CATALOGUE

OF

THE ANTIQUITIES

OF

STONE, EARTHEN, AND VEGETABLE MATERIALS,

IN THE

Museum of the Royal Irish Academy.

BY

W. R. WILDE, M.R.I.A.,

SECRETARY OF FOREIGN CORRESPONDENCE TO THE ACADEMY.

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Illustrated with numerous Wood Engravings.

DUBLIN:

PRINTED BY M. H. GILL,

PRINTER TO THE ACADEMY.

Price Six Shillings.

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MUSEUM OF THE ROYAL IRISH ACADEMY.

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PREFACE.

At the Stated Meeting of the Royal Irish Academy on the 16th of March last, the following Resolution, proposed on the recommendation of the Council, was adopted :—

"Resolved—That the Council be authorized to expend a sum not exceeding £250, in the arrangement and cataloguing of the Museum."

The work of classifying and arranging the Museum, and also the preparation of the Catalogue, of which the first Part is now published, was gratuitously undertaken by Mr. Wilde, who has devoted his time and labour to the task with an energy and zeal which entitle him to the warmest thanks of the Academy.

It is only fair to him to state that the difficulty of the undertaking was greatly increased by the circumstance that, almost during the whole period of his labours, the Museum was in the occupation of the workmen employed by the Board of Works in putting up glass-cases, &c., as well as in the painting and decoration of the Room.

Owing to this circumstance, together with the shortness of the time, it was not possible to do all that might be wished, especially as it was necessary to have the whole, as far as possible, completed before the Meeting of the British Association on the 26th of this month.

The remainder of the Catalogue is in progress, but it is hoped that the Part now published will be a sufficient evidence to the Academy of the zeal and indefatigable diligence of the compiler. It contains a description of the articles composed of Stone, Earthen, and Vegetable Materials—a classification which, on the whole, was deemed most convenient. It has also been illustrated by 159 engravings on wood, drawn by Mr. Du Noyer and Mr. Wakeman, and cut by Mr. Hanlon and Mr. Oldham; and it is hoped that these illustrations will add not only to the interest, but also to the permanent value and authority of the work.

JAMES H. TODD,
PRESIDENT.

August 17, 1857.

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CATALOGUE

OF

THE MUSEUM OF ANTIQUITIES

OF THE

ROYAL IRISH ACADEMY.

EXPLANATION OF THE ARRANGEMENT.

ALL attempts at an arrangement of objects of Antique Art must, to a certain extent, be arbitrary and artificial; and as, in the present state of antiquarian knowledge, a chronological classification could not be fully carried out, the simplest and most obvious mode which suggests itself is that according to *Material*. Such has, therefore, been adopted as the basis or primary division of the present arrangement of the Museum of Antiquities belonging to the Royal Irish Academy—with the exception of the Ecclesiastical objects, which, for obvious reasons, will be grouped within a separate section, irrespective of material; the "Finds," or groups of Antiquities found together in particular localities, such as Crannoges, &c.; as also the Coins, Tokens, and Medals, and the Human Remains. The secondary division is that according to *Use*. The classification and arrangement usually employed in Natural History according to Class, Order, Species, and Variety, has, for the sake of convenience, been adopted. The following classification on this principle is capable of including every object to be found in the Collection of the Academy.

PRIMARY DIVISION, ACCORDING TO MATERIAL.

CLASS.	ORDER, OR SUBDIVISION.
I. Stone Materials, . .	1. Flint. 2. Stone. 3. Crystal.
II. Earthen Materials, .	1. Clay and Pottery. 2. Glass and Enamel.
III. Vegetable Materials, .	1. Wood. 2. Amber. 3. Jet.
IV. Animal Materials, . .	1. Bone, Horn, Ivory, Skin, Leather, and Shell,—used in the Arts. 2. Textile Fabrics. 3. Animal Remains.
V. Metallic Materials, .	1. Bronze, Copper, or Brass. 2. Lead. 3. Iron. 4. Silver. 5. Gold.

Excepted Classes.

VI. Finds.
VII. Coins and Medals.
VIII. Human Remains.
IX. Ecclesiastical Antiquities (*not stone*).

SECONDARY DIVISION, ACCORDING TO USE.

SPECIES.

1. Weapons,—offensive and defensive, used in War, the Chase, Fishing, &c.:—Arrow, spear, and javelin heads; sling stones; war-clubs, battle-axes, axe-hammers; skeins, daggers, swords, pikes; shields, armour, helmets; fire-arms, shot, &c.
2. Tools, and Weapon-Tools:—Flint-flakes, knives, scrapers, picks, chisels, wedges, adzes, cutters, celts (stone and metal), hatchets, gouges, paalstabs, saws, hammers, punches, whetstones and sharpening-stones, crucibles, touchstones and burnishers, moulds and designs.
3. Food Implements,—or articles employed in Raising, Procuring, Preparing, and Using Food:—Boats, paddles, ropes; fishing spears and tridents, hooks, gaffs, sink-stones, and net-weights; spades, forks, ploughs, sickles, and scythes; all agricultural implements; grain-rubbers, querns, millstones, mortars; kneading troughs, lossets, pots, bowls, barrels, buckets, butter-

prints, pans, dishes, griddles; knives and forks and spoons; pitchers, bottles, jars; drinking-horns, cups, methers, noggins, salt-cellers, stills, &c. Under this head may be placed Food itself, such as bog-butter, cheese, &c.

4. HOUSEHOLD ECONOMY:—Furniture, articles of domestic use, and the toilet; piercers, needles, bodkins, shears, thimbles, and distaff discs; smoking pipes, snuffers, candlesticks; combs, razors, tweezers; tiles, weights, boxes, fire-irons, nails, nuts and bolts, chains and manacles, wheels, locks and keys, grissets, inkstands. Also models of forts and habitations, &c.

