

"Why do you frighten me so?" she said, petulantly. "Why do you try to take all the beauty out of the beautiful, and say there is nothing real but ugliness? Why should not the most beautiful be the best and the truest too?"

"It should be, surely," he responded, "if there were perfection anywhere on earth. But I don't believe there is, Miss Lois. And it is because I would rather lose every vestige of your friendship than see so much as a shadow of sorrow come to you that perhaps my words might avert, that I risk offending you by warning you against a false beauty which exists as surely as the real, and which your young, inexperienced eyes might so easily mistake. I dare say I put it very blunt and plain. I am

(To be concluded.)

sorry. I never wish so much for all that I lack as when I am talking with you, Miss Lois."

"I don't quite see what you two are talking about," said Aunt Sarah, while Lois did not speak, keeping her eyes resolutely fixed on the ground, unwilling to meet his. "But of one thing I am very certain, Mr. Prentiss. Our Count is a real one. His name is in the Peerage, and Kreuzner says there is no doubt about it. He will warrant him."

Lois laughed—a soft laugh, that nevertheless jarred on Prentiss strangely.

"Yes, he is real enough," she said. "I do not know that he even needs Kreuzner's stamp to testify to his genuineness. There is no mistake whatever about the Count."

THE MAKING OF A MUSEUM.

IN no single respect, perhaps, has the progress of the American capital been more striking than in the history of the National Museum. Originating in a quantity of "curiosities" which had been given to the United States by foreign powers, or sent home by consuls and naval officers, old visitors to Washington remember it as a heterogeneous cabinet in the Patent Office. It included such diverse objects as the femur of a Missouri mastodon, Washington's knee-breeches, and the oriental spoils of the Wilkes expedition around the world. In 1846 a step was taken toward something coherent and creditable, by an act of Congress establishing a National Museum, following the precedent of a dozen or more other nations; but this intention took effect very slowly, though various exploring expeditions and embassies largely increased the bulk of the collections. When the inventive faculty of this Yankee race had crowded the Patent Office with models, the "cabinet of curiosities" was trundled over to the Smithsonian Institution.

This was not at all to the liking of Professor Joseph Henry, then the Smithsonian secretary. His idea of the aim and usefulness of the Institution was, in the words of its motto, the "diffusion of knowledge"; but his interpretation restricted this to mean printed information. To him the Institution was wholly studio and laboratory, not at all cabinet. Since in scientific studies apparatus, books, and specimens are needful for proper experiment and comparison, he consented to the collection of these whenever a definite reason was presented, but discouraged miscellaneous contri-

butions. He even caused the extremely useful set of books belonging to the Smithsonian to be turned over to the Congressional Library, and it is only since his death that the National Museum has been able to begin the collection of a working library for its curators, independent of the distant and inconvenient biblical catacombs on Capitol Hill. As for specimens, Professor Henry considered them of no value to the Institution or to the government, and would have cheerfully given them away when the monograph they had served to work out was finished.

Fortunately for zoölogists, at least, he had associated with him as assistant Spencer F. Baird, who took quite the opposite view of the value of the specimens of natural history which came to hand, and so far as his authority went not only carefully preserved everything he could get, but acquired as much more as possible. Thus the Museum grew in spite of the indifference of its chief, and the store-rooms became clogged with packages acquired from western explorers,—Dr. F. V. Hayden, Lieutenant Wheeler, Major Powell, and others,—and from private donors.

The name National Museum, however, was rarely heard. Everything was addressed to the Smithsonian, and in popular parlance the collectors and naturalists were all "Smithsonian men." They went westward and northward and southward, and came back with car-loads of Indian relics and modern implements of savagery, skins, shells, insects, minerals, fossils, skeletons, alcoholic preparations, herbaria, and note-books,—the last crammed with novel information. It was natural, there-



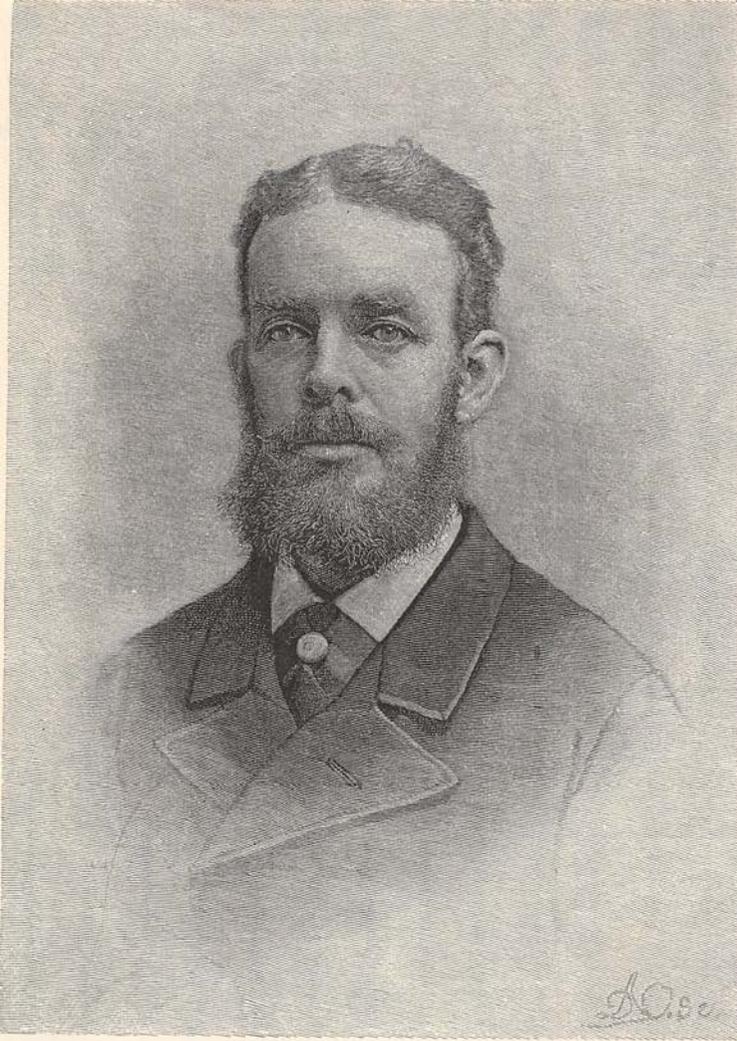
SPENCER F. BAIRD. (FROM A PHOTOGRAPH BY T. W. SMILLIE, SMITHSONIAN INSTITUTION.)

fore, that the Smithsonian regents should be made custodians of the national collections, and that the appropriations annually made by Congress for the support of the Museum should be administered by them. The Smithsonian itself, however, is supported by an endowment, much of which redounds to the advancement of the Museum.

When, upon the death of Professor Henry, in 1877, the secretaryship of the Smithsonian and the direction of the National Museum passed to Professor Baird, he applied himself with great energy to pushing the fortunes of the latter. A few years later the general supervision was given to Dr. G. Brown Goode, a gentleman whose specialty was fishes, but who had shown in his college cabinet at Middle-

town, and as one of the assistants in the United States Fish Commission, a special aptitude for executive work in this direction.

