten the book in the case, they are placed together and laid on the table, one side is raised, the page under it is covered with paste and the side is brought over it so that its edges are each a quarter of an inch from those of the page. The book is turned over and the other side is treated in the same way. With the finger-nail press down the chintz along the edge of the back. It is this part that forms the hinge. The book is now ready to

be placed under some form of pressure for twenty-four hours to dry, although a longer period is better to allow proper "seasoning."

If paper is used for covering, it should be pasted all over and the back lining and pasteboard sides placed on it. Care should be taken to select a paper of tough quality. Some of the better wall papers are excellent. If binders' muslin is used it cannot be pasted, but must be glued. Experience alone can tell the proper consistency of the glue. If it is too thick we cannot work rapidly enough, and if too thin the muslin will blister or lose its gloss.

Press boards are boards with a metal edge projecting about an eighth of an inch, which is placed so as to press in the muslin between the back and the side, so as to form a neat looking hinge. They are only necessary when binding is to be taken up extensively. Under the same circumstances a sewing bench is a great convenience, and is not expensive. If a scrap book is made as above directed and examination is made of the various books which pass under the nurse's hands she will have sufficient knowledge to repair books and make loose bindings. If she desires to develop the craft it will be necessary to take some lessons or to study some of the many books on the subject. To one who "is handy at picking up things" a visit to a bindery will be helpful.

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COLLECTING.

The word collecting may bring up different emotions in different individuals according as to what their conception of the word may be. To the housewife-mother who only knows that her boy's pockets bulge with miscellaneous objects whose value she cannot appreciate, and that each dusting day she is obliged to clear up a lot of "truck," the word collecting brings up disgust or anger. To the experienced person who knows that each object has its story of how it was acquired, where it was made, by what sort of people, etc., the word can only bring up enthusiasm or joy. The mere gathering together of articles is not collecting in its higher meaning, and such an occupation should be discouraged, even in millionaires. In collecting, an object should serve as a text or as a focus for all of the knowledge that it is possible to associate about it. It is only then that collecting becomes of value. The habit of investigation which can be inculcated in this way will broaden the individual's intellectual horizon and increase his mental powers.

The choice of what is to be collected is comparatively immaterial. Stones, flowers, leaves, stamps, cups, plates, pitchers, bottles, watches, clocks, book plates, dolls, firebacks, books, engravings, pictures, etc., have all been collected, and have been the source of great pleasure and profit to the collector and also to those

who have been privileged to go over such collections, especially when the owner has unbosomed himself and told all that there was to tell about the various pieces.

The choice of a collection will depend on the patient's taste, what arouses his interest, the state of his pocketbook, and also on the interest and co-operation of the nurse, who can do everything to stimulate or discourage the patient.

Stamp Collecting.—I have always recommended stamp collecting to nurses as a hobby for several reasons. First, it is compact and will not take up much room, and if she does private work she will necessarily have to live much in her trunk. Second, it is probably the most interesting form of collecting because so much of romance, history, geography, etc., is associated with these bits of paper. One of the most delightful talks I ever heard was by Mr. W. Dwight Burroughs,[1] who told us stories about various stamps which he showed. Most of these stories were history and therefore more interesting. Stamp collecting teaches us to observe things closely and detect small differences in them. It also teaches us to be neat, orderly and systematic. It has the further advantage of being profitable if persisted in long enough, as almost all stamps increase in value as their age increases.

A number of books are published which give directions to beginners in stamp collecting, and it is well

[1] Burroughs, W. Dwight. The Wonderland of Stamps. F. A. Stokes Co.; $1.50. This is written especially for children, but is interesting even to experienced collectors.

to get one of these. An hour or so with an experienced collector will probably be quite as profitable, but it is well to have a book for reference. It is also well to subscribe to a special periodical or one which contains a philatelic department, as in this way only can one keep up with the changes, new issues, etc., which occur. Certain stamp dealers sell a small collection with album and other necessary things, which may be a good way of beginning. It is much more sporting, however, to acquire one's stamps otherwise than by purchase. Stealing is, of course, barred, but one can ask for the stamp on a letter or package and usually get it. The uncertainty of the reply adds to the sportiveness of the occupation. Sometimes we may find a person with a foreign correspondence who is willing to save the stamps for us, and we may have a delightful time sorting over a packet of these. A mass of old letters may prove to be a gold mine of interesting specimens. If none of these sources are available to the young collectors, I would advise the purchase of one of the "common" packets issued by dealers. By "common" we mean stamps which are not "rare" and which exist in such quantities that they have little value. They are usually the low values of a country and have been in use for some time, like the present two-cent stamp of the United States, which has been in use since 1909. If we had a quantity of these stamps to look over we would find many differences in shade, that some were marked TWO CENTS and other 2 CENTS 2. If some of the stamps had been collected since December, 1914, we would find that

the perforations of these are larger and there are fewer of them. Still others have no perforation, others are perforated only at the sides, others only at the ends, others have only two long and broad perforations at the side. An expert could point out many other points, such as a difference in watermarks, so that even a common two-cent stamp has interest. An additional fact is that it bears the likeness of Washington, and it will be found that the stamp of a country which is in most common use always bears the likeness of its most popular hero. A stamp of Brazil, besides bearing the smallest engraved portrait of Washington, has portraits of other Pan-American heroes, such as Bolivar, O'Higgins, Jose Bonifacio, Hidalgo and San Martin.

A stamp known as the O'Connell stamp was issued by one O'Connell, Postmaster of New Brunswick, bearing his likeness, and was promptly suppressed because it did not bear the likeness of Queen Victoria. Copies of this stamp are so rare that they are valued at one hundred and fifty dollars. A similar stamp was issued during the Boer War (1903) and bears the likeness of Sir Baden Powell, who thereby incurred the displeasure of his sovereign.

A rare stamp on the original cover (envelope) has a greater value than one detached because then there can be little question as to its genuineness, but ordinary stamps are soaked from the paper on which they have been placed. This in itself may prove a pleasant and restful occupation. Some stamps are printed with ink which dissolves in water and so spoils the stamp, such

as the United States Postage Dues. Wetting does no stamp any good, and I have found that when a stamp is on thick or ordinary paper the best plan is to float it on water face up. At first the paper will curl up, but as the different strata of the paper absorb water it will lie flat and later may curl down. When lying flat it will usually be found that the gum is sufficiently moist to slip off the stamp, which is then laid face down to dry. Tweezers, especially those with broad ends made for the purpose, are of great assistance in handling the stamps. If the paper on the back of the stamp is thin, such as Japanese paper, it had better be laid back down on wet blotting paper. The object is to keep some of the original gum ("o.g.") on the stamp, as it is thereby more perfect. The majority of stamp dealers will buy even ordinary stamps in quantities if they are in good condition, so that practically every stamp has some value. Trimming with scissors renders a stamp valueless.

Some collectors specialize in the stamps of one country, of a certain value, etc., but it is less expensive to have a general collection. The higher values, being more rare, can usually only be acquired by purchase; but I have sometimes been so fortunate as to receive a gift of a lot of stamps containing some that I had long given up hope of acquiring except by purchase. The collector will find that he has a host of friends who are willing to save stamps for him if he only lets them know that he has this hobby.

Book collecting may be made very entertaining by

frequenting old book stores or auctions. For those who cannot attend book sales the dealers have a plan by which they receive bids sent by mail. I have found this a delightful occupation. The sales catalogues are accurate in giving the condition of the book, whether it is shaken, broken, foxed, etc., and also gives information as to editions, etc., which is of value to the book lover. I have always found these dealers honorable in all their dealings, at times giving me a book at a lower price than I have bid, and I have never had to complain that their description of a book was inaccurate. By buying books in this way one can build up a library at comparatively small cost. There is usually a charge, subscription, so to speak, for the sales catalogues, but they are quite worth their cost to the book lover. I will be glad to give the names of these dealers to anyone interested.

It is possible to extend our list of collectible objects to great length, but it would be useless. No matter what it is that excites our patient's interest, if he can be induced to study about it and associated subjects, he should be encouraged to continue collecting.

The value of a hobby to anyone as a safety-valve for surcharged emotions is so great that it cannot be estimated.

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GARDENING.

"When Adam delved and Eve span
Which was then the gentleman."