5. DRESS AND PERSONAL DECORATION:—Beads, necklaces, bracelets and armlets, torques, gorgets, anklets, head ornaments, tiaras, frontlets, pins, brooches, fibulæ, clasps, buckles, buttons, finger-rings, boots and sandals, wig-pins; leather and woven garments. Horse trappings:—Shoes, bits, straddles, and two-horse yokes, stirrups, spurs, harness studs, goads, &c., come into this section as belonging to Dress and Decoration.

6. AMUSEMENTS:—Objects used in games, as chess, draughts, &c.

7. MUSIC:—Horns, trumpets, harps; all musical instruments.

8. MONEY:—Coins and other means of barter. In this section are included seals and commemorative medals, &c.

9. MEDICINE:—Crystals, amulets, bullæ, medicine stamps, surgical instruments.

10. RELIGION:—Chalices, patens, bells, crosses and crucifixes, croziers, shrines, reliquaries, stoups, censers, candlesticks, and church furniture; ecclesiastical rings; bronze, ivory and stone figures and carvings, altar stones.

11. SEPULTURE:—Urns, vases, and the objects found therein; incinerated and other bones of men or the lower animals; Ogham stones, crosses, effigies, tombstones.

12. MISCELLANEOUS:— All objects, arranged according to their material, but the precise uses of which have not yet been determined with sufficient certainty to warrant their being grouped with any of the previous species.

VARIETY.

The varieties are such as occur in each set of articles of the species, serving the same purpose but differing in shape, design, orna-

mentation, or mode of application:—for instance, the various forms of arrows, spears, and swords; the different kinds of celts, of hammers, or of querns, and the different shapes of pins, brooches, and armillæ.

The Collection commences in the Northern Gallery, at the top of the left-hand staircase, where all the Stone articles are arranged, with the exception of some of the large Ogham monuments, the sculptured, and other stones too heavy to be placed in this compartment, most of which will be found on the ground-floor. The Gallery contains the first four classes, viz.,—those of Stone, Earthen, Vegetable, and Animal materials; also the Human Remains; and a portion of the Bronze. In part of the small Rail-case surrounding the Gallery have been arranged the Coins, Medals, and Seals. In this case will also be found several minute specimens belonging to the different compartments opposite thereto.

In the lower compartments, and in the cases on the ground-floor, will be found the remainder of the Bronze articles, together with the Iron, Silver, and Gold specimens; and also, examples of 'Finds;' consisting of typical articles from collections discovered in Crannoges, &c. In the cases on the ground-floor will likewise be found the Ecclesiastical Antiquities and the Scandinavian Collection, &c. In the crypt will be placed the boats and similar large articles.

Nearly all the small articles have been attached by wire, or cement, to moveable trays. The large, heavy articles have been placed on the lower shelves; and each shelf in the different compartments is numbered. Each tray or case is lettered according to its class or section, the letters being doubled where required. Every article is numbered; the numbers extending throughout the different species;—a new numbering commences with each species, and in some instances each variety of the entire series. Each illustration has been drawn according to scale, and directly on the wood.

CLASS I.—STONE MATERIALS.

Northern Gallery.—Compartments I., II., and III.

All primitive nations throughout the world, so far as we know—especially those located without the tropics and towards the northern regions,—whose maintenance chiefly depended on their courage, energy, and ingenuity, must, in the absence of a knowledge of the harder metals, such as copper, bronze, or iron, have employed weapons and tools of flint and stone for procuring food and clothing, constructing habitations, forming boats and rafts, and in defending themselves from their enemies. They also used stone ornaments, such as necklaces, rings, and pendants. As they acquired a knowledge of cereal food, and became acquainted with agriculture, they employed stone implements to till the ground, to bruise and triturate corn, and to bake bread. Finally, they interred their dead in stone chambers, or collected their ashes in stone urns, and erected over them tumuli of the same material. Upon some of the stones composing these sepulchral monuments we find traces of a peculiar ornamentation, characteristic of the time, and quite unknown during later periods.

Where the fruits of the earth do not spring spontaneously from the ground, with the natural luxuriance of tropical climates, and thus present, without culture, a sufficient supply of food all the year round, man must of necessity remain a nomad,—depending mainly for his subsistence on fishing or the chase,—until he has learned to domesticate his prey, and reduce the wild animals around him to his rule. Then he becomes a shepherd; or, as he renders the earth fertile by his labour, an agriculturist. In either case he ceases to be a wandering hunter, and remains more or less stationary, allowing time for the cultivation of those arts which, prompted by necessity and improved by taste, gradually elevate him in the scale of civilization.

In this primitive state the timber of the forest supplied him with materials for his rude dwelling, and with fuel for warmth and cookery. The skins of animals, which he killed for food, furnished him with clothing; these he fashioned with a sharp flint-flake, or hard stone edged-tool, and bound together with thongs,—using as a piercer, point, or needle, the bone of some fish, bird, or small mammal. At the same time the sinews of animals or thongs of skin, with perhaps some glutinous material resembling cement,—possibly pitch or resin,—enabled him to fix in wooden shafts or handles the knives, spears, and arrow-heads with which he slew and skinned the beasts on which he preyed.

To project the latter weapon, either in battle or the chase, the flexible branch, shaped by the sharp flint edged-tool, formed a bow, which was bent by a leather thong, or the twisted intestine of an animal. The wooden material—of oak, ash, and yew, fir, hazel, and birch, found in our bogs, and still existing as indigenous trees,—which formed the bow, the shaft of the arrow, and the handle of the lance or javelin, has perished centuries ago; but the durable materials of flint and stone remain, and of such implements the Museum of the Royal Irish Academy boasts the most extensive collection which has yet been made of the primitive weapons and tools of the early inhabitants of the British Isles. The elegantly shaped and highly finished spear or arrow-head would not be of any service to the warrior or the hunter if he did not possess the means of adapting to it a proper shaft, and attaching it thereto with the necessary ligaments. We may, therefore, fairly commence the description of the flint articles with that of the knife, cutter, or scraper.