In the Centennial Exhibition came the opportunity of its directors; and from the "government exhibit," which everybody admired at Philadelphia, dates the real starting-point, except in zoölogy. The creditable showing made there, and the clever persuasion on the part of its officers, secured to our collections the gift of nearly all the government exhibits of other countries, and gave us an enormous mass of novel and most precious objects, representing resources and humanity "from China to Peru." The work of the United States Fish Commission (greatly stimulated at this time) also produced large accessions,



G. BROWN GOODE. (FROM A PHOTOGRAPH BY CLINEDINST.)

until the previously uneven zoölogical collection became balanced.

"There have been three periods in the history of the Museum," said Dr. Goode to me. "At first it was a cabinet of the results of research. When, in 1857, the Smithsonian assumed its custody, it became also a museum of records. Since 1876 the idea of public education has been predominant."

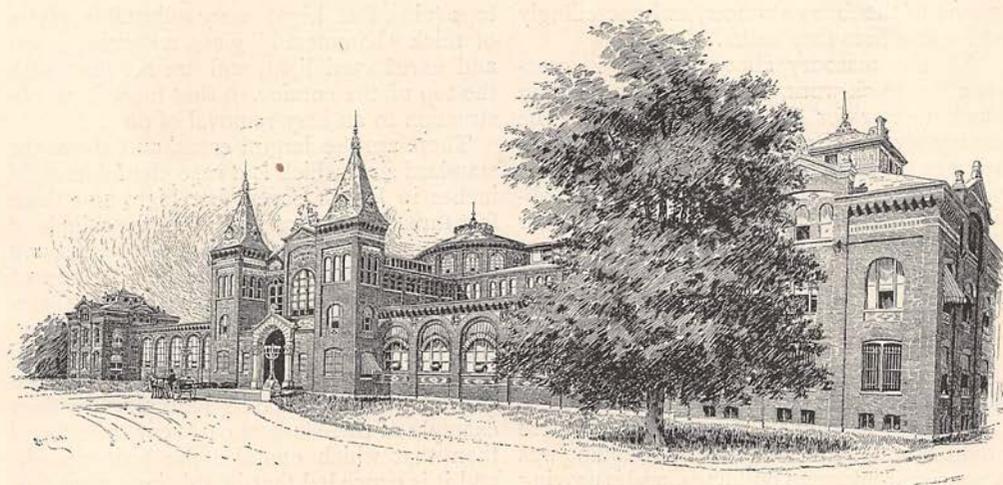
"But in the third," I observed, "the two earlier notions cannot be abandoned!"

"Not at all. The three ideas are mutually helpful and essential to the philosophic development of any broadly organized museum. Materials are gathered that they may serve as a basis for scientific thought. Objects that have fulfilled this purpose or have acquired historical significance are treasured up against

destruction as permanent records of the progress of the world in thought, in culture, and in industrial achievement, and constitute most valuable materials for future study. But if no other objects than research and record are sought, a museum might well be stored away accessible only to special students. A higher purpose calls for the administration of these objects in such a manner that masses of people instead of a few should be profited by their existence. We have no place in this age for the treasure-houses of the eastern kings, locked to all eyes but those of the court. Now, one of the results of the Philadelphia exhibition was that it made plain to the people how inspiring and instructive a great industrial museum could be, under proper classifications and with assistance in the way of fully explanatory

labels. The naturalists have long understood the value of comprehensive collections in zoölogy, but heretofore the wider application has not been well enforced. Several museums have admirably carried out a single idea, like

level aids the pleasing arrangement of objects (though here I am aware of an opposite opinion) and relieves the visitor of much weariness. Finally, room remains in the corners for offices, laboratories, and storage,



THE NATIONAL MUSEUM. (FRONT VIEW.)

that of surgery, or practical geology, or industrial art, or archæology; but it may safely be said that all the museums of anthropology, economy, and industrial art now in existence are by design or chance limited in their scope."

Such, briefly, is the idea I gathered of this Museum's high aim. Let us now see how it is to be carried out. The immense influx of specimens of our natural resources sent by the wagon-load from territorial surveys, and derived from the Centennial Exhibition, speedily amounted to such bulk that no room existed for its storage, much less display. Congress therefore gave two hundred and fifty thousand dollars (and subsequently more) to erect a fire-proof building, which was nearly enough completed in the spring of 1881 to serve as the ball-room at the inauguration of President Garfield. This building stands with its north-western corner almost touching the old Smithsonian, but is as different from that as a terrapin from a woodcock. The Norman architecture in brown stone of the older structure is strongly contrasted in the low, tent-like expanse of red, blue, and cream-colored bricks, white stone, and glass of its new neighbor. The spacious halls are floored with vari-colored marble and slate, are divided only by lines of arches and low partitions of glass cases, and are open above to the iron-work of the lofty roof. All is light, airy, and graceful. The illumination is perfect; likewise the ventilation. The fact that everything is on one

of great extent in the aggregate, without wasting space or disturbing the artistic effect of the whole grouping.

The ground-plan is a Greek cross, having in the center a rotunda. This "rotunda" is octagonal on the ground, but is surmounted by a sixteen-sided polygon, which contains a tier of stained windows, and constitutes a domical structure with a slate roof and a lantern crowned by a decorative finial; it is one hundred and eight feet from the gold-fish in the fountain-basin to the apex of this dome. The four main halls or "naves" about the rotunda are each one hundred and one feet in length and sixty-two feet wide. Occupying the exterior angles are four rooms sixty-five feet square, called "courts," of the same height as the naves; and outside of these naves and courts are a series of eight exhibition-rooms under lean-to metal roofs, known as "ranges," whose outer walls form the exterior of the building, and are lighted by very large, round-topped windows, which ultimately will be filled with photographic transparencies of American scenery, antiquities, and so forth. By this treatment wall-spaces are obtained for the introduction of clear-story windows, which light the square courts and assist in lighting the naves. The building is thus filled up from the Greek cross into a complete square, the exterior walls of which are three hundred and seventy-five feet in length. The symmetrical exterior is broken by ornamental and projecting entrances in each fa-

cade, and at the corners, where "pavilions" rise to a less height than the towers, yet sufficient to counteract the otherwise bad effect of the long, low, outside walls. These pavilions, to the height of three or four stories, are utilized as offices and store-rooms, as also are the towers of the four entrances, and exceedingly pleasant offices they make.

All the masonry above ground is composed of brick-work, ornamented and laid in black mortar for the exterior facings. The money given to Professor Baird for the building was sufficient only for the erection of what virtually was a temporary edifice. The object of the persons in charge of the construction was to secure the safe housing of the specimens and the greatest possible convenience; the best architectural effect consistent with this aim was secured, but nothing was sacrificed to it. The result is by far the cheapest museum building in the world, it having cost only \$1.50 per square foot of superficial space.

I have been full in my account of these architectural matters because this building was a novelty in museum buildings, and is proving satisfactory as to interior arrangement.

Not only the plan of the building, but all arrangements for the display of its contents, proceed from the architectural "unit of measurement" of four feet and four inches. Thus the walls, except the very exterior of the building, do not rise solidly from the base, but are simply a series of arches eight feet eight inches wide and twenty-seven feet high, resting on rectangular pillars of four feet four inches base.