If this old rhyme be considered an authority, then gardening is one of the oldest of crafts. It is also one of the most delightful. Some persons have the idea that it can only be followed out of doors during a few months of the year. But as soon as he has gotten over the Christmas holidays the true gardener is hard at work at his garden—on paper—and is laying out rows of bulbs and plants and vegetables. A seed catalogue is more absorbing than a best seller, and the joy of anticipation is his to the utmost. While the patient may not be brought up to quite such heights as these, he may be given a start and the right way pointed out to him.

Many hospitals have a part of their grounds set apart for patients' gardens where flowers to beautify the wards and rooms, and vegetables to add to the menu are raised with much enjoyment. Who does not eat radishes fresh from the garden with a much greater zest than those which have come from market? There is also great pleasure in watching plants come from seed and grow and mature. There recently appeared in the Garden Magazine a delightful story[1] which told

[1] The Garden Doctor. The Garden Magazine, XVII, p. 11; February, 1913.

how a nervous invalid gained strength and an interest in life by means of gardening.

We may start very simply by planting a few seeds in a pot. In winter the orange and grape fruit seeds may be sown thickly and the rich green of the leaves makes an attractive centre-piece. After the plants have grown to some size, the best may be selected and grown singly in pots. By this time the patient's interest will probably be aroused and geranium or begonia cuttings may be potted. At the same time he should be induced to read up on the subject and plan a modest garden for the summer. If the last is impossible, the pot growing can still be continued. Much pleasure may be derived from a pot of house ivy. Making a trellis and training the ivy over it may prove very interesting.

Should the outdoor garden be possible much pleasure may be derived from it. There are many books on the subject which may be read with profit.

As a side issue, so to speak, to the garden work, the rose petals may be saved, after the roses have been cut and beautified the home, and utilized in a number of delightful ways, such as, a sweet jar, rose syrup, candied rose petals, sandwiches, lozenges, etc.

Two writers in the *Woman's Home Companion* for June, 1913—Henrietta D. Grauel and Caroline B. King—give a number of recipes under the title of How to Use the June Roses, which are most interesting, as a number are taken from old cook books. From this we learn that the way to make a conserve of rose petals is to line "a jar with alternate layers of rose petals and

sugar until it is filled. Then it is tightly covered with heavy paper and set away for three months. At the end of that time a rich and delicate conserve has formed, which is to be served with syllabubs or whipped cream." Or "if you would have rose lozenges, boyl your sugar to sugar again, and then put in your red roses beat to a pulp, pour in pye plates and cut in what form you please."

TO MAKE A SWEET JAR.

Select a jar and in the bottom place a layer of cotton batting wet with a few drops of oil of bergamot and five drops of oil of rose geranium. This will cost ten cents at any druggist's.

Have ready a quart of dried rose leaves; put half of them in the jar on top of the cotton. Mix in a few cloves, a blade of mace crumpled fine, a strip of cinnamon broken in bits, a nutmeg crushed but not grated. Add more of the rose leaves and on them sprinkle three drops of oil of peppermint. In this you may put a little powdered orris root; its odor resembles violets. Or, if you prefer something stronger, use powdered sandalwood.

This completes the aromatic jar; keep it tightly shut for three weeks, to ripen and combine the odor. After this open the jar for a few moments and it will diffuse a rare fragrance.

Lack of space prevents reproducing all of these interesting recipes, but they can easily be obtained from the above or probably from other books in the nearest

public library. In another number of the *Woman's Home Companion,* Paul P. Foster tells about Sweet Lavender and how to make sachets. Lavender grows freely in California and in some of the Southern States, and might be tried anywhere. I have never succeeded in growing it from seed in Maryland, but will keep on trying, which, by the way, is a good rule for gardeners to follow. It is said to grow better from cuttings than from seed.

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NATURE STUDY.

Even if our patient does not care for gardening, he may be induced to take an interest in nature study by the nurse pointing out the interesting things which may be seen from a window or during a ramble. Birds, trees, wild flowers, weeds, grasses, the soil, and the stars are all treated in popular manuals, and if the nurse knows but a little of all of these it may be enough to excite the interest of her patient and stimulate a desire for more. So many things may be observed during a walk by eyes that see. Even in city streets there are sparrows, a few trees, and window-boxes, and practically all cities have parks. Under such circumstances a game might be played and nurse and patient match wits to see who can observe the greatest number of a certain kind of objects.

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STENCILLING AND BLOCK PRINTING.

STENCILLING.

Stencilling was much in vogue at one time, and, like many other occupations which have become fads, its popularity brought it into disrepute. As someone has aptly said, there is no more effective decoration when properly used, and there is no more mistaken method when crudely handled. So much work of poor design was circulated that a prejudice was formed against it. The comparative ease with which stencilling may be done was responsible for many evidences of bad taste. Probably many persons have never seen a good piece of stencilling. In this work color harmony is important, probably more so than good design. On account of the commercial exploiting of stencilling many very poor designs have been placed on the market, and it is usually much easier, after having obtained a good design, to make one's own stencil than to search for a good one at an art store. As to the origin of stencil making we know nothing. Probably all of us have seen stencils of one form or another, but for those who have not, it may be said that "a stencil is a thin sheet or plate, as of paper or metal, in which a pattern is cut through with interrupted lines or spaces or with dots, used by placing it on a surface and laying on a color through the open spaces, as with a brush or

sponge." (Standard Dictionary.) The most durable are made of very thin brass or copper, and are used almost entirely to mark boxes, barrels, etc., with trade-marks or lettering of some sort. Heavy paper which has been soaked with linseed oil and then dried is what is generally sold and used for the stencils which we make. The oil makes the paper tough and impervious to the color which is used. If it is not possible to obtain stencil paper we can use any ordinary thick paper, and after we have cut our stencil, varnish or shellac it, or, which is not so good, coat it with paraffin. Stencils must be somewhat flexible so as to conform to irregular surfaces. In making a stencil the design is drawn on paper and bands which hold the different parts together are marked. The design is then cut with a sharp-pointed knife, a matt knife frequently being used. We are now ready to put the design on the material. Almost any smooth material can be used. To stencil upon it, it is preferable to put a piece of blotting paper on a board, place the material on this and fasten the stencil to it with thumb tacks. Ordinary artist's tube colors or other thick paint is used and is applied with a round, short-bristled brush which is made for the purpose. Other stiff brushes will do or long bristle brushes can be cut off. The color is rubbed into the material, care being taken not to smear it into spaces where it does not belong. Some very handsome scarfs, table covers, curtains, etc., have been made in this way, and walls, screens or other pieces of furniture of a certain character may be beautified by a stencilled design. It

is easily conceivable that a patient may be interested in the decoration of the walls of a room or its hangings by this means. Some very attractive dens and nurseries have been made, chiefly with the aid of stencils. It is an occupation which trains in color sense and design as well as accuracy in the use of eye and hand. The slight equipment necessary and the ease with which such can be procured is a strong point in its favor.

BLOCK PRINTING.

This is a more difficult, but far more fascinating craft than stencilling. It is really a craft, hence is not likely to be lightly taken up as an amusement. The patient should have some artistic ability and patience enough to carry out the somewhat tedious process required. Almost any smooth material can be used except rich silk and satin. The material must be more smooth than for stencilling. In choosing our design it should be remembered that we have a repeat pattern to make, or if all the material is covered, what is generally known as a diaper pattern.

Symmetrical designs are generally chosen. Various kinds of wood are used, but a close-grained wood is best, such as cherry, dogwood, or boxwood. If these cannot be secured, white pine can be used. If the latter, the side of the grain is used, if the former it is better to use the end of the grain.

The design is drawn on or transferred to the block and outlined with a sharp knife or graver. The block can be made more easily and better with wood en-

graver's tools than with any others. These can be secured from dealers in printers' supplies. All wood outside of the design is cut away to a sufficient depth to keep it from coming in contact with the material, usually about an eighth of an inch, although it may be necessary to cut away more near the edges of the block. The material is fastened to a board over which has been placed blotting paper by means of thumb tacks. The positions where the block is to be printed can be indicated by pins. A coating of paint is put on the block which is inverted and placed on the material. It is held firmly and struck a sharp blow with a mallet or hammer. The block is then lifted away, and if we have used a proper amount of paint there should be a clean print of it on the material. Practice only can determine the proper amount of paint to put on the block. This can be better done, however, by the use of a color pad, which is made by stretching about a dozen pieces of cheesecloth, or coarse muslin, over a block of wood larger than the printing block and securing them by tacks around the edges, although they may be sewn together and laid on a plate. The paint, or dye, is spread on the pad with a brush until it is saturated. Press the wood block on this and wipe off the color, doing this several times or until the wood is saturated, then again press the wood block on the pad and it will be found to have on it a thin coating of color. It is then ready for printing. In all cases try on a sample of the fabric before attempting to print on the piece. In printing on thin fabrics, firm, even pressure will give as satisfac-

tory an impression as will tapping with a mallet or hammer. The latter is necessary in printing on rougher fabrics. It is impossible to print on fabric with a pile, such as velvet. When dyes are used they should be in concentrated solution.