Flint proper, or chalk flint, as distinguished from oolitic chert, is only found in a very few localities in Ireland, chiefly in the counties of Antrim, Down, and Derry; hence we learn without surprise that the great bulk of the specimens of that material have been procured from the province of Ulster.

The rarity of flint must have rendered these weapons very valuable in other districts.

If an ordinary oblong flint nodule be broken across in the middle, the fracture is conchoidal or shell-shaped, and if one of the portions of that flint were set on end, the artist could chip off with a hammer, or with a chisel and mallet, a number of fine flakes, running the length of the sides of the mass; more or less thin and long, or broad and thick, according to the natural purity of the flint, and perhaps the dexterity of the worker. Each scale or flake, no matter what its outer shape or outline, will always present the conchoidal fracture. The outside flakes, bearing the usual rough cortical silicate of lime investiture (examples of which may be seen in Nos. 355, 407, and 482), were generally valueless, and consequently cast aside. In striking off these flakes the tool used must have been a stone or flint; but of what precise nature we have as yet no definite information (see Tray **M**, for a collection of flint tools). In chipping or scaling a mass of flint, the artist appears to have struck it on the end, and as he passed round the block, striking in the centre of the angle made by the junction of any two chips, the scale must always have presented more or less of an obtusely triangular figure in its section; and, owing to the tapering nature of the flint mass, a leaf-like outline; while, from the peculiar fracture or cleavage of all flint, it was curved in the longitudinal direction, and also slightly convex from side to side upon the under surface. This under surface is invariably smooth, and to a certain degree polished; but, from the deficiency of lines upon it, and its invariable curvature, it can easily be distinguished from the smoothing and polishing produced by art. The edges of nearly all these flakes are sharp, and generally meet at a point at the extremity, while the butt, or portion to which the tool was applied, is usually chipped and broken, as if it required repeated blows to get it off. Each surface on the convex aspect is smooth, though occasionally presenting the wave-

like appearance of broken glass. This was the first attempt at a weapon or tool of stone. The artist, it would appear, chipped off as many scales or flakes as the mass would afford, and then threw aside the core or spud when it ceased to be any longer useful. There are a few such cores in the Museum;—one of these, represented by the accompanying illustration, which is of the natural size, will be found on Tray A, No. 2; while such a scale or flake as that described above, and which partakes of the knife-form, is shown by Fig. 1, No. 1, on the same Tray. These flint-flakes generally vary in size from $\frac{1}{2}$ an inch to $4\frac{1}{2}$ inches in length, and from $\frac{5}{8}$ths of an inch to 3 inches across at the broadest part.