To make these lines of arches serve as partitions, the aid of exhibition cases is called in after two methods. This question of glass cases and the proper exhibition of specimens has been a problem that curators have struggled with for many years, and our Museum, profiting by the experience of the world, thinks it has solved it well enough, at least. Its cases are all of iron and mahogany (ebonized and painted woods having been rejected), framed as slightly as safety will permit, and finished by oil-rubbing, which will darken with time into the finest hue of old wood; the style of ornamentation is a simply carved form of English Gothic. They stand upon solid bases, but are not fastened to the floor, walls, or anything else, except in a few instances where they are put together with bolts so as readily to be taken apart. Down the side of each main hall, at a little distance from the wall, will run a line of special cases, undivided, and of a depth according to the objects they are to contain, some being deep enough to give plenty of room for the largest mammals, like the buffalo and elk. Behind them will

remain a well-concealed space, very useful for the storage of duplicates.

The bases of these cases are solid, and raise them several inches above the floor. The ends and front are of plate-glass; the backs of painted wood, very solid; and the tops (nine feet high) carry adjustable plates of thick "hammered" glass, admitting a soft and unreflected light, and are set flush with the top of the cornice, so that there is no obstruction to an easy removal of dust.

These are the largest cases, and above the standard size, which is a case eight feet eight inches in length, seven feet high, and three feet three inches broad. Except the solid base and frames, they are wholly of plate-glass, and are easily movable with the help of one of the queer little trucks contrived for the purpose; furthermore, their parts are all interchangeable with the panels, boxes, drawers, etc., of other cases, since everything is reduced to a standard size or its multiple. No finer example of these largest cases could be found than that which contains the boat-models; and it is conceded that in this important particular of museum furniture Europe can show nothing equal to ours.

The doors of all cases are made to shut with dust-proof and insect-defying precision; and a modification of the Yale lock operates bolts at top and bottom simultaneously with the middle catch, while no unsightly projection mars the outside of the door, the strong pass-key serving as a handle when inserted. Each permanent case, furthermore, is connected with the superintendent's office by an electric alarm. Every entrance and window in the whole great building is similarly guarded, the wires running in trenches beneath the floor, and forming part of an electric system, which includes the Museum, the Smithsonian, the Fish Hatchery, and various other allied institutions, in an elaborate private telephone and alarm circuit.

The serviceability of cases of the size and character I describe is very great, and is increased by the ingenuity of the designers. One of them is set into each arch, converting the line of pillars into a perforated wall of the most pleasing character. Each case so placed may be transparent, or may be divided by a central partition, so as to contain in the side toward one room objects of one class, and in the opposite side those of quite another. The same kind of cases are set out into the middle of a room wherever it is desirable; or here and there are built into the form of three sides of a hollow square against an outer blank wall, the space inclosed serving as a closet for duplicates.

Besides this standard upright case there is

a kind of table-case conforming to the unit by being eight feet eight inches long and three feet three inches high and wide. These are intended to alternate upon the open floor, in any room where needed, with upright cases or screens; but they may bear light superstructures of glass, or they may be covered with sunken plate-glass, and so become exhibition cases. That containing the large series of diplomas, medals, and other awards received by the Fish Commission at various international exhibitions of fishery matters, is a good example of this.

Many cases are filled with low drawers for the reception of articles of small size, like insects, shells, or the eggs of birds, which it is not well to expose to the light, or not worth while to exhibit more publicly, yet which should be easily accessible. These drawers are not only exchangeable, but may be suspended on edge behind the glass door of a case, or attached to a screen.

This remark introduces a second class of what, practically, are upright cases, but which, being narrower, lighter in weight, and elevated upon feet instead of resting on a solid base, are denominated *screens*. Some of them have no doors or glass fronts or tops, but simply constitute frames patterned like the narrow case. The end of this is movable, and admits a series of sliding panel-boxes with glass covers, in each of which a series of specimens is permanently arranged. One or more of these panels can thus be taken out and rearranged, or transferred to another case and replaced by a new one, without disturbing the remainder or touching the specimens themselves. Moreover, these panels are interchangeable with the drawers in the table-cases, and, by modification, with the swinging leaves on the wing-cases.

The picturesque "wing-cases," by the way, must not be omitted. They are ebonized, triangular pillars of the regular height, upon which are hung with pivotal hinges a series of swinging frames of glass, which can be turned one by one in review, as you would turn the leaves of a volume suspended vertically before you. These stand against the pillars, and therefore between the cases along the side of every room, and will contain etchings, photographs, and drawings of objects otherwise represented in the cases (for example, the painting of a plant and flower whose seeds are included among the raw drugs), and such articles, like samples of leather and textile fabrics, as will admit of compression between two panes of glass.

This contrivance, and the construction of all the cases, have in view the exhibition of every object in a clear light, against a good background, and as near to the eye as possible. Shelving is avoided by various clever devices; but where indispensable, it is hidden

as well as possible behind the horizontal sash which crosses the middle of the doors. A fine general effect is made by the tall and short cases in the spacious halls, and the rich mahogany and glass partition-cases, alternating with the light-colored stuccoed pillars of the arches, combined with the many large objects set uncovered upon pedestals, surmounting the cases, or suspended from the ceiling.

It would be idle, in this stage of incompleteness, to describe the arrangement of the collections, and I must content myself with a sketch of the plan of classification, illustrated here and there by what is to be seen by a visitor.

The Museum is built up on a philosophic classification, intended to embrace the whole universe, and minute enough to find a legitimate place for every object. This classification is made ideally, and without reference to the material at present in possession of the Museum. The arrangement of the Museum on the floor will have little or no reference to the classification; that is to say: though visitors will be told to "keep to the right" for convenience' sake, and certain special avenues are arranged, the collections will not be shown serially. If a student cared to go into a complete study, however, after the Museum plan, he would pursue his observations according to the following methodical scheme, in which all creation has been set in an ideal but scientific order, the chief heads being lettered thus:

A. MAN.

I. *Somatology*—all men, as a unit.

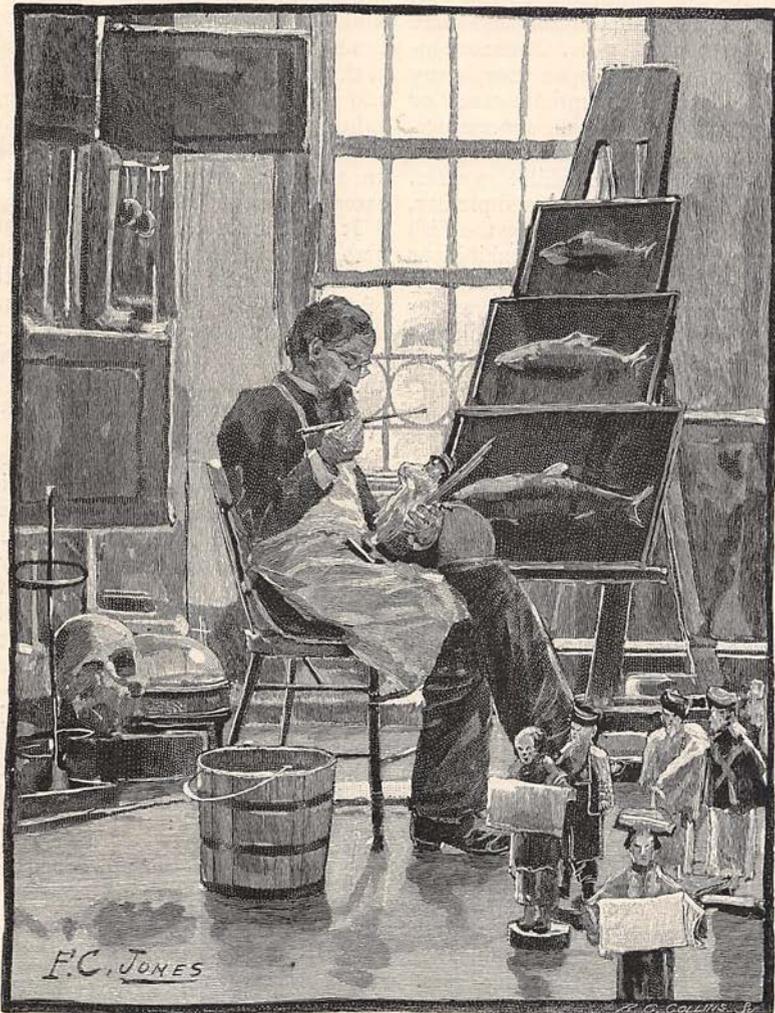
- a. Anatomy.
- b. Physiology.
- c. Pathology.

II. *Ethnography*—men grouped in races.

- a. Physical characters of races.
- b. Linguistic characters of races.
- c. Geographical distribution of races.
- d. History of races and nations.

III. *Representative Men*—man individually.
Etc., etc.

Now, the first of these divisions (I.) is so well represented at the Army Medical Museum in respect to anatomy and pathology, that a skeleton or two, and a few models of different organs, will cover the subject so far as our needs are concerned; but in the way of physiology, an extremely interesting exhibit is being prepared by the ingenious Mr. Hendley to show of what a man's frame is composed,—big jars of water, lesser packages of phosphates of lime, little bottles of fibrine, caseine, etc., cubes representing the bulk of nitrogen and other gases in the human body, etc., etc., all in precise proportion; together with similarly exact quantities of the excretions. A corollary of this is the display of what is proper nutrition to supply the waste of a man in different vocations and under various cli-



PREPARING AN EXHIBIT.

mates. Marvelous models in plaster of a loaf of bread of a particular size and weight, of so many ounces of meat, or of butter, milk, vegetables, and so on, instruct an American laborer what study and experience have shown to be a sufficient quantity and variety of daily food for his best health, and what it now costs. Similarly are displayed the rations of the army and navy in this and various other countries. This is practical dietetics based upon known physiological requirements.

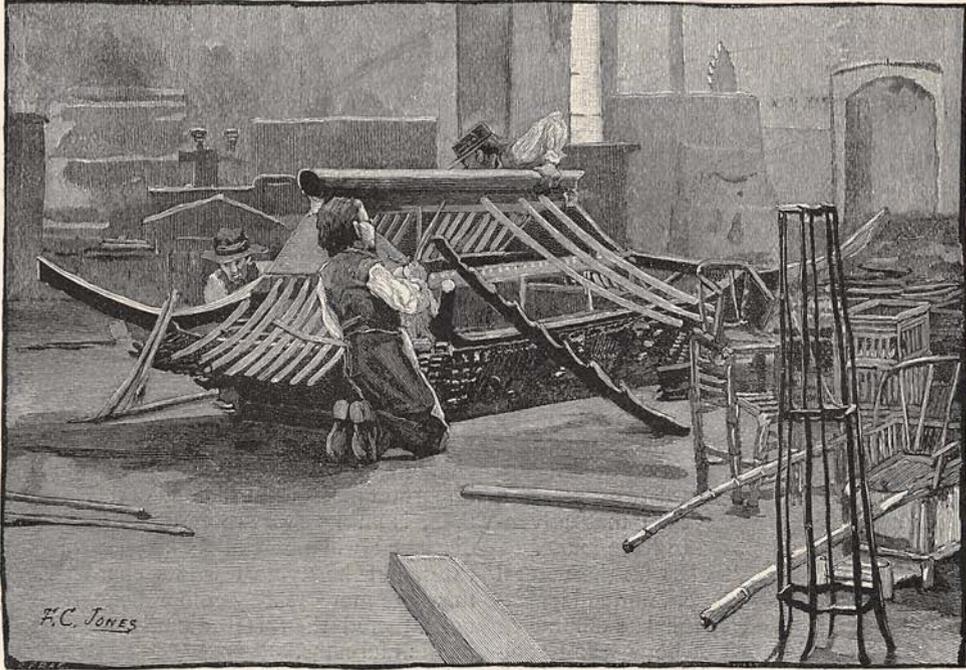
Under Ethnography, the physical characters of races will be compared by manikins and portraits. Casts of the whole body, from living persons, have been made to portray the figures of various races, especially those native to America or acclimated here, like the negro and Chinese. They are posed in lifelike attitudes, made with the greatest truthfulness.

Another series of specimens belonging here is the great Catlin collection of Indian portraits and scenes in the home-life of the red man. This consists of nearly six hundred pictures in oil, each about two and a half feet square, which are now hung for the most part in the lecture-hall. They are the product of the painter's first travels in the Far West, and were made in the field and by the lodge-fire. He took them with him to Europe about 1840, where they were shown in the principal continental cities. Lacking funds, he mortgaged the collection to Mr. Joseph Harrison of Philadelphia, for about forty thousand dollars. Catlin then returned to America and made a second trip into the West. Mr. Harrison, finding that the debt was not to be paid, had the pictures shipped to Philadelphia and stored them in a warehouse, where

it was supposed they soon perished by fire. A short time ago they were discovered intact, and by the widow of their owner were presented to the National Museum. This series is said to be superior artistically to the second set which Catlin made. However this may be, its historical importance cannot be overrated.

highest point known to this continent previous to the arrival of Europeans.

The "Representative Men" of various nations, ancient and modern, will appear in a gallery of busts and portraits, and by autographs and personal souvenirs. Nowhere can be found so many relics of the Father of his

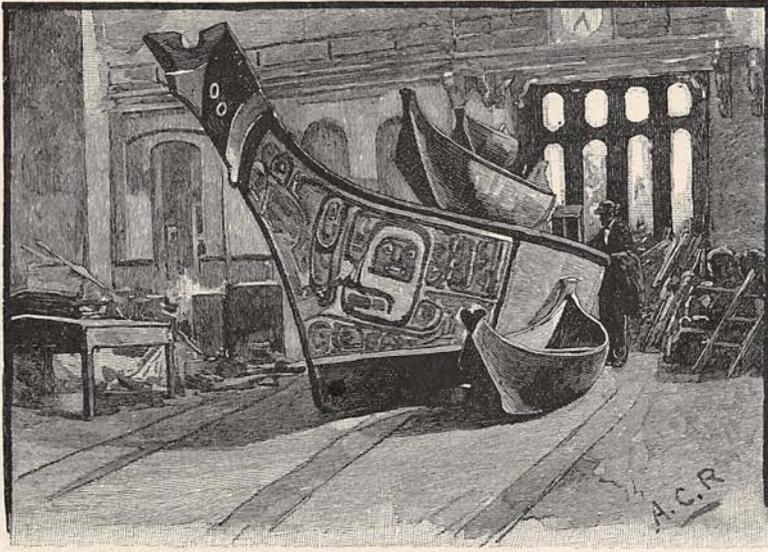


PUTTING UP A CHINESE PAGODA.