Some combinations of stencilling and wood block printing are very effective. One great advantage of the latter over the former is that the continuity of the design is not interrupted.

If it is not convenient to procure wood engravers' tools the block may be made in other ways. The design may be sawed from thin wood with a scroll saw and the pieces glued on a block of wood which has been marked with the same design, so that the pieces will be placed on it in their proper position.

Another method which I have never seen tried, but which I believe can be used, is one used by printers in emergencies where it is necessary to have large type or designs in a short time. This consists in glueing a piece of plain-faced linoleum (one which has not had paint applied to its surface) to a piece of wood. The design is drawn on this and is easily outlined and the background cut away with a sharp knife. This is more easily made than a wood block, but is probably not so durable.

As this is an occupation which requires some skill in manipulation, it should not be taken up until the patient has shown evidence of having such, or until he has learned manual dexterity by some other means. It is preferable to precede block printing by a course of

stencilling, unless the patient is already familiar with the latter.

There is an excellent article on stencilling and block printing in the Good Housekeeping Home Handicraft Book.

PLASTIC WORK.

The creative instinct which is in all and which in childhood causes us to make mud pies, still exists despite repression, and we would probably enjoy clay modelling as a diversion if we did not feel that other things give us and our world more pleasure. There is, however, an artistic touch in many crude things, and we may be able to develop such in ourselves or others. Certainly the interest which such an art creates in stimulating us to observe form may be used to an advantage in the mentally sick who need diversion and training. Clay modelling is truly an art, and while our patient may not accomplish anything more than diversion from unhealthy thoughts, or an interest in the study of sculpture, we should feel quite satisfied with such result.

Clay modelling has one great advantage, its cheapness. The clay may be procured in several colors at art stores for about six cents a pound, and only requires mixing with water to be ready for use. The modelling tools are of wood, are quite inexpensive, and substitutes can be whittled with a knife. The clay also can be bought mixed with oil so that it does not dry and crumble. If the clay dough is mixed with water it must be kept moist by means of wet cloths wrapped about it.

As an illustration of the artistic value of even crude things, I might instance a Banko teapot which was bought at the Centennial Exhibition in 1876. It is of

brown earthenware with a "chimney" in the middle; all over it are the finger marks of the potter, and the handle of the lid is a quaint little frog made from bits of clay. It is a quaint, common, little teapot with a charm of its own, due chiefly to its individuality. We know that other teapots made by the same potter must show some differences even though slight. A number of years ago a writer in the House Beautiful called my attention to this by bewailing that this form of Banko ware is no longer made, and in its place is made a ware of colored clays which form a design which goes through the wall of the vessel. This the writer decried as being commercial, machine made, etc. Naturally my Banko teapot had an increased value to me because I could not replace it and because an authority had commended it. This also shows that the more knowledge we have of an article the more interesting will it be. (See Collecting.)

But to go back to our moist clay, there are so many things which can be made which may have value if well made. Vases, jars, etc., may be built up by coil work, the clay being rolled out in a long, narrow string-like piece, which is laid on itself to form the shape desired and then smoothed off with the wet hand or a wet tool. After having dried thoroughly these may be fired in a kiln. One of these can usually be found at no great distance and the fee is a small one. Clay found on some country ramble will serve as well, perhaps, and may be more interesting to the patient than that bought from the shop.

If the patient shows sufficient ability, lessons should be taken in this fascinating art and a potter's wheel set up. It is certainly a delightful thing to see an expert potter shape a lump of clay on his wheel, and must be a delightful accomplishment.

In modelling it is well to begin by making solid objects, the round, so-called, then high relief, and last, low relief. In this way a better idea of form is gained.

There is a prepared form of colored clays called Plasticine which comes in sets and is an excellent way of beginning clay modelling.

References:

Holland. Clay Modelling; 75 cents. The Way of the Clay; 20 cents.

Lester, Katharine. Clay Work; $1.00. Clay Modelling in the Schoolroom; 25 cents.

Sargent. Modelling in Public Schools; 60 cents. Modelling for the Standards; 60 cents.

Binns, F. The Potter's Craft; $2.00.

White. How to Make Pottery; $1.00.

PLASTER CASTS.

Should our patient model something that is worth keeping, but we are unable to have it fired, a plaster cast can be made. To do this a thin film of salad oil is painted over the object to prevent the plaster sticking, and if the matrix, or mould, must be made in sections on account of the form of the object, a wall of clay is built along the line where the section of the matrix under construction must cleave, a retaining wall of some sort made, such as a piece of tin or wood, and the first

section cast by pouring into the cavity made a thick cream of plaster and water. After twenty-four hours the tin, or wood, and clay are removed, the edges of the matrix are greased as well as the object and another section of the matrix is cast. After twenty-four or more hours the matrix can be removed. It is well to insert pins of some sort into the clay wall, or make depressions in the plaster of the cleavage of the matrix to form keys so that the sections will fit well together. To make the cast the sections of the matrix are greased and then bound together, a moderately thick cream of plaster is poured into it and the matrix turned rapidly so that the plaster is distributed about the cavity and forms a shell. Some persons prefer to make the cast solid, but it is unnecessary. Considerable time should be allowed for the cast to harden. A week is not too long, although the mould may be removed carefully before that time elapses. A very satisfactory book on the subject is Modelling and Sculpture by Albert Toft (London, 1911, Seely & Co., Limited).

STARCH BEADS.

A very simple form of plastic work which requires no artistic skill is the making of starch beads, or salt beads, as they are also called. There are a number of ways of making these. In one we require one cup of salt, a half cup of boiling water, and half a cup of cornstarch. Mix the cornstarch with a little water and add the color (Diamond or other dye). Put the salt

in the hot water and boil it. Add the cornstarch and mix vigorously. Oil the hands with olive oil and knead the paste while hot until it is smooth, after which the dough may be set aside and used at any time. A small piece is rolled in the hands until it is the shape desired, when it is pierced with a hatpin and set aside to dry and harden. The beads are afterwards strung, usually as a necklace.

Another method is as follows: Take one large tablespoonful of ordinary flour, or better, cornstarch, and the same of fine table salt, mix well and sift together, add just enough cold water to make a very stiff dough, first tinting the water with any color desired. Work well until the salt is dissolved, take a very little of the dough at a time, keeping the remainder covered with a cup or bowl to prevent drying. Roll out with a rolling pin (not very thick) and cut, as are cookies, with a band ring; then cut in two to make two beads. Roll them in the palms of the hands, which should be moist. String on fine broom straw and keep out of the sun and wind to avoid cracking while drying.

These beads are usually strung alternately with glass or gilt beads, and if they have been well colored are quite pretty.

CEMENT WORK.

Cement work has been used as an occupation for certain cases, and has been developed to a distinct craft by Dr. Herbert Hall at his Marblehead Sanitarium, where only nervous cases are treated. It is also used at a number of other places. My experience with it is too

limited to permit my expressing any decided opinion as to its value. I am of the belief at present, however, that it may be of use in only a limited number of cases. Mrs. Slagle believes that it is of especial value for senile cases, but I cannot understand how such can use this craft except under competent direction, and then only to a limited degree. It is a rather fascinating craft and in simpler forms is not especially difficult. Door porters and book rests are made, but are not very good for polished floors or tables. These are simply made. A wood or metal frame of the size desired is filled with the mixture of sand and cement, packed hard, smoothed off, and a design cut in the top by the aid of a stencil or free hand. Or an ornament may be made in a mould and applied. After two or three hours the frame may be removed and the cast on its board set aside to dry. This should not be done too quickly or cracks will show. To prevent this the cast should be sprinkled well twice daily for at least a week.