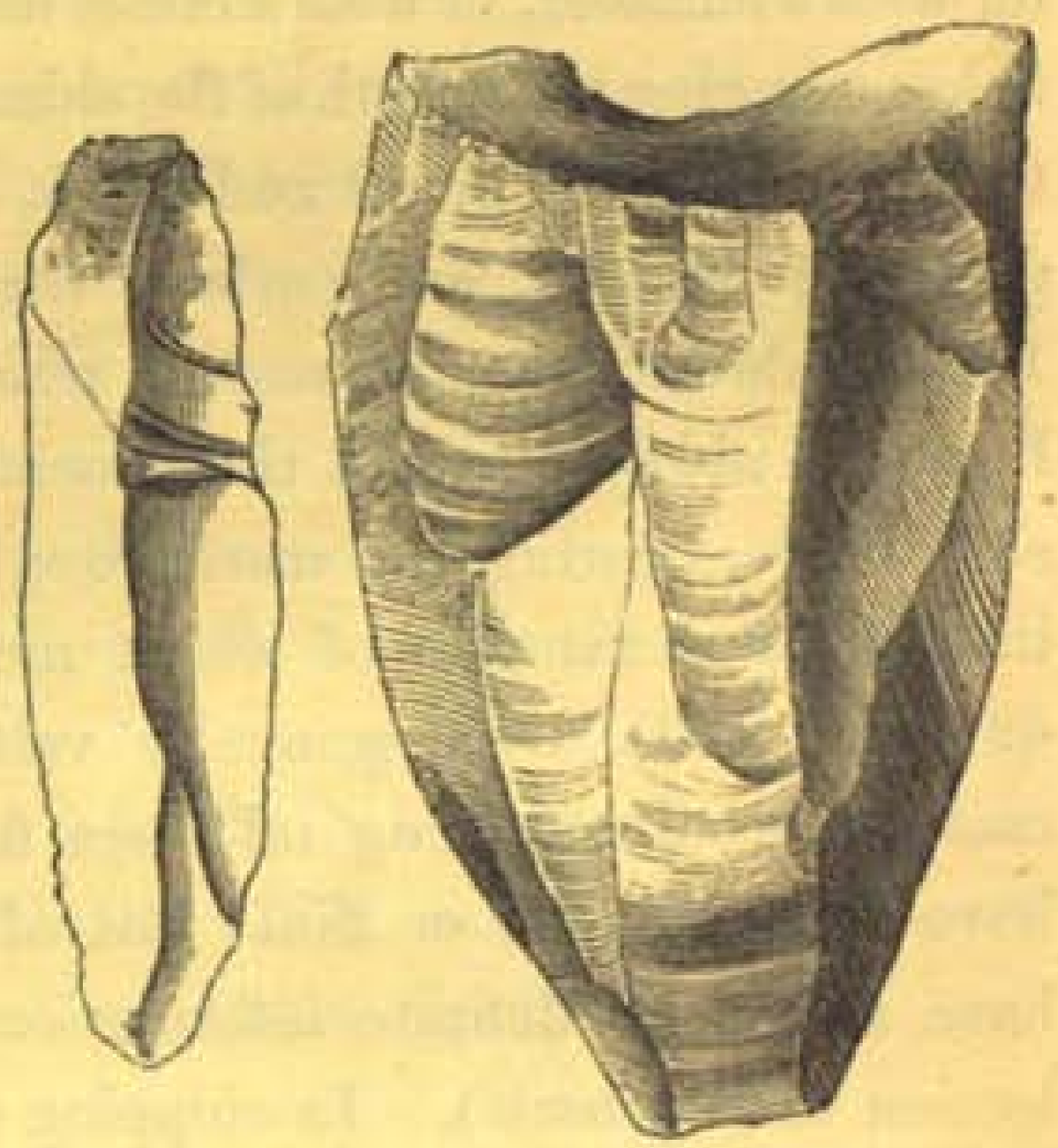

Fig. 1. No. 1. Fig. 2. No. 2.

In the year 1816, and again in 1848, his Majesty the King of Denmark, at the instance of the Royal Society of Northern Antiquaries of Copenhagen, presented to the Academy a collection of Scandinavian antiquities, principally composed of flint and stone weapons and tools, or models thereof. As these far surpass in size, although some of them do not equal in design or perfection of workmanship, many of the small flint articles belonging to the Academy, we would direct attention to the case containing them upon the ground-floor of the Museum. Therein will be found two models of those flint cores much larger than any in the Academy's Collection. (See Proceedings, vol. iv. p. 250.)*

* In the Rail-case A, facing the second compartments of this Gallery, may be seen a collection of obsidian cores and flakes, spears and arrows, from the coast of Mexico, showing the process of scaling in modern times, well worthy of attention. See p. 30.

In forming collections, as well as arranging specimens of ancient Art, much should be made subservient to ethnological science, by exhibiting the gradual development of process and design; and this is specially manifested upon reviewing the objects in the Stone department, particularly those of flint. Many persons might at first sight mistake these chips for accidentally formed fragments, but a closer inspection, as well as an examination of the gradual process of this art, will convince the inquirer that they were designed by the hand of man. The greater number of the flint articles belonging to the Academy were obtained by Mr. Oldham, now Director of the Geological Survey of India, while engaged upon the Ordnance Survey under Colonel Portlock, in the North of Ireland, about fifteen years ago;—they were collected for the most part in the counties of Antrim, Derry, and Down; and were procured by the Academy unaccompanied by any description or reference either as to the immediate locality, or the peculiar circumstances under which they were discovered. This Collection has been also enriched by contributions from Lord Farnham; and several of the more perfectly formed specimens were purchased as part of the Collection of the late Dean Dawson.

CLASS I.—ORDER I.—FLINT.

SPECIES I.—WEAPONS, AND WEAPON-TOOLS.

First Compartment.—Shelf I., *Tray* **A**, contains one hundred and seventy specimens,—one hundred and sixty-seven flint-flakes, and three cores from which flakes have been chipped.

No. 1.—The knife-shaped flint-flake, figured on the opposite page. There are several similar fine, knife-shaped, curved, semi-translucent chips upon this Tray, especially Nos. 33, 36, 50, 69, and 94. Nos. 2, 3, and 23.—Large and small flint cores, the last nearly worked out; No. 2 is that figured on the opposite page.

Nos. 40 to 56.—A line of flint-flakes, placed upon the convex side, so as to show the under, smooth, curved surface. All these

knife-shaped flints were selected from the Oldham Collection, some of them have a thick blunt back, but the greater number are double-edged. The larger ones might have been held in the hand, and would have proved serviceable tools in cutting, skinning, or scraping. We have no evidence, so far at least as researches made in this country evince, that these knife-shaped flints were ever fitted in handles; but then it must be recollected that the horn, bone, or wooden handles or holders of such implements could not have endured (unless preserved in bog) during the many centuries that have elapsed since these flint weapons were used. In other Museums of north-western Europe, particularly those of Denmark and Sweden, we find implements of bone and wood, on each side of which were set, in a successive row, a number of these sharp flint-scales, like the sharks' teeth attached to the war-spears of some of the tribes of South Sea Islanders and New Zealanders of the present day. In other collections, particularly in Switzerland, flint-flakes have been found inserted in small wooden handles, precisely similar to the cabinet-maker's scraper used in modern art. From their slender shape and small size, many of these specimens could not have been used in the unassisted hand. See also the collection of flints in the Rail-case A, facing the second compartment.

Nos. 150 to 170.—Twenty opaque flint-flakes of the largest size, some honey-yellow, and all more irregular in outline than the generality of such objects. Of these, Nos. 150 to 165 were "found six feet under the present bed of the river Bann, lying, with several others, in one mass, on the old, or former gravel-bed of the river, not far from Toome Castle, and on the county of Antrim side." Nos. 166 to 168 "were found, with several others, deep in the bed of the river at Portglenone;" and Nos. 169 and 170 "were excavated at Portna Shoal, from one to three feet under the surface, on the Antrim side." All these twenty flint-flakes were collected by Charles S. Ottley, Esq., District Engineer to the Drainage of Lough Neagh and the river Bann, and were—*Presented by the Board of Works.*

Shelf I., *Tray* **B**, contains one hundred and six flint-flakes (from Nos. 171 to 276), which here assume somewhat of a spear or knife shape, having a sharp point, generally straight and double-edged, with a broad base, but still retaining the triangular character in section. Most of these show but little evidence of tooling or han-

dicraft beyond the circumstance of the adroitness with which they were cleft from the original core or flint mass; but Nos. 176, 179, 182, 188, 198, 208, 209, and 216, particularly, show the process of chipping at the edge, and a certain amount of tooling. The flints on this Tray vary in length from $1\frac{3}{4}$ to $4\frac{7}{8}$ inches, and in breadth from $\frac{3}{8}$ths of an inch to $1\frac{1}{2}$ inches; some of them may have been attached to handles, and used as weapons. They formed a part of the Oldham Collection mentioned at page 9, and were nearly all discovered in the county of Down. Most of them are opaque, some apparently of an inferior quality of flint; about a dozen are of a dark orange or honey colour.