To return to our schedule, the item Linguistics will be represented by books and manuscripts in every language, charts of the growth of linguistic stocks, etc.; for the whole subject of philology comes in here. The chorography of races can be made plain by maps; their history by charts of political growth, medals, coins, schemes of genealogy, and especially by the great store of archæological relics which now, in the upper story of the Smithsonian building, forms the most orderly array in the whole Museum. So far as this collection refers to North America, it is without a peer; and a most important accession has lately been made in the shape of a large number of stone images from Central America, the gifts of Squier, Keith, and other explorers, and of casts of pillars, altars, bas-reliefs, and large fragments of inscribed walls and slabs, the originals of which were discovered in Yucatan by M. Désiré Charnay, at the expense of Mr. Pierre Lorillard, of New York. Here are plentiful and trustworthy materials for studying that ancient Maya civilization, which probably reached the very

Country. All of the old Patent Office cabinet is here, and to it has recently been added the table-ware and household effects of all sorts purchased by Congress for fifty thousand dollars from the heirs. Near these stands an equally precious heir-loom—the identical press upon which Franklin worked when he went as a lad to London.

The next division, "B," considers the Earth under the successive heads of Astronomy, Geology, Physiography (including changes that have been wrought in the earth's surface by man, and in its fauna and flora), Descriptive Geography, and the History of Exploration. From this division the Museum will not derive much show, save in geology, which (with palæontology) ought certainly to be provided with a building to itself for adequate representation relating to this continent alone. The enormous collections in hand are chiefly the product of the United States Geological Survey, and a building is needed for its offices and laboratories. The two desiderata might suitably be met in a single edifice adjacent to the present Museum. To illustrate the his-



INDIAN CANOES.

tory of exploration, the Museum has many arctic relics, and believes it possesses armor left by Coronado's expedition on the Republican river—evidence, if trustworthy, of a farther advance eastward than that adventurer is generally supposed to have made.

The next class, "C," takes up the natural forces of the earth—Force, Inorganic Matter, and Organic Matter, the last embracing the two grand divisions of botany and zoölogy. For illustrating the first division of this theme, there is present the large series of apparatus of phenomenal physics left by Professor Henry; but the practical utilization of these forces as illuminators, motors, etc., is shown elsewhere. Under the head of Inorganic Matter comes the whole subject of mineralogy, in which vast accumulations are at hand. The sub-head Organic Matter includes by itself the widest limit of many great museums, and has embraced hitherto the most conspicuous part of this one. As for the botanical half, it is now over at the Agricultural Department, where is stored one of the finest herbariums in the country. How rich the Smithsonian collections are in all branches of zoölogy is well understood by naturalists, who have profited throughout the world by its wide dispersion of specimens of American animals. There are gathered not only a very extended list of the groups of animals constituting the fauna of the globe, but an extraordinary number of specimens to represent each group belonging to the land and seas of North America. This is why it is the favorite center for special students who want before them as many individuals of each kind as possible,

in order to acquaint themselves thoroughly with the broadest range of variation in every characteristic. The largest part, the most important part, of the zoölogy of the Museum, then, is in its store-rooms. What is to be displayed will not call for a mass of duplicates, but be typical in its character, and therefore more readily comprehended by the uninstructed than is ordinarily the case in public museums.

The taxidermy has been revised, also, and is now in the hands of a new order of men, who make an art of it. What is meant by this, readers of *THE CENTURY* will understand when they recall the article on that subject printed in the magazine for December, 1882.

The birds have always shown a well-mounted collection, and they have now the whole of the lower hall of the old Smithsonian building to themselves. It is a pity, however, that a more conspicuous and better place could not have been found for this most showy part of a zoölogical cabinet. Hitherto this Museum, so rich in respect to the ornithology of the rest of the world, has been almost totally lacking in specimens of the avifauna of eastern Asia; but the large additions recently made by its collectors in China and Japan place before the student an unrivaled series, particularly from Japan. The mounted specimens in the cases are only a small part of the Museum's wealth in the way of birds—a branch to which Professor Baird in early years devoted so much attention as to make his name the foremost of all in the United States in this department.

New methods of taxidermy have been in-

troduced in the other vertebrate classes with most gratifying success. The short-haired, thin-skinned mammals have hitherto baffled taxidermic skill; their hides would warp and wrinkle out of all shape. This was met by no longer trying to stuff them, but by casting their effigies in plaster. Mr. Palmer, whose skill in this direction is remarkable, will chloroform an unfortunate pointer dog, for example, place him in a life-like attitude, freeze him into sudden stiffness, and make a cast so perfect that each separate hair is distinctly reproduced. The image, after Herr von Schindler has painted it, is exceedingly good; yet the taxidermists say that they now know how to surpass this, even in the most difficult cases, such as a greyhound or one of the Mexican hairless dogs. A cast is taken of the flayed carcass, and from it all the unevenness of bone and cord and muscle is molded into a clay copy, over which the fresh skin is placed, fitting as snugly as though it had been returned to its own framework. No shrinkage is possible, and every part of the skin is filled precisely as in life. The seals, which are grouped in expressive attitudes, are fine examples of this. Of the larger mammals, one of the most interesting pieces of taxidermy is that of the three oranges engaged in a fight in the tree-tops.

The large turtles have been imitated in papier-maché, and the smaller turtles and the snakes cast in plaster, posed in the most natural attitudes, and painted with life-like fidelity. In the case of the serpents, particularly, this method has produced effects as superior to stuffing as one of Landseer's drawings is beyond the etching on a shin-bone by an idle savage of neolithic days. They lurk in tight coils, with heads upheld and nervous tails; they twine in sinuous folds over and under barky twigs; they glide with undulating ease across a path; in one instance they interlace in death-struggles, the knots of which were not tied by the imagination of the workman, but cast from the bodies of two contestants whose fury was caught in the fixity of a chloroform-sleep.

The greatest monument of ingenuity in this department—all the tools and processes of which, by and by, will be shown as an exhibit by itself—is the whale. A whale's skin cannot be stuffed. Pictures give no idea of him. The uninstructed mind finds it hard to clothe the skeletons to be seen in some cabinets, and how to image him forth has therefore been a problem hitherto unsolved. Two or three winters ago a large "humpback" was reported ashore on the tip of Cape Cod. At once a force of men were sent thither with a car-load of plaster of Paris. They built a tight fence about his whaleship, poured

twenty barrels or so of plaster over the frozen carcass, and brought away good molds of one side and of his head and tail. These were set up on stocks, like a ship to be launched, and from them was made a hollow model in paper, which is true to every point of life, colored with exactness, and not too ponderous to be managed. Inside this paper shell the skeleton is mounted. Looking at him from one side, therefore, you see the counterfeit presentment of his full-bodied exterior; on the other side you have the relations borne by the bony frame to what it supports and distends. This is one of the most noticeable and pleasing things in the Museum. Other huge paper models are Emerton's images of the giant squid of Newfoundland waters, and of the spider-like octopus, which attracted so much attention at the London Fisheries Exhibition.