The mixture used is the same as the finishing coat for concrete work—that is, one part of Portland cement to two parts of sand. A perfect sand is difficult to obtain, as that from the seashore contains salt, and that found inland usually contains clay, both of which weaken the cast by preventing a proper bonding between the grains of sand and the cement. The sand may be washed, however, and so purified.

If a *white* cast is desired, a mix may be made of three parts of marble dust to one of white cement, this being about three times more expensive than the grey.

Moulds, the board on which the cast is made, the frame, etc., should be oiled. Dr. Hall recommends a mixture of a half pound of melted paraffin to a quart of kerosene, and cautions against its free use.

There are many little "tricks of the trade" which will be learned by experience, or can better be gotten from some book on the subject. The most difficult thing to learn is how much water to add to the mix. I would recommend, for reference, Concrete Pottery and Garden Furniture.[1]

[1] Davison, Ralph C. Concrete Pottery and Garden Furniture; New York, 1910, Munn & Co., Inc.

DRAWING AND PAINTING.

While these are essentially arts and require a natural talent as well as years of training in order to achieve any success in them, if the patient shows a desire to undertake them he should be encouraged to do so. It is, perhaps, too much to suppose that the nurse has any particular ability in either of them and so she cannot act as teacher, but she can suggest books on the subject and can do much by encouragement. She should bear in mind that it is better for her patient to do something badly than to do nothing at all. As a secondary occupation the patient may be induced to take up a study of the history of art (see p. 47).

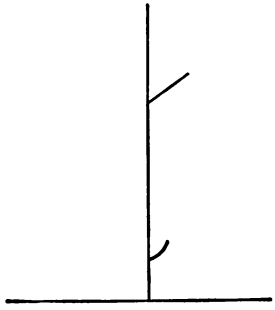

Fig. 39.

There are several simple little drawing tricks which the nurse may use to arouse the interest of her patient as she uses puzzles and catches. The oldest of these is

by Hogarth and represents a soldier and his dog going through a doorway. As is seen by the diagram, it consists of three straight lines and one curved one. This has been used to show the value of a line, which the following also illustrates.

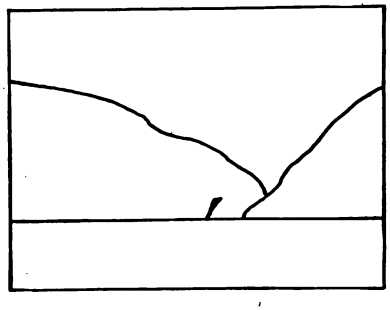

Fig. 40.

Here we have a view of a sailboat on the Hudson River just above West Point, although it will serve equally well for a view of Lake Como. It will be noted

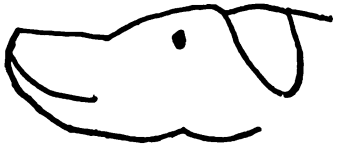

Fig. 41.

that it has been drawn with but four lines, not including the frame.

Another trick is to draw an outline of the thumb held sidewise and fill it in to represent a dog's head.

Pigs drawn with one's eyes closed may be amusing, as also the following geometrical animals.

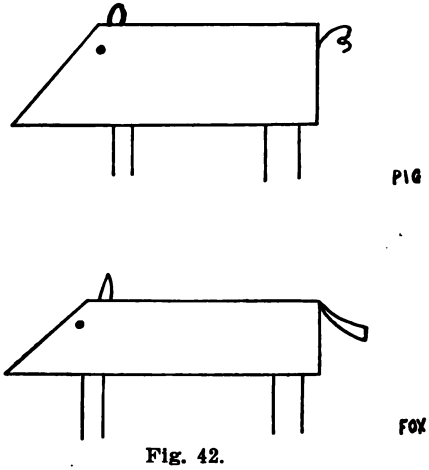

Fig. 42.

There are quite a number of these drawing tricks which the nurse may collect.

ILLUMINATING.

A brief history of the development of bookmaking has been given under bookbinding (p. 156). This gives us sufficient knowledge for an understanding of the present subject, although more detail may be easily learned if desired.[1] We are here interested in but one

[1] Encyclopedia Brittanica. Illuminated Mss., XIV, 312. Manuscript, XVII, 618. Palæography, XX, 556. Miniature, XVIII, 523. Typography, XXVII, 509. Printing, XXII, 350.

phase of bookmaking, though a very delightful and interesting one. From earliest time man has ornamented his most precious possessions, and the earlier books show evidences that they were valued by the ornamentation found in them as well as on their casings. This ornamentation usually consisted in making more or less elaborate letters, decorations, or pictures, and the process has been called illuminating. According to our oft quoted authority, the Encyclopedia Brittanica, "Illumination, in art, is a term used to signify the embellishment of written or printed text or design with colors and gold, rarely also with silver. The old form of the verb 'to illuminate' was to 'enlumine' (O. Fr. *enluminer;* Latin, *illuminare,* 'to throw light on,' 'to brighten'), as used by Chaucer (A. B. C., 73), 'kalendres enlumined ben they,' and other medieval writers." An inspection of old manuscript books shows how much they were brightened by being illuminated. Probably one of the best collections illustrating the development of books is to be found in the Library of Congress at Washington.

In the history of illuminating there is much that is of interest. The earliest known examples are found in papyrus rolls containing the Egyptian ritual known as The Book of the Dead, and consist of scenes in colors. They date from the fifteen century B. C. Numerous references to illuminated books are found in Latin. According to Mr. Wyatt:

"Martial, in his first epistle, points out the bookseller's shop opposite the Julian Forum, in which his

works may be obtained 'smoothed with pumice-stone and decorated with purple.' Seneca mentions books ornamented 'cum imaginibus.' Varro is related by Pliny to have illustrated his works by likenesses of more than seven hundred illustrious persons. Pliny, again, informs us that writers on medicine gave representations in their treatises of the plants which they described. Martial dwells on the editions of Virgil, with his portrait as a frontispiece. The earliest recorded instance of the richer adornments of golden lettering on purple or rose-stained vellum, is given by Julius Capitolinus in his life of the Emperor Maximinus the younger. He therein mentions that the mother of the emperor presented to him, on his return to his tutor (early in the 3d century), a copy of the works of Homer, written in gold upon purple vellum."

The character of the work in the manuscripts of the third century A. D. forms a connecting link between the art of the Roman Empire and that of the Middle Ages, and may be compared with the wall paintings of Pompeii and of the catacombs.

There were several schools, the chief of which were known as the Byzantine, Celtic, and Carloingian or Franko-Lombardic. Of these the Celtic was the most important, and has been described as "a mechanical art brought to the highest pitch of perfection by the most skilful and patient elaboration." It is characterized by the use of interlaced ribbons, scrolls, etc., intermingled with rather grotesque animals, and the use of red dots. Gold was never used. A copy of the Gos-

pels, known as the Book of Kells, is the most famous early example and dates from the seventh century. The Lindisfarne Gospels, written in honor of St. Cuthbert and completed early in the eighth century, shows the influence of the Byzantine school in the use of gold and in the treatment of some of the figures, but the greater part of the work is a perfect example of the Celtic style.

The history of illuminating cannot be further pursued except to say that with the invention of printing from movable types in the middle of the fifteenth century there came a decline in the manufacture of illuminated and written books, and few were made after the sixteenth century, although the names of Van Eyck and Memlinc are associated with illuminating. Early in the nineteenth century, however, there was a revival of the art, due chiefly to Dudley Costello (1803-1865) and his sister Louisa (1799-1870) who in 1835 published a book entitled Specimens of the Early Poetry of France, dedicated to Moore, which was illustrated by beautiful illuminations, and was followed by other books similarly illustrated. These stimulated an interest in the study of illuminating which still survives. While the combination of illuminating with type printed books has never been successful, addresses of a formal character, church books, mottoes, etc., are appropriate subjects.

The art is one which is not lightly to be pursued, as patience and perseverance are required to master pen and brush, but to a person of artistic tastes, it is an

admirable outlet when the more artistic painting or drawing is impossible. The sensory training of eye and hand makes it valuable as an occupation, especially in cases of mild depression, where concentration of attention is desired. It can easily be conceived that the number of patients who can be occupied with illuminating will be relatively small, but it is also conceivable that for certain individuals it may be of great value.