No. 207 is an arrow-shaped flake of Lydian stone, or what is termed black chert—an impure flint found in the central portions of the Carboniferous Limestone of Ireland, and at the base of the Kilkenny Coal formation. It is of a dull dark colour, approaching to black, is more opaque, brittle, and stone-like than flint, never possesses the same translucency, and does not so readily chip into conchoidal fragments. But, next to flint, it is one of the hardest of the siliceous rocks, and hence was used occasionally for forming tools and weapons by the inhabitants of those districts where flint was rare. There are a few beautiful specimens of this material to be found amongst the Flint Collection of the Academy's Museum. See, in particular, No. 286. *Lapis Lydius*, or, as it was denominated by the old Dutch writer, De Boot, so long ago as 1647, *Lapis Hibernicus*, is the true Touchstone of the ancients, and its power of gold-testing can be exhibited in these specimens of arrow and spear-heads; yet it is remarkable that, although there are several other stone implements preserved in the Collection equally capable of testing the purity of gold, and apparently serving no other purpose than that of Touchstones, we do not find among them a single specimen of Lydian stone.

Shelf I., *Tray* **C**, contains sixty-six articles, numbered from 277 to 342. They are of the broad-bladed, leaf, or trowel-shaped knife pattern, but in some specimens approaching that of the triangular arrow-head. They are generally sharp for about three-fourths of the edge on both sides, and vary in size from $2\frac{1}{4}$ inches long, and $1\frac{1}{4}$ broad, to $4\frac{1}{4}$ inches long, and $2\frac{1}{8}$ broad. Although the great bulk of these were evidently thrown off the original cores in shapes very nearly

approaching their present, yet very many exhibit the process of the secondary manufacture, particularly those on the second row; so that, although several articles on this Tray appear to be crude flint-flakes, the Art had evidently commenced, but had not attained perfection in any of them. In the great majority of these specimens the upper side shows a ridge running from the base to the point; but in all those of the second row, from Nos. 285 to 292, the back shows three faces, owing to a scale having been taken off the middle ridge, but whether previous or subsequent to its removal from the mother mass, cannot be determined with accuracy. Some of these,—as No. 277, here figured two-thirds the full size,—are in the natural state all round the edge, but chipped or hammered into a tang or handle-shape at the bottom. This stalk-like projection exhibits one of the first signs of manufacturing skill in this department; by it these implements might, as tools, have been fitted into hafts of wood, horn, or bone; or have been attached to long handles, and used as spears or javelins. No. 285, and all others in that row, were chipped round the edges, thus forming another step in advance towards the perfect arrow or spear-head; but, like the specimens on Trays **A** and **B**, all these flints show, upon their under surface, the natural conchoidal fracture; and from Nos. 326 to 334 are so attached to the Tray as to exhibit that peculiarity. No. 286 is of Lydian stone.