The next class is "Industries," divided into "Exploitative" and "Elaborative" groups, and "Ultimate Products."

D. EXPLOITATIVE INDUSTRIES.

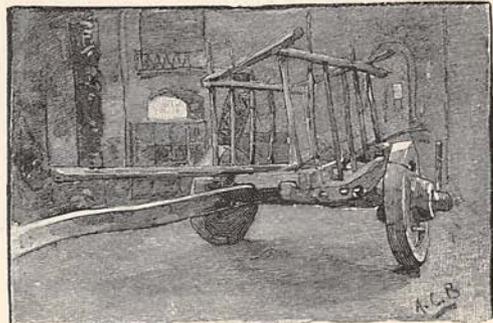
(Primary.)

- I. *Quarrying and Mining.*
- II. *Collection of Ice and Water.*
- III. *Collection of Products of the Field and Forest.*
- IV. *Fishing and Hunting.*

(Secondary.)

- V. *Agriculture and Horticulture.*
- VI. *Pecudiculture.*

The first and second of these divisions necessarily consist chiefly of pictures. The



A. MEXICAN CART.

third would include such subjects as lumbering, wild fruits, berries and leaves useful to man, Irish moss, turpentine, resins, gums, medicinal herbs, bark, etc. In exhibition of the processes of hunting and fishing, no museum in the world has equal material with ours at Washington. Its resources in respect to savage weapons of the chase and of fishing are enormous, and nowhere else is there to be found so complete a set of angling imple-



NEW ARRIVALS.

ments—rods and lines of every variety, fly-books by the hundred, patented reels, hooks, creels, everything. To this the Fish Commission adds its nets, trawls, seines, dredges, etc., for sea-fishing, in reality or by models uncounted, derived from every quarter of the globe.

The three international fisheries exhibitions in which the United States has taken part have been exceedingly productive of implements used abroad. In no one feature is this more manifest than in the item of boats. They represent the evolution of smacks and cutters from the rudest and earliest to the most recent; rafts, canoes, and coracles, skin-boats and rush-boats; oddities from India, China, and the South seas; strange rigs from the Mediterranean and Baltic seas; tub-like craft from Holland, arch-keeled monstrosities from Hindostan; and every style of craft used in the sea-fisheries of Great Britain and the western shore of Europe. None of them are prettier, but many are more costly, and the majority are safer, than

“The fishing-smacks of Gloucester,
The sea-boats of Cape Ann.”

Many of the scenes in a fisherman's work are portrayed by the use of life-size lay-figures stationed at a conspicuous elevation against the wall. One hurls a harpoon from a whale-boat; another stands in harness on the lookout at the mast-head; a third is spearing sword-fish from the point of a bowsprit. Very large drawings and photographs add their illustration; and a series of casts represent the food-fishes. Lastly, the visitor may go over to

the armory and find a full exhibition of all the processes of fish-culture in active operation.

This brings me to the most important class of all in the Museum in its educational value, since it embraces all industrial art.

E. ELABORATIVE INDUSTRIES.

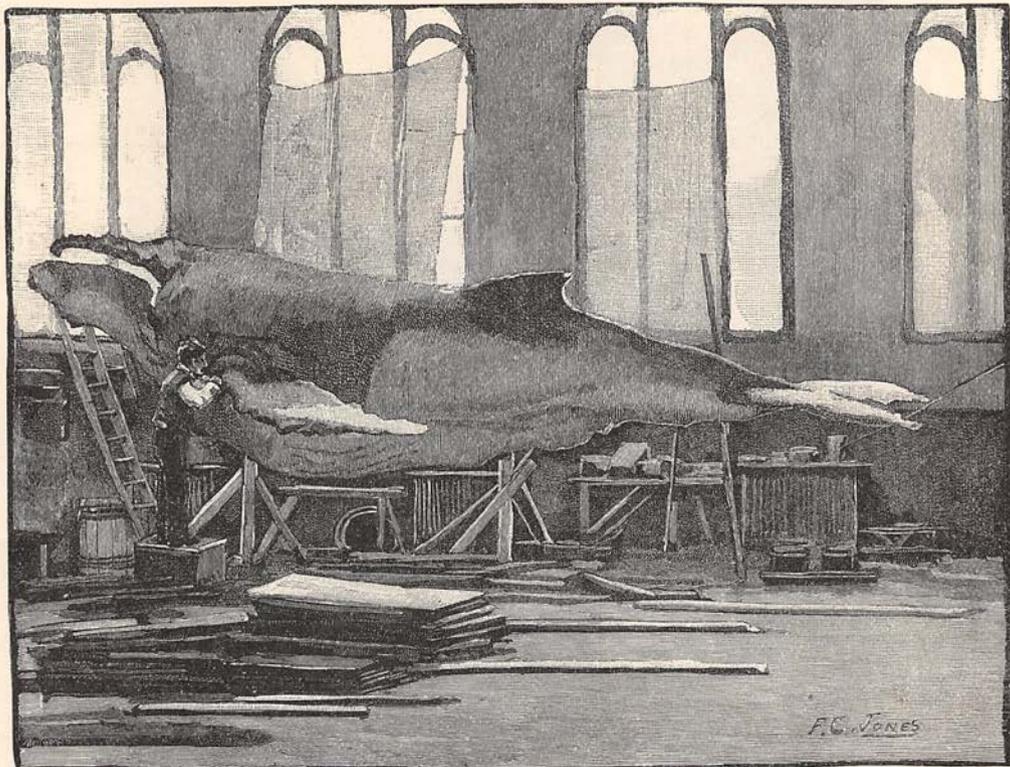
- I. *Raw Materials.*
- II. *Agents.*
- III. *Implements.*
- IV. *Processes.*
- V. *Products.*

Here comes in the general idea of manufactures, and its whole range may be covered, and will be represented. Such subjects as pottery, textile fabrics, ornaments, and the like, will, however, receive special attention at first. In respect to pottery and porcelain, a full exposition is marked out of every process the clay, kaolin, etc., go through in the course of forming into vessels, decoration, baking, and so on, according to the different methods in vogue. From the government potteries have been presented full series to show how the wares of Sèvres and Dresden are made, with samples of the clay used, the glazes, the pigments concerned in decoration, the aids in the firing, and specimens showing all the stages of manufacture, together with charming examples of each style of ware in its finished form. With this may be compared the interesting methods pursued by primitive races, especially our south-western village Indians, some of the odd results of which are shown in the illustration of the making of the model of Zuni; while immense accumulations of prehistoric and savage pottery are on hand

from all over this continent and from the Old World.