What is sometimes called illuminating, but which can hardly be dignified by the term, is the coloring or embellishing of initial letters or ornaments in printed books with water colors or colored inks. This is a much simpler process, much less artistic, but may produce pleasing results. Notable instances of this form of work are some of the Roycroft books. As an occupation this so-called illuminating may be of value as a diversion, or as a preliminary step to engage the interest of the patient in the more difficult illuminating.

The most practical work on the subject is that of Edward Johnston.[1] The older work of Tymms and Wyatt[2] is much more interesting from an historical standpoint, and contains a number of examples, but it can probably only be obtained from a dealer in old books and many of its directions are out of date.

[1] Johnston, Edward. Writing and Illuminating and Lettering. New York, 1906, Macmillan Co.

[2] Tymms, W. R., and M. D. Wyatt. The Art of Illuminating as Practiced in Europe from the Earliest Times. London (1860), Day and Son.

PRINTING.

As an occupation for a mentally defective patient, either congenital or acquired, printing is admirable. Printing outfits may be purchased for comparatively small sums, and adequate books of instruction accompany them. From simple beginnings, such as a single line on a card, the work may be developed to ornamental work in several colors or small booklets. It is a developing occupation and trains in many ways.

References:

McClellan, George E. Practical Typography; $1.50.
Mackellar, Thomas. The American Printer.

METAL WORK.

Metal work may be very simple or not and in it we have a wide range in choice of occupation.

PUNCHED METAL.

Probably the simplest form is that known as punched brass, which was nearly ruined by commercial exploiting. It may have considerable beauty, and is an excellent occupation for cases of dementia praecox or for deep depression. It consists in outlining a design, which has been drawn on No. 30 soft brass, with small holes punched with a small awl. The background is then punched with larger holes. The brass is laid on or tacked to a board while the work is being done. Very pretty boxes, teapot tiles, etc., are made from wood covered with the brass and afterward punched. A sharp nail will serve as a punch, and if no brass can be procured, thin tin can be made to serve.

A modification of the above is made by outlining designs on heavier brass, copper or tin. A chisel-shaped punch can be filed from a wire nail and used quite effectively for the outlining. This work is also done on a board, and ornamental punches such as are used in leather work can be used on the background. This last was a very popular craft thirty years ago, but has been superseded by the punched work noted above. When the ornamental punches are used the metal is not perforated.

PIERCED OR SAWED METAL.

This may be said to be the next development of metal, and as the name implies, consists in sawing from sheet metal ornaments such as escutcheons, handle plates, finger plates, etc. Practically any soft metal can be used, such as brass, copper, aluminum, or silver.

The tools required are quite few and comparatively inexpensive, being a jewelers' saw frame with a number of blades, drills of varying sizes, files of several kinds, a hammer for straightening or bending the metal, and a small metal vise. The equipment can be extended when desired.

The design is outlined on the metal with pencil or stylus, holes are drilled where it is necessary to take out a piece of metal such as making a key-hole, and we are ready to begin our sawing. The metal may be fastened in the vise, but it is better to have a board about six inches wide fastened to the work table and projecting six or more inches from it. It is well to have this notched, like a bootjack, as it will be found that the sawing can be done more easily. This board is like that used for coping saw work. The saw is held vertically and it will be found that more accurate work can be done than if it is held horizontally, as is necessary when the work is held in a vise. After our piece is sawed out it should be smoothed up with fine files and emery paper.

This is an excellent occupation, and I have never found it to fail in helping a patient. In most cases, and especially in dementia praecox, it is well to give a

preliminary course in punch work in order to educate in accurate placing of tools, or education of eye and hand. Sawed out aluminum letters riveted to a piece of copper make a very neat sign for outdoors, and the same on a dark wood, such as walnut or cherry, a most attractive indoor sign. The possibilities in this sawed metal work seem endless.

HAMMERED METAL.

This usually means hammered copper, as that is soft and gives very beautiful effects, but soft brass or silver may also be used. Very beautiful bowls, dishes, and other vessels may be made, as well as smaller articles. This unfortunately requires an equipment of anvils and hammers, besides numerous other tools. Gas is necessary, or some other form of fire, to anneal the copper. By this we mean softening it. Hammering causes a rearrangement of the molecules of copper to the shape we desire. This has to be done gradually to avoid cracking, and as hammering hardens the copper, it must be heated to a cherry red to expand it and then suddenly cooled by plunging it into water.

A special equipment for this work is made up by one firm at a cost of fifty dollars.

As it is impossible to do justice to this subject in brief space the reader is referred to special works on the subject. Probably the best is by Augustus F. Rose.[1]

[1] Rose, Augustus F. Copper Work. An illustrated textbook for teachers and students in the manual arts. Worcester, Mass, 1909, The Davis Press.

Sleffel, Charles Conrad. Working in Metals. Doubleday, Page & Co., Library of Work and Play.

If we desire a hammered effect on some of our flat sawed work, this may be done with any dome-shaped hammer, like the ball-pein, before doing the sawing. With the same sort of hammer we may make paper knives from heavy copper wire, or the blade of a paper knife, the handle of which has been sawed. A flatiron from which the handle has been broken makes an excellent anvil for this simple flat work.

VENETIAN IRON WORK.[1]

This has been a more or less popular craft for a long time, but I cannot recommend it, as there are so many other better occupations. It consists in bending narrow strips of soft iron to form an ornamental scroll, which is adapted to many forms. These are held together with small pieces of metal called clasps. While some rather handsome pieces have been made, the majority of it is inartistic and fussy. It has the further disadvantage of being difficult. All parts must be bent accurately or the work will not be strong, and accurate work of this sort requires considerable skill. If such is to be developed it had better be for something worth while. The clasps are difficult to apply strongly. The materials are simple and the tools few: flat and round-nosed pliers, shears, hammer, small vise and anvil.

If a patient desires to do this craft he should be given the facilities, but it should not be urged upon him. It

[1]Morse, T. Vernette. Venetian Iron Work. How to Do It Series. Chicago, 1907, A. Flanagan Co.

is apt to produce a feeling of irritation and a sense of failure, which is very bad in any depressed case.

JEWELRY.

The making of silver jewelry is an excellent occupation for convalescent patients who possess a slight mechanical skill and an appreciation of beautiful things. They may become quite skilful in this delightful craft. Instruction can usually be obtained in it at some art school.

ETCHED METAL.[1]

A very simple way of decorating metal is by etching with acid. After the metal has been cleaned from grease, the design which is chosen is drawn on the metal and the background is painted over with asphaltum paint or varnish, which may be procured at art stores, and allowed to dry. After the paint has thoroughly dried, which may require ten hours, the metal is immersed in a solution of one part of nitric acid to two parts of water, the acid being added *to* the water, otherwise burns may result from its spattering. If, after the metal has been placed in the solution, greenish fumes arise and there is active bubbling, a little water should be added. The time required for the etching will be from one to four hours, and, until experience has been gained, the metal should be lifted from the solution every now and then and examined. As soon as the etch-

[1] Adams, John D. Metal Work and Etching. Chicago. Popular Mechanics Co.

ing is as deep as desired, the metal should be rinsed off, placed in kerosene to dissolve the asphaltum, and then wiped off with a rag, washed with soap and water and dried. The etched part may be darkened by a strong solution of butter of antimony (chlorid of antimony), the remainder polished and lacquer applied to the whole. Many very attractive things may be developed in this way. Hatpins may be made of a piece of copper about an inch square to which the shank of an ordinary hatpin is soldered after the metal has been etched, or decorated by punches (see page 200). Book ends, paper knives, desk sets, watch fobs, and many other articles may be decorated in this way.

LEATHER WORK.

Leather work is one of the best crafts for beginners (Mickel[1]). There are many varieties of it and persons with but little artistic ability may do good work in more than one of them. Very beautiful and useful articles can be made by those skilled in the use of the simple tools required and in the possibilities of the craft.

According to De Récy[2] the methods of decoration of leather are:

Cut or engraved,

[1] Mickel, Adelaide. Leather Work. Peoria, 1913, The Manual Arts Press.

[2] De Récy, Georges. Translated by Maude Nathan. The Decoration of Leather. London, 1905, Archibald Constable & Co., Limited.

Carved,
Punched or hammered,
Modelled,
Modelled with punched background,
Leather decorated by pyrogravure and pinto gravure,
Stamped,
Open-work,
Leather mosaic.