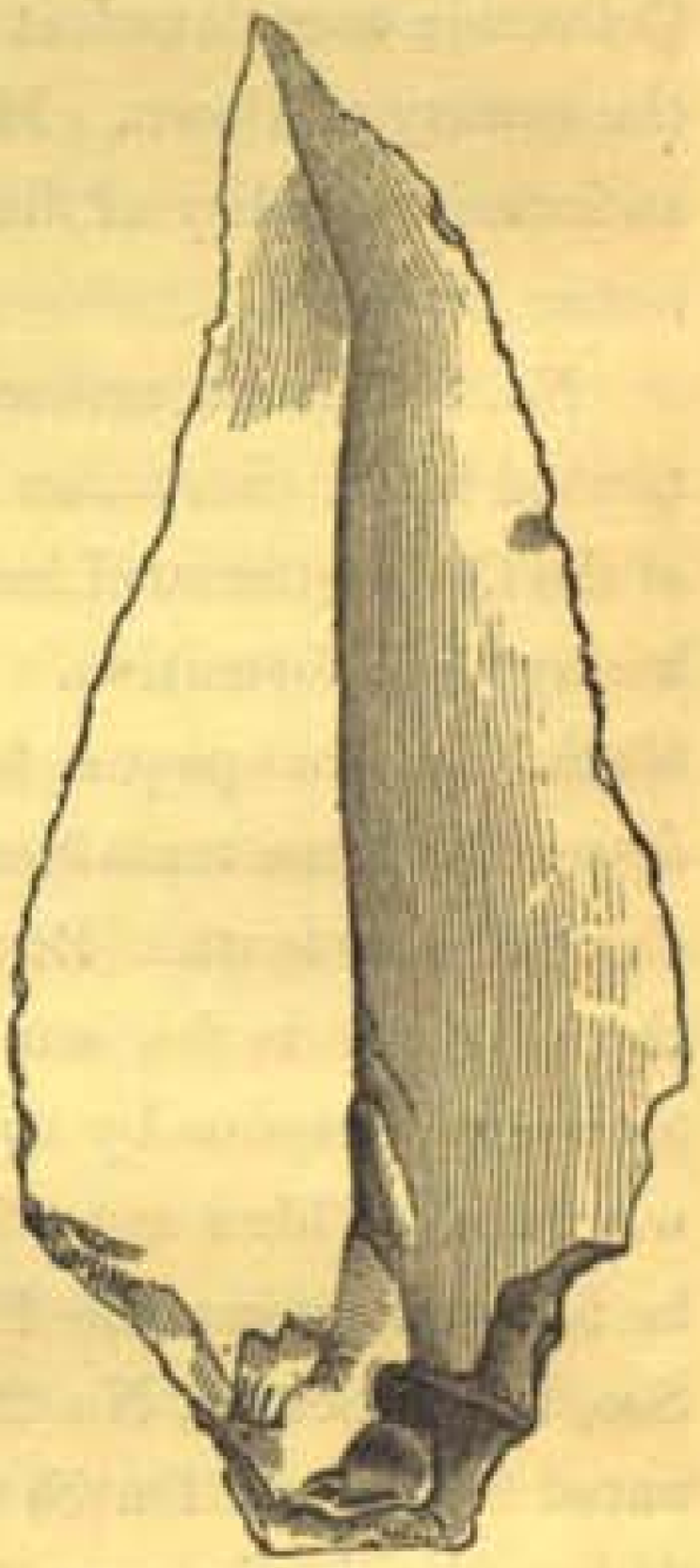

Fig. 3. No. 277.

We now approach a more advanced stage in handicraft and design. Three forms of manufacture are apparent in the foregoing and in the following flint articles. First, *Splitting*, which was done by a simple stroke, not always effective, perhaps, and occasionally producing irregular, ill-shapen portions, but sometimes forming very perfect tools and weapons, of which abundant samples have been afforded in the three fore-

going Trays. These implements were formed at once, either by a stone used as a hammer, or were cut off by a stone chisel or celt, and given their definite shape and required sharp edge by a single blow,—the latter necessarily accidental, but much more requisite than the former. The examples on the foregoing Trays show this form. Second, *Chipping*, which was performed as a secondary operation upon some of these flint-flakes, and apparently by a succession of slight taps, or gentle but well-directed blows with some sharp-pointed tool, probably a flint-spike. At first but one side (the ordinary convex one) was chipped, and then, in the more perfect implement, both sides were thus manufactured. None but the best semi-transparent, horn-coloured flint appears to have been susceptible of this amount of work, and therefore such only displays the perfection of the chipping process, in which, by repeated blows, bit after bit was flaked off, until the piece assumed the defined shape of the knife, spear, or arrow-head. The third stage was that of *Polishing*, by rubbing the flint, previously chipped into form, on a smooth, flat surface of hard stone. See Nos. 490, 935, 936, 937, and 953.

Such was the perfection attained, and the amount of artistic skill arrived at, that one is induced to believe that flint-chipping was a special trade. The gun-flint maker's art, while it gives some clue to the ancient manufacture, yet falls far short of what could, in ancient times, be achieved in this trade; and our wonder in examining some of these highly manufactured flints, particularly among the arrow-heads, is still more increased when we consider that they were nearly all formed by another stone; although some may, in later times, have been trimmed by a metal tool. The only implements in the Collection which could, so far as we now know, have scaled off, by delicate touches, these fine chips, are the long-pointed flint picks and punches shown on Tray **M**.

Shelf I., *Tray* **D**, exhibits a collection of seventy-seven flint articles, from Nos. 343 to 418, showing, in all its stages, the secondary

process of manufacture, or that of chipping, of which No. 343, figured below, one-half the natural size, is a good example. The great majority of these specimens are of the dagger or knife-shape, and some of them have been tooled all round, and upon every surface, so as to present a triangular section: of this class, see specimens Nos. 347, 351, and 355. All those in the three top rows are highly tooled. No. 349 has the chipped edge most delicately serrated. Four specimens on this Tray are of a dark orange colour. No. 362 is of a bottle green, and No. 363 of a peculiar lake-red colour. No. 357 is one of the nearest approaches to a flint dagger of any object in the Collection; showing a rude attempt at a shoulder and an indented handle. Placed longitudinally in the centre of this Tray will be found eight specimens of knife-shaped implements, the most perfectly formed and the most elaborately wrought of any we have yet examined, and of which the accompanying illustration, Fig. 5, gives a very faithful idea; in fact, the second process, or that of repeated chipping, was brought to perfection in them. This illustration, two-thirds the natural size, drawn from No. 378, is the most perfect of the curved flint knives, or scrapers, in the Museum, and resembles in shape, although it is much inferior in size, some of the flints in the Scandinavian Collection. The figure drawn from

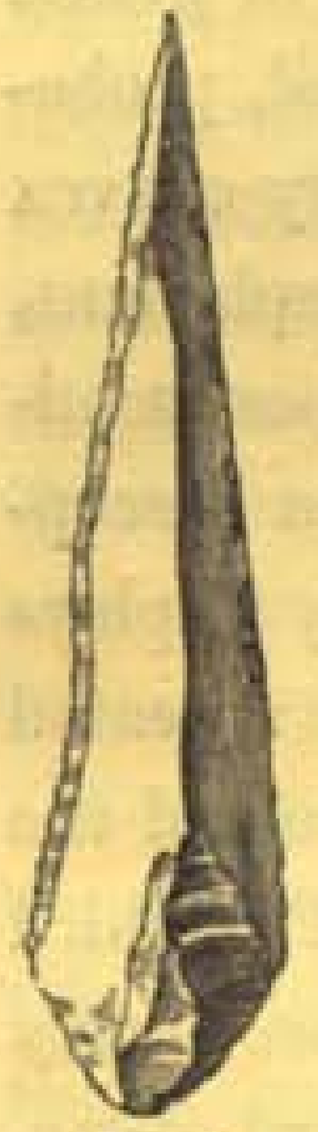

Fig. 4.
No. 343.

Fig. 5.
No. 378.