To exhibit the beauties of a delicate bit of china to full advantage, the regulation stand of the Museum has been so modified as to show all sides of a cup or vase. This is accomplished in one way by a small slanting mirror, and in another by placing a small vertical mirror behind the specimen, which rests upon a stand whose surface is of glass, half

seen in the successive stages of its change into ribbons and dress-goods, etc., according to machine methods, will make clear how the finest specimens of that brilliant fabric are woven. The same is true of cotton goods, toward which the State Department has given three thousand specimens of cotton cloths collected by United States consuls abroad, which show the kind of cloth made and used in each foreign country — two-thirds of the world, it



SETTING UP THE PAPER WHALE.

an inch underneath which is a second diminutive mirror. By this arrangement you have at a glance the whole surface of the object outside and inside, and can read the maker's mark on the bottom — a matter of no small importance in the eye of the collector or connoisseur of ceramic masterpieces.

Another full display in this department will be that of textile fabrics, and particularly articles manufactured from silk and cotton. The silk-worm, its eggs, food, etc., and the odd native contrivances for securing and spinning the thread of its cocoon in eastern countries, are to be seen; among other things, a very amusing series of quaintly diminutive Chinese models, representing a group of peasants working at the thread and weaving the cloth on their hand-loom out-of-doors. Silk

is said, is supplied by hand-loom — and the patterns which prevail. Manufacturers can get many a hint from such a collection, as a part of a grand whole which aims to include a specimen of every kind of textile fabric that has a name.

The next class is:

F. ULTIMATE PRODUCTS.

- I. *Tools and Utensils.*
- II. *Motors and Appliances for Utilization of Force.*
- III. *Foods and their Preparation.*
- IV. *Stimulants and Narcotics.*
- V. *Drugs and Medicines.*
- VI. *Perfumes and Cosmetics.*
- VII. *Dress and Personal Adornment.*
- VIII. *Buildings and Architectural Devices.*
- IX. *Costume.*
- X. *Furniture and Domestic Economy.*
- XI. *Fuel and Heating.*

- XII. *Illumination.*
 XIII. *Refrigeration and Ventilation.*
 XIV. *Water Supply and Utilization.*
 XV. *Transportation.*
 XVI. *Printing and Book-making.*

Transportation, can be thrown out of the actual exhibition, or shown only by a few comprehensive drawings or models. Others may be represented only on a limited scale. Tools are possessed in great numbers by the Museum, but it only seeks to show, by a few types, their development to perfection from the simplest beginnings,—tracing, for example, the instruments of writing up from the primitive stylus to the latest type-



The reader will see how large a theme this is—what a world of space and material it would require to represent it fully to the eye, to carry out the classification completely. When what is attempted is in good shape, however, the visitor will be surprised to note how large a story can be told with the limited facilities at command.

Certain subdivisions, such as Motors, Architecture, Towns,* Furniture, Fuels, and Heating, Ventilation, Water Supply, and lamp of a Pompeian bath, the elaborate

A MODEL OF ZUÑI

writer and hektograph. In the same way, with methods of lighting, you will see the little bird with the wick pulled through his unfortunately fat body, serving as the luminary of some arctic igloo, the ancient lamp of a Pompeian bath, the elaborate

* There is one notable exception under this head—a model of Zuñi. It consists of clay, and occupies a frame standing two feet above the floor and about four times as big as a billiard table. The uneven surface of the site; the groups of pueblos set around their plazas; the goat-corral behind each; the estufas and ladders and chimney-pots, and all the details of the adobe Indian town with which readers of *THE CENTURY* have become familiar, are here faithfully reproduced. This uniform bluish-clay tint, exactly the same in house and ground, through the utter bareness of everything, is exceedingly natural, and none admire this model (with other smaller ones) more than those who have visited those Indian towns.

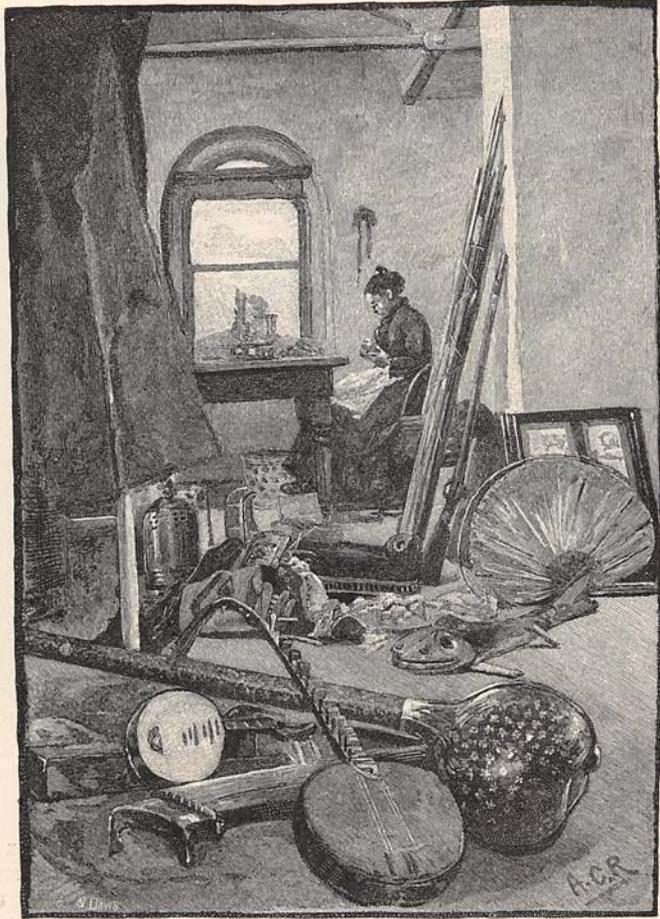
candelabra of mediæval cathedrals, the student-lamp, the gas-burner, the Fresnel lens-lantern, and the electric points of to-day.

"Foods" will be shown in a series of exquisite models in plaster and wax, excelling even the finest French art of that kind; and there is now being got together in Paris a wonderful collection of perfumes and cosmetics, which will delight (if it does not dismay) women. Dozens of cases, under the head of *Materia Medica*, exhibit every article named in the pharmacopœias of the whole world. Side by side with each article prepared in pharmacy will appear the crude materials of the drug, a description of its process of manufacture, and a sample of its perfected condition; if the drug is of vegetable origin, there will be an herbarium specimen and a large colored plate of the plant and its flower, the latter in the wing-cases.

With the same completeness a department of book-making is being carried out; and merchants in New York in the lines of drugs, groceries, printing materials,—especially for engravings,—and other departments, have volunteered to contribute collections in each line as full as can be made. The display of costumes—from kingly robes down to red Indianbuckskin-dress, and even to tattooing—will be among the most showy series in the whole Museum, being mounted upon capital lay-figures, which put the features and coiffure of the proper person into his clothes or armor. Colored plates will do much to enlarge this display without undue consumption of space.

The next class can be dismissed in short order. It is "G—Social Relations of Man." It embraces the Communication of Ideas; Domestic and Social Customs and Ceremonies; Societies; Trade and Commerce; Government and Law; Ceremony; War.