Cow and calf are the most suitable leathers for artistic work. Chamois is only suitable for stencilling or pyrography. Vellum, a very thin and stiff white skin, can be decorated with brush or penwork. It is principally used for bookbinding.

It will be found on consulting books upon leather work that there is not an agreement as to just what each term denotes, but this is not sufficiently serious to disturb us, who must regard ourselves as tyros.

The first step, that of transferring the design to the leather, is the same in all methods of decoration. The leather must first be dampened, and here comes the first divergence. De Récy says to pass a soft, slightly damp sponge evenly over the whole surface. The leather worker who gave me the first instruction in the art, recommended that the leather be rolled in a wet towel and allowed to remain as long as necessary. It makes little difference which method is adopted provided the leather is all dampened, for if only a part is done, it is marked. The design should be drawn on tracing cloth if it is to be preserved and used again, but may be on paper. It is laid on the leather in such a way

that it will not slip. The tracer, a tool with a fairly sharp point like a stylus, is then drawn over the design and will be found to leave a line on the leather when the design is removed. If the leather is to be modelled these lines are again gone over with the stylus and deepened. This work should be done with the leather on a hard, smooth surface, such as a slab of marble, slate, or heavy glass. Then with a modelling tool work the background down. This leaves the design in relief and constitutes flat modelling. If we turn the leather over on a chamois pad, or the palm of the hand, and from the back, with the modeller force up the design, we have what is sometimes called embossed leather.

If, after we have transferred our design, we incise the mark with a sharp knife to one-quarter of the thickness of the leather, we are then ready to carve or engrave it. The incising should be done vertically, excepting where a leaf, petal or piece of detached ribbon is to be shown, when the incising should be done slantingly under it. Incised lines should never quite intersect. If these lines be deepened and accentuated we have engraved leather.

Carved leather is more difficult and consists in producing lines so deep that the design stands out sufficiently from the background to allow of its being ornamented by independent lines less deeply worked. Gravers or gouges are sometimes used for this, but require considerable skill to manipulate them. After the design has been incised, the modeller is used to press the leather away from it, and in the larger spaces a

smooth-faced punch is used to beat the leather down. This background may be then gone over with a punch which is pressed, or tapped, with a hammer so that the background is covered with the design. These punches come in a variety of forms, and are susceptible to many combinations. For example, a punch consisting of two parallel lines may be right angled to itself and give the effect of basketry, or may simply be repeated || || || || = || = ||. This is called modelled leather with punched background.

Hammered leather is decorated entirely by punches. The design is usually marked with a punch making a continuous or interrupted line, and other forms are used for ornament.

The tools need not be expensive. An orange stick may serve for a tracer, a nut pick with a broad point as a modeller, nail sets for round punches, and other forms may be made by cutting off large wire nails and filing various patterns on this flat end.

Modelled leather is sometimes backed with a paste of glue and whiting before being made up.

Leather may be tinted with various dyes, or by Higgin's waterproof inks. The rich brown color which is sought for is sometimes produced by smearing the leather with butter and placing it out in the sun.

Even the very brief instructions which have been given above are sufficient for the beginner to start this delightful craft if he has the advantage of having seen pieces in the form of leather decoration that he is attempting. The occupation is an excellent one for the

case of depression who is apt to become interested in spite of himself, and so train his voluntary attention. If he is suicidal, we must, of course, restrict him to modelled or punched leather.

A much simpler form of leather work, which cannot be dignified with the term decorated leather, consists in cutting holes in leather much after the fashion of making a stencil and lining it with chamois, silk or leather of another color.

Again, a design may be cut from leather and fastened to crash, burlap, or some other fabric by gluing, the so-called leather applique.

Leather is also burnt and painted, but these methods are much less artistic than those first given and are not such good occupations for our patients. Ooze calf, sheepskin, or chamois is generally used in these methods.

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Charles. Leather Work; 35 cents.
Hasluck. Leather Work; 50 cents.
Girling, Katharine. How to Tool and Emboss Leather. Ladies' Home Journal, November, 1902.

PYROGRAPHY.

Pyrography has been mentioned as a means of decorating leather. It is also used to decorate wood, and many useless things have been presented by devotees of this craft. On account of the danger from fire it cannot be recommended as a craft for mental or nervous cases. Mention is made of it here chiefly to exclude it. It is used in some hospitals and is no doubt proper for a certain class of convalescent or chronic cases. There are so many better crafts, however, that the nurse is not advised to suggest it to her patient. It is interesting to note that there is but one person who has done noteworthy artistic work in pyrography in the last twenty years, and that is J. William Fosdick.[1]

[1] Fosdick, J. William. The Fire Etcher and His Art. Ladies' Home Journal, September, 1896.

Rainey, Ada. The Decorations of a Gothic Studio. The New York Home of J. William Fosdick. Arts and Decoration, IV, 341; July, 1914.

NEEDLEWORK.

Lest some unkind critic insinuate that a mere man cannot know much of this subject, let me explain that through a book auction (see p. 171). I acquired The Illuminated Book of Needlework[1] and therefore my knowledge is extensive.

This volume claims that needlework belongs to woman, that man has nothing to do with it, yet gives as the first needlework the fact that "They sewed themselves fig-leaves together, and made themselves aprons," which to any unbiased person would prove that Adam was quite as much of a needleworker as Eve, but woman-like the author changes the subject and talks at some length about "Banian trees." I wish that it were possible to quote freely from this delightful book, as it is so full of historical reference, to Hannah, Dorcas, the building of the Tabernacle, to the needlework of the Egyptians, Greeks and Romans, "Sheeschools" (convents), that of Mary Queen of Scots, the Bayeux tapestry, of the times of romance and chivalry, and much more, but it is quite impossible and only brief references can be made. A Miss Lin-

[1] Owen, Mrs. Henry, and the Countess of Wilton (Editor). The Illuminated Book of Needlework; comprising knitting, netting, crochet and embroidery. Preceded by a History of Needlework, including an account of the ancient historical tapestries. London, 1847, Henry G. Bohn, York Street, Covent Garden.

wood is spoken of as achieving "the triumph of modern art in needlework," by her copies in worsted of paintings, such as Carlo Dolci's "Salvator Mundi" for which she refused three thousand guineas. Nearly one hundred pieces of various sizes were made by Miss Linwood, who had made two or three before her twentieth year and whose last piece, The Judgment of Cain, was finished in her seventy-fifth year after ten years work on it. Her work was evidently a form of tapestry.

The following quotation is of interest: "The style of modern embroidery, now so fashionable from the Berlin patterns, dates from the commencement of the present century. About the year 1804-5, a print-seller in Berlin, named Philipson, published the first coloured design, on checked paper, for needlework. In 1810, Madame Wittich, who, being a very accomplished embroideress, perceived the great extension of which this branch of trade was capable, induced her husband, a book and print-seller of Berlin, to engage in it with spirit. From that period the trade has gone on rapidly increasing, though within the last six years the progression has been infinitely more rapid than it had previously been, owing to the number of new publishers who have engaged in the trade." Chapters are given over to tapestry, stitchery, embroidery, and needlework on books. This first part runs to over 400 pages. The last, or practical part, only occupies a little over 100. The word illuminated is used in the

title because most of the diagrams used to illustrate this part are handcolored.

We learn that "embroidery, or as it is more often called, Berlin Wool Work, has been brought to such a high state of perfection * * * * that we do not hope here to be able to throw much new light on the subject." Evidently Mrs. Owen did not have a prophetic eye; but who could be expected nearly seventy years ago to have foreseen the great development which has taken place in embroidery! Probably all are somewhat familiar with the term Berlin Wool Work from the older English novels of such writers as Dickens, and it seems proper to speak of that period as dating from about 1830 to 1870.

At the Centennial Exhibition in Philadelphia in 1876, there was an exhibit by the Needlework School of the South Kensington Museum in London. This gave a great stimulus to needlework in this country, and during the few years following many "Schools of Art Needlework" or "Societies of Decorative Art" were formed. These, with numerous periodicals, have done much to encourage the art.

Unfortunately the art of plain sewing was neglected, and it is only in recent years that efforts have been made to teach children how to make or mend things in a way that does not advertise flauntingly that they are patched or darned. In the sampler period, patching and darning was an art. School children now have classes in plain sewing and various sewing cards are published as guides for this work. These may be very

useful to a nurse who is in charge of a demented or feeble-minded patient who has never been taught to sew. Dressing dolls for a fair or other purpose makes a good object for such work.