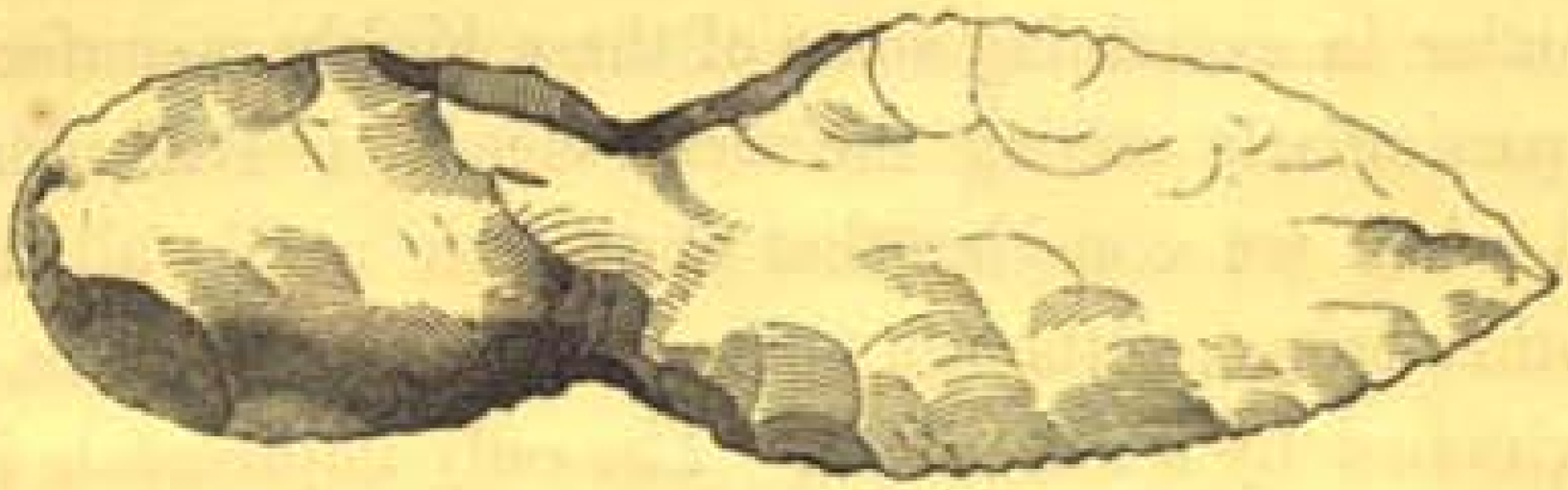

Fig. 6. No. 385.

No. 385, and of the natural size, is the most perfectly-shaped knife of its kind which has yet been found in Ireland, or, as far as we know, in other countries; both it and the former, Fig. 5, still exhibit, on the under surface, some remains of the conchoidal

cleavage; but No. 343, Fig. 4, which resembles some of the leaf-shaped arrows, is chipped all over on both faces.

On the sixth row are arranged nine knife-bladed articles, from Nos. 386 to 394,—right and left-hauded, five for the right, and four for the left; the majority of these are of reddish-coloured flint; they have been chipped on both sides, although the natural face has been, to a certain extent, preserved on the concave aspect. The greater number of them are $1\frac{3}{4}$ths of an inch long. Fig. 7, No. 390, is the natural size. Had there been but one or two of these objects found, it might be supposed they were accidental, or defective arrows; but an examination of the nine specimens of the same variety will convince the inquirer to the contrary.

Fig. 7. No. 390.

The seventh and eighth rows, from No. 395 to No. 414, are manufactured specimens approaching the arrow and spear-shape, and have been elaborately chipped. The last row contains four large flint-flakes of an oval shape, averaging 3 inches long.

Flint knives, owing to their natural curvatures, could not have been effectively employed as projectiles, and must, therefore, have been principally used as tools; although fitted into handles of wood, bone, or horn, they may have served as daggers. Among primitive nations the transition from the tool to the weapon is but slight; in fact, the same article must have served the common purpose, the hammer being used as a war-mace, the hatchet as a battle-axe, and the long knife, or skeine, as a dagger; as in the present day the tomahawk of the Indian is used for the triple purpose of tool, weapon, and pipe. Flint and stone tools and weapons, although indicative of the most primitive art, and originally belonging to the earliest state of society through which man has passed, have, in some instances, been found in connexion with metal articles, and under such circumstances as leave no doubt of their having

descended to much later times than those to which it is usual to assign to them. The transition between the Stone and the Metal period must have been so gradual that it would be impossible to fix the definite limits of either, and therefore unsafe to attempt a chronological classification based thereon. In several of the earliest sepulchres we find small flint knives and stone chips among the incinerated bones deposited in sun-baked clay urns. An example of this kind may be seen in the collection of articles found in the cromlech discovered in the Phœnix Park (see Class II.)

How many of the flint implements, tools, or weapons in the foregoing series, as well as those on the following Tray, may be considered as fully formed, or were only in process of being chipped into some more definite shape, such as the spear or arrow-head of the next series, must be matter of conjecture; but it is quite manifest that upon many of them the manufacture has not been completed; thus, between the simplest flaked knives and the most elaborately manufactured spear or arrow-heads, we find a large collection of rude flint objects only partially formed, and which either indicate a very primitive state of art, were discovered, on working, to be defective, or were thrown aside accidentally.

SHELF I., *Tray* **E**, contains seventy-five flint specimens, numbered from 419 to 493. Of these, thirty on the three first rows are comparatively rude flakes of the medium size, and measure from $1\frac{3}{4}$ by $\frac{3}{4}$ths of an inch to 4 inches by $1\frac{1}{4}$. They are mostly of the knife-shape. Upon the fourth row there are eight articles of a very unusual shape, and numbered from 449 to 456, presenting the appearance of a circular disc, with a prolonged handle, not unlike a short spoon. See, especially, Nos. 453 to 456. Their use has not been determined; neither is it known whether this shape was designed by the artist to be finally retained, or whether it was

Fig. 8. No. 454.

only a formative process towards a more perfect development. Similar objects have been found in Denmark. See *Afbildninger fra Det Konigelige Museum for Nordiske Oldsager i Kjöbenhavn af J. J. A. Worsaae*, s. 15, fig. 60.