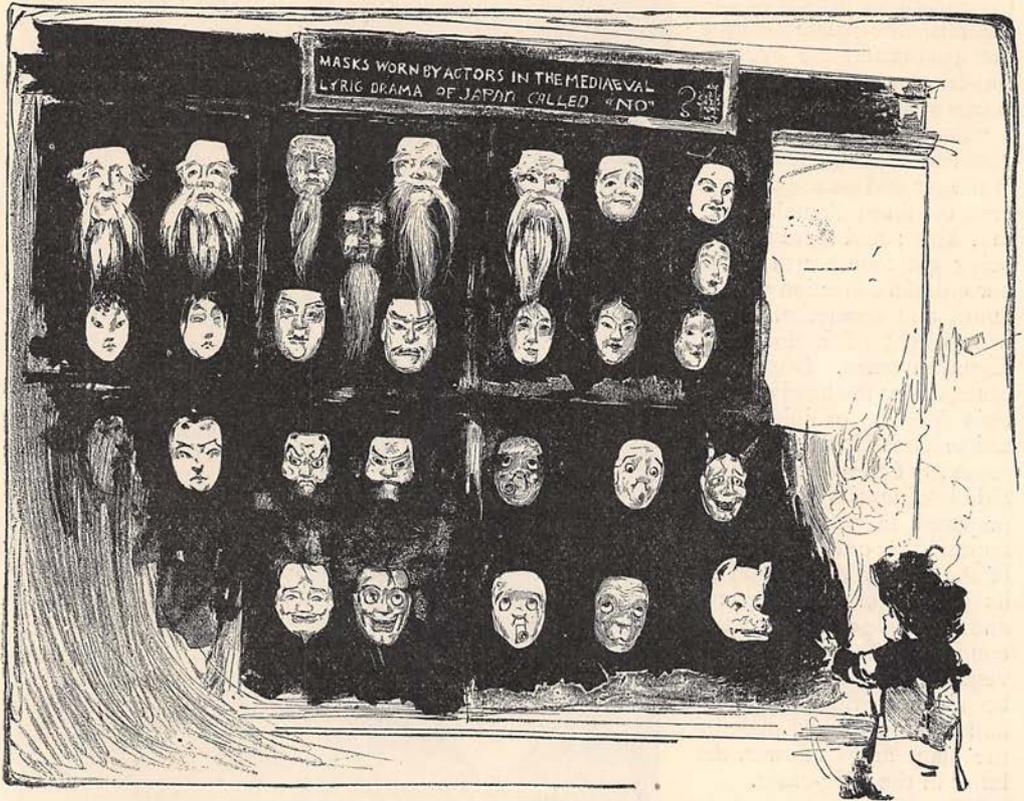
The first of these, as will be seen, includes, besides writing and printing (the last already considered), mails, telegraphs, etc. The second, such observances as marriage and the funeral, varying greatly in different countries and periods. The third, "Societies," means regalia chiefly, so far as a museum is concerned;



IN THE REPAIRING-ROOM.

and the fourth, an exhibition of moneys and methods of book-keeping, banking, and commercial documents, like bills of lading. Under the fifth would come instruments of torture and punishment, police matters and models of prisons, public buildings, etc. "Ceremony" exhibits to us badges, flags, coats of arms, etc., while "War" gives an opportunity to display the great collection of savage and civilized weapons, armor, models of fortifications, and so on, which the Museum possesses, and which will be among the most noteworthy features in its halls.

This introduces "H—Physical Condition of Man," having the subdivisions Physical Culture, Public Health, Medicine and Surgery, Hospitals and Remedial Institutions; and "I—Intellectual Condition of Man," under which are classified his Games and Amusements, his Folk-lore, his Pictorial and Plastic Arts, his Music, Drama, Literature, Science, Philosophy, Education and Educational Instruments. Then comes "K—Moral Condition of Man," divided into Crime and Error, Su-



perstition, Religious Systems, Benevolent and Reformatory Institutions.

What is to be said of the elucidation to the eye of an ideal classification whose minor points are such simple heads as Philosophy and Literature and Science? Certain exhibitions can be made under "H," such as the apparatus of athletics, models of sanitary appliances, the mechanics of surgery and medical practice, models, inventions, and statistics in respect to hospitals and asylums, but only in the most general way. Under "I," the first head, "Amusements," admits an exhibition of toys, which is Professor Goode's pet department, and for which there is a vast variety of material from foreign countries, as well as from our own business partners of old Santa Claus in New York and London. The most wonderful kites are here,—kites that play cymbals and ring bells; kites like birds, with movable wings, legs, and claws; kites of all colors, shapes, sizes, and skill in queer performances; dancing figures from Japan; rattles that were meant for babies in Africa, in South America, in Alaska, in Hindostan, in Lapland, and everywhere else; dolls by the hundred, according to the taste of every kind of nursery toddler in every part of the world; marvelously

intricate toys from Europe; games played by the boys and girls of all latitudes; and so many puzzles that it would take a dozen lifetimes to solve them all.

The subject of Art has been shown by its processes and results in notable pictures and statues. This will include many details of photography, wood-cutting, "process" and "solar" printing, and lithography, which are mysteries to the general public. Musical instruments make one of the most beautiful parts of the show, for their forms, often extremely curious in the case of savage and barbarous makers, are always ornamented with great care; and the collection is very complete.

Exposition of the drama must now restrict itself largely to special costumes belonging to actors, like those strange and vivid masks worn by the Japanese in their play called *No*. "Literature," "Science," and "Philosophy" belong to the library; but educational matters can be displayed in a way most instructive to studious people, by a set of modern appliances for facilitating study, and economizing time and strength in reading and investigation. A glimpse into the Museum offices would show all these time- and brain-saving aids to learning, together with some inventions not down in the advertisements.

One might well ask how the public is to know that it is gazing upon so perfect a scheme and profit accordingly. This is answered in the one word LABELS. So important is this matter that it is not too much to say that the Museum is to be a vast systematic collection of labels illustrated by specimens, just as engravings illustrate the text of a universal encyclopædia. Upon these labels great time and thought is being spent in each class, and they are models of *multum in parvo*. Each is intended to give the class and name of the object, and essential particulars as to its origin,

process of manufacture or growth, use, etc. These labels are printed upon conspicuous cards in bold type, and with the cross-references and the citations to books which they contain, they make a compendium of the most carefully sifted knowledge of the whole class to which they refer, and a directory where the student may enlarge his information. To this matter of labeling is brought the sharpest attention, and upon its continued high execution depends more than on anything else the success of this ambitious undertaking.

Ernest Ingersoll.



MARIANA.

“‘He cometh not!’ she said.”

HE never came whose step and loving call
I waited long to hear,
But thou hast come, last Messenger of all,
A friend well nigh as dear!

Peace if not joy!—yet peace itself were gain,
That must supremely bless
The soul sore travailed that in vain, in vain
Hungered for happiness!

Draw closer, oh, thou voiceless Guest and pale,
Whose drooping torch burns low:
Thy face is hid, but through the somber veil
Thine eyes' dark light I know!

Nay, closer still!—I yearn on brow and heart
Thy cool, strong hand to feel;
Fevered with wounds, and throbbing with a smart
Thy touch alone can heal.

I go with joy! Lead me to him at last,—
How dim the path and lone—
Him, whose far footsteps, echoing through the past,
Have never met mine own.

Stuart Sterne.