Besides doll or adult clothing there are a host of things which can be made, and suggestions for which are constantly appearing in periodicals.

CROSS STITCH WORK.

The simplicity of this work and the quaintness of the designs have made it popular recently. By it most attractive motifs may be given to dresses or their accessories. It may be used solid or merely to outline a design. It is usually done on a coarsely woven fabric, which gives opportunity for easily placing the stitches, or when done with worsted, upon canvas, so called, a stiffened openwork fabric with double threads, every fifth space transversely being marked with a dark thread. Our mothers used this to make elaborately designed coverings for furniture, some of which were very horrible. Nowadays it is used more for golf vests, or old-fashioned pin-cushions.

In the previously mentioned book on needlework, thirty-two of these "embroidery" stitches are given. They cannot all technically be called cross stitches because some do not cross others, but all are to be used on canvas or coarsely woven fabric. Some of these make such effective work that they are given here. A tapestry needle is used.

1. Tent Stitch. This is done by passing the thread over the crossings in the canvas and makes a solid, plain background.

2. Cross Stitch. The thread is brought over the

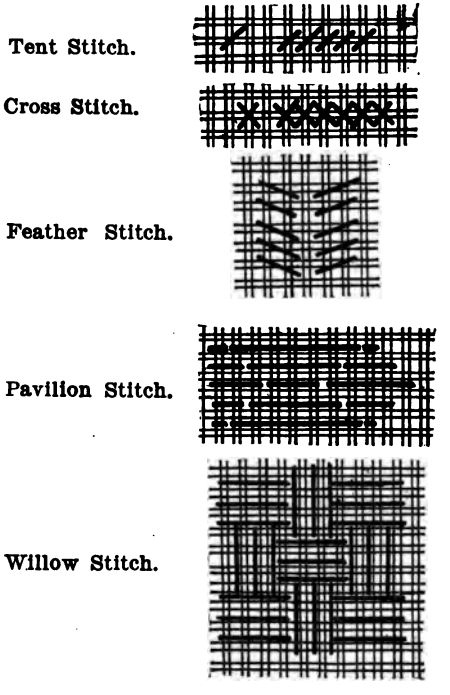

Fig. 43.

crossing like the tent stitch, and then brought up through the next hole so as to cross the stitch just made at right angles. It is this stitch which has been

strained use of color. A child's nursery blanket of red or blue flannel figures on white or buff, illustrating some nursery rhyme, would appear better than if an attempt is made to have the applied pieces in their natural colors. It can readily be seen how such a work as this can be made a developing occupation, the rhyme being selected, the crude design made and elaborated, the patterns cut from paper, then from the fabric, then baisted in place, and finally finished with some more elaborate stitch. An excellent article on this work appeared in Good Housekeeping.[1]

PATCH WORK.

Patch-work is but little used in these days when machine weaving has made fabrics so much cheaper than formerly, and when there is less necessity for saving material, and time has a higher value. A hundred years ago it was necessary to save scraps and piece them together to make bed-quilts. The housewife exercised her fancy, or good taste, and did her piecing in regular patterns, over two hundred of these being known. It was left to a more degenerate age to originate the irregular piecing to which the name crazy has been given. A number of these designs are formed by applique work, they usually being called sewed-on quilts. The applied pieces are sewed on with the whip stitch. The scraps having been collected the pieces are cut to the forms desired, often

[1] Wilson, Alice. Applique Work. Good Housekeeping.

being baisted to a piece of paper while being joined together, in order to preserve the form. The piecing is done with a plain stitch in pieces about a foot square which are called blocks. A number of these are joined together to form a quilt. This is made with a lining of plain fabric, between which is placed cotton which is held in position by quilting—that is, the whole quilt is stitched through in lines which form designs which may add much to the beauty of the quilt. Much romance clusters around quilting and many writers have used it as a theme. To the one piecing patch-work the various scraps of material used may bring up pleasant memories.

BEAD WORK.

As an occupation requiring patience and perseverance bead work has few rivals. On this account it is especially valuable for cases of dementia, or of restless depression, though the nurse should be careful that it does not become too much of a task, and must give frequent encouragement, as the progress of the work is necessarily slow.

There are many varieties of this work. The first is stringing beads of various kinds to form watch chains, neck chains, fan chains, etc. Usually this is done on one string, but when two strings are used smaller beads may be utilized to give some unusual effects, as when both strings are passed through one bead, then each through a bead, repeating until the length desired is attained.

Belts may be woven on a special bead loom (Apache loom) which may be bought at most fancy work stores. Or may be made on two strings, each of which passes through the same set of beads from opposite ends, and run transversely to and fro the length of the belt. Or the beads may be sewn singly, or in short strings, or in long strings which are couched down, to belts, bags, purses, slippers, etc., to form an isolated ornament or to appear as solid.

Most of the Indian work is done in short strings.

The single sewing of beads on canvas or linen probably comes from the Netherlands and Germany and is said by one writer[1] to date from the "Berlin Wool Work" period, which, as we already know, was about 1830-70. "In some of its productions it is very bad, while in others it is artistic and beautiful."

Most of the solid bead work is crocheted with silk, and in recent years there has been a revival of the old-fashioned bead purse with its gay roses, or more sober formal patterns. The last are less difficult to do, as bead work is made in straight lines at right angles, and a simple repeated figure can be expressed more easily than an elaborate one which requires curved lines. When but one kind of bead is to be used, the chocheting is not difficult, but if several are to be used as in making a design of several colors, the design must be carefully studied and the beads strung in the proper order. Cross stitch designing may be

[1] Wilson, Mrs. Bead Work for Bags and Trimmings. Ladies Home Journal, January, 1907.

a great help in this, but the worker must know beforehand exactly where each bead or stitch is to be placed. On this account it is better for our patient not to attempt this form of bead work until she has had practice in sewing on single beads and crocheting designs of a simple kind.

The Professor of Ceramics of Newcomb College, Louisiana, from which so much good work has emanated, has told[1] how to make beaded lamp shades which must be very beautiful. A brass frame covered with wire gauze is used as a foundation, on which the beads are embroidered closely together with fine wire. This is said to be more tedious than that of weaving with vertical and horizontal wires, as belts are woven on the Apache loom. Two wires go through each bead so that the work will be strong, but it would seem that as the work is done on a frame this is unnecessary. It would be an interesting problem for nurse and patient to work out. Cross stitch designs would naturally lend themselves to this form of bead work.

Bead work is not especially cheap, but may be very durable and beautiful. Linen thread should always be used for stringing.

[1] Sheerer, Mary G. Beaded Lamp Shades. The Circle, May, 1907; p. 329.

PHOTOGRAPHY.

Photography is made so simple for us nowadays by "you push the button and we do the rest," that some persons have the idea that it is too mechanical to be interesting, but even though the patient does not do his own developing and printing, there is much in choosing artistic subjects, seeing that they are properly lighted, and a number of other details.

Several years ago there was published in the Strand Magazine an article entitled "The Pageant of the Months," which was illustrated by twelve views of the same scene photographed during the different months of the year. This would seem to be an excellent idea and a favorite view taken at different seasons or at different times of the day would be an interesting study, and a series of such pictures would form an attractive souvenir. Especially if these views were taken by colored photography would they be beautiful. What homelover but would be pleased to receive on Christmas morning four views of his home taken at the different seasons of the year.

Still life of various sorts, or posed pictures illustrating some story or poem might have a commercial value, besides being interesting to the person taking them.

Instructions for taking photographs are to be found in the pamphlets published by camera makers or may

be found in more pretentious books. Experience and practice are necessary to acquire and are perhaps the best teachers.

TINTING PHOTOGRAPHS.

Tinted photographs may be very beautiful, as, for example, those done by the Japanese. It is not especially difficult and a small outfit for the purpose may be purchased at art stores.

BLUE PRINTS.

If the patient does not care to take photographs, and if on account of the expense, or for some other reason it seems inadvisable as an occupation, a much simpler one, which is a step in making photographs, is to make blue prints. The printing frame is not expensive and the paper can be bought already prepared or can be made very cheaply, as follows: For white on blue ground use the following: Dissolve $1\frac{1}{8}$ ounces of citrate of iron and ammonia in eight ounces of water, and mark A. And in another bottle dissolve $1\frac{1}{4}$ ounces of ferricyanide of potassium in eight ounces of water, and mark B. Mix equal parts of A and B, and apply with brush or by floating the paper in a bath of the mixture for three minutes; then hang the sheets to dry in a darkened room.

For black lines upon a white ground use the following: Water, 9 ounces; gelatine, 3 drams; perchloride of iron solution, U. S. P., 6 drams; tartaric acid, 3 drams; ferric acid, 3 drams.

Filter off any precipitate that may be found, and coat any good, stout white paper with the full-strength solution. Expose in sunlight till details of lines are visible, and develop with gallic acid, 6 drams; alcohol, 6½ ounces; water, 32 ounces. Wash well in several changes of water.

Brown ferro-prussiate prints may be made on blue print paper which is treated in the usual way. It is then washed in one part of ammonia to nine of water until nearly white, when it is rinsed and placed in a toning bath of one part tannic acid to fifty of water until it is a deep sepia color, a process which may take several hours. After this the print is washed and dried between blotting paper.

Various flat objects can be printed in silhouette, and this method is used to impress the various shapes of leaves upon children engaged in nature study. Leaves, ferns, grasses, and other objects can also be used. One writer has recorded how freizes of leaves and ferns were made, or more decorative panels, or Dutch tiles from negatives of boats, windmills, etc.[1]

[1] Ayers, B. A. In Blue and White. Some uses of blue prints. Ladies' Home Journal, September, 1897.

MUSIC.

Music should be made a part of the patient's daily program for many reasons. It is best, as a rule, if the patient sings, or plays some instrument, but it is not necessary. If it is impossible to attend concerts, these should be brought to the patient by means of one of the many mechanical devices. A player piano gives greater opportunity for expression than do the disk playing machines, but is more expensive. Any family can afford one of the latter, and will make sacrifices to secure one if they are made to realize that its use will be of value to the patient.

CONCLUSION.

In the foregoing pages an attempt has been made to express certain general principles of occupation therapy, to give a number of special directions which, it is hoped, will be of value in certain cases, and to tell briefly how these things should be done.

How successful has this attempt been? That is a question which time alone can answer.

Criticism may be made of certain light or jesting remarks which appear here and there. They are present with the hope that the work will be pleasanter reading and, on account of the association, that certain facts will be more apt to be fixed in memory. Precedent for such a proceeding is not lacking.

Much more might have been written of ways to do things, but it is felt that such would merely be a repetition of what has already appeared in other places. That so much has been given is because it was thought that the nurse should have the ground work for various occupations in a convenient form, and only by giving them could comment properly be made upon these occupations. The main object has been to point out the benefits to be gained by occupation, and to indicate how certain ones might be applied as a therapeutic measure in certain cases. That these last are not more specific is because each case has its own problems which

cannot be solved until they are met with, and it is wiser to give only general rules.

There is a strong temptation to reiterate much that has been said in order to emphasize it, but perhaps it is well only to again urge the nurse to perfect herself in one craft in order that it may serve as her hobby and safety valve, and to repeat these cardinal rules in applying occupation therapy:

1. The occupation should be new—that is, something to which the patient is not accustomed, in order to arrest and hold his attention.

2. One occupation should not be followed to the point of fatigue. A change of occupation may be the best form of rest, as throwing a ball or bean bag after sitting over leather punching, or taking a walk after being at work at a loom.

3. The work should be useful and the patient should be shown what this use is. Avoid aimless work.

4. It should preferably lead to an enlargement of the patients mental horizon, and a study and interest in associated things. It is for the reason that the nurse may appreciate the greater interest in an occupation if such are known that the historical and other facts have been introduced in this book.

5. The nurse should participate in the occupation and show an interest in it.

6. The patient should be encouraged by praise, and criticism should be given sugar coated.

7. It is better that the patient do bad work than none at all.

If the nurse masters the above she will undoubtedly be successful in applying occupation as a therapeautic measure and it is hoped that this little book will help in their mastery.

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Baker, Ray S. New ideals in Healing. New York, 1909, F. A. Stokes Co.

Cannon, Ida M. Social Work in Hospitals. New York, 1913. Servey Associates. Chapter on Medical Social Problems.

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Cabot, Richard C. What Men Live By. Work, Play, Love, Worship. Boston, 1914, Houghton, Mifflin Co.

Gulick, Luther M. Mind and Work. Chapters on Handicaps, and The Spirit of the Game.

Partridge, C. E. The Nervous Life. Chapters on Recreation, Work, The Individual.

Musgrove, C. D. Nervous Breakdowns and How to avoid Them. New York, 1914, Funk & Wagnalls Co. Chapter on Hobbies, etc.

Witmer, Lightmer. The Special Class for Backward Children. Chapters V and VI.

INDEX

Bolduan & Grund's Bacteriology 2d EDITION

The authors have laid particular emphasis on the immediate application of bacteriology to the art of nursing. It is an *applied bacteriology* in the truest sense. A study of all the ordinary modes of transmission of infection are included.

Applied Bacteriology for Nurses. By CHARLES F. BOLDUAN, M.D., Director Bureau of Public Health Education, and MARIE GRUND, M. D., Bacteriologist, Department of Health, City of New York 188 pages, illustrated. Cloth, $1.50 net. **Published November, 1916**

Fiske's The Body A NEW IDEA

Trained Nurse and Hospital Review says "it is concise, well-written and well illustrated, and should meet with favor in schools for nurses and with the graduate nurse."

Structure and Functions of the Body. By ANNETTE FISKE, A. M., Graduate of the Waltham Training School for Nurses, Massachusetts. 12mo of 221 pages, illustrated. Cloth, $1.25 net. **May, 1911**

Beck's Reference Handbook THIRD EDITION

This book contains all the information that a nurse requires to carry out any directions given by the physician. The *Montreal Medical Journal* says it is "cleverly systematized and shows close observation of the sickroom and hospital regime."

A Reference Handbook for Nurses. By AMANDA K. BECK, Graduate of the Illinois Training School for Nurses, Chicago, Ill. 32mo of 244 pages. Bound in flexible leather, $1.25 net. **February, 1913**

Roberts' Bacteriology & Pathology NEW (2d) EDITION

This new work is practical in the strictest sense. Written specially for nurses, it confines itself to information that the nurse should know. All unessential matter is excluded. The style is concise and to the point, yet clear and plain. The text is illustrated throughout.

Bacteriology and Pathology for Nurses. By JAY G. ROBERTS, Ph. G., M. D., Oskaloosa, Iowa. 206 pages, illus. $1.50 net. **August, 1916**

DeLee's Obstetrics for Nurses

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Obstetric and Gynecologic Nursing. By EDWARD P. DAVIS, M. D., Professor of Obstetrics in the Jefferson Medical College, Philadelphia. 480 pages, illustrated. Cloth, $2.00 net. **Published May, 1917**

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Home Nurse's Handbook. By CHARLOTTE A. AIKENS, formerly Director of the Sibley Memorial Hospital, Washington, D. C. 12mo of 303 pages, illustrated. Cloth, $1.50 net. **Published March, 1917**

Eye, Ear, Nose, and Throat Nursing

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A Reference Handbook of Obstetric Nursing. By W. REYNOLDS WILSON, M. D., Visiting Physician to the Philadelphia Lying-in Charity. 355 pages, illus. Flexible leather, $1.25 net. **April, 1916**

American Pocket Dictionary NEW (10th) EDITION

The *Trained Nurse and Hospital Review* says: "We have had many occasions to refer to this dictionary, and in every instance we have found the desired information."

American Pocket Medical Dictionary. Edited by W. A. NEWMAN DORLAND, A. M., M. D. Flexible leather, gold edges, $1.25 net; indexed, $1.50 net. **Published September, 1917**

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The author gives you here the essential principles of surgical nursing, and reliable fundamental knowledge based on his own personal conclusions and experiences. Secondary matter is excluded, and all primary and pertinent points are set down briefly and concisely.

Octavo of 277 pages, with 255 illustrations. By FREDERICK C. WARNSHUIS, M.D., F.A.C.S., Visiting Surgeon, Butterworth Hospital, Grand Rapids, Michigan. Cloth, $2.50 net.

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Dietetics for Nurses. By JULIUS FRIEDENWALD, M. D., and JOHN RUHRAH, M.D., University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore. 12mo volume of 467 pages. Cloth, $1.50 net. **Published July, 1917**

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Register's Fever Nursing

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