Upon the remaining rows of this Tray are thirty-seven circular discs of flint, varying in diameter from 1 to 3 inches. Each is about ½ an inch thick, with the exceptions of Nos. 460 and 469, which are probably cores, or worked-out spuds, similar to those with which the series of flint articles was commenced. (See Tray **A**, and also p. 8 of this Catalogue). They are all, with one exception, roughly chipped upon the upper side, and some on both sides, but the majority present upon the under surface the usual conchoidal fracture of the cross of the flint mass. These, it has been conjectured, were intended for sling-stones, although such an hypothesis is not borne out by any recorded fact.

SLING-STONES.—That sling-stones were generally employed by early nations long after they had become acquainted with the use of metal, and had attained to great perfection both in arts and literature, we have the evidence afforded by the history of the combat between David and Goliath; and that such weapons were used by the early Irish, we learn from some incidental references to them in our ancient histories. Thus, Kethlenn, the wife of the Dagda, killed Balor of the one eye, with a stone thrown from a sling, at the battle of Moy Tuiredh, fought before the Christian era; and Keating, quoting from the Bardic Records, relates the story of an Ulster prince named Furbuidhe, who was so expert that he could, at a great distance, strike an apple off a stake with a stone cast from a sling: and eventually slew Meave, Queen of Connaught, by a stone slung at her across the Shannon, when she was bathing near Innis-Clothran. The Dinnseanchus records the fact of the poetess Dubh having been slain by a stone cast from a sling, when she fell into the Linn, or dark pool of the Liffey, and hence the place was said to have been called from her Dubhlinn (see also Gilbert's "History of Dublin.") The ancient Irish warrior carried a stone in his girdle—the *Lia Miledh*—to cast at his adver-

sary: but how this was done, whether it was a sling-stone or a celt, we as yet know not. Finally, we read that when the celebrated chief, Cuchulann, went in his chariot from Tara to the Boyne to fish, he brought with him a number of stones to fling at birds.—*Harleian MS.* 5280, *British Museum.*

While the smooth water-worn oval pebble, picked from the brook or the beach, was always ready to the hand (although it would scarcely be preserved, or be subsequently recognised), yet stones may have been specially formed and shaped for the purpose of slinging, in order to insure a more certain and deadly aim,—like the ball of the Minie rifle. Antiquaries have assigned the name of sling-stones to a great variety of stone articles, but, as is proved in many instances, without sufficient foundation. It is evident that much time was spent in shaping those flint discs upon Tray E, two of which, Nos. 466 and 467, have natural or accidental holes. Similar circular or oval stones are to be found in most Celtic collections. Whatever was their use, it must have reached perfection in that, here figured one-third the natural size, No. 490. It was originally highly polished all over, and evidently formed with the greatest care both as respects its shape and finish, but several bits have been chipped off it, apparently from accident or use. It measures three inches in diameter, and is three-quarters of an inch thick in the centre. Other stones of a peculiar oval shape (see those in the Miscellaneous Collection, Rail-case B), are also believed to have been used as sling-stones; and among the brass objects will be found a mould for casting pellets, apparently for the same purpose.

Fig. 9. No. 490.

Arrows.—Whether the perfect spear, dart, or javelin of flint fastened into a long handle, and thrust, or thrown by the hand, or the true arrow-head of any shape projected by the bow, was the primitive weapon, is matter of conjecture. The latter is the more complicated weapon, and in its formation mani-

fests an equal degree of art, and greater delicacy of handicraft; while the former shows, in addition to the chipping into figure, that polishing of its sides which has already been referred to as the third, or final process in the perfection of flint manufacture. Such objects have, therefore, been assigned a more advanced position in this collection. There can, however, be little doubt that the arrow and the javelin existed contemporaneously. (See the flints in Rail-case A of this Gallery). Again, some of the largest of the arrow-shaped flints far exceed in size the javelin points, and were probably used as hand-weapons. In those parts of the country where arrow-heads are usually found, they are almost invariably denominated "elf-darts."*

Arrow-heads of flint may be classed under five varieties, as shown on Trays **F**, **G**, **H**, and **I**. They have been chipped with great care; but none of them are polished. The arrow, it may be remarked, shows the perfection of chipping; the spear, of polishing. In arranging each variety, the rudest form has been placed first. These varieties, as shown by the accompanying illustrations, all figured the natural size, consist of:—First, the Triangular, arranged on Tray **F**, figures of two of which are here given, the natural size. After passing through a series of developments, this arrow first becomes slightly curved at the sides

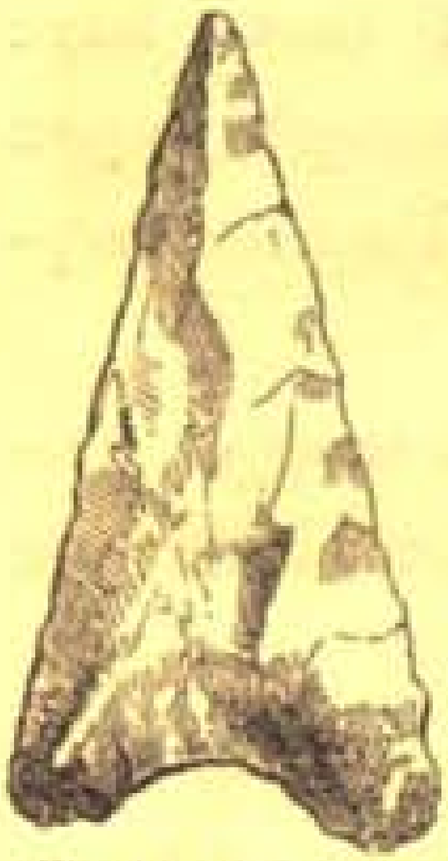

Fig. 10. No. 514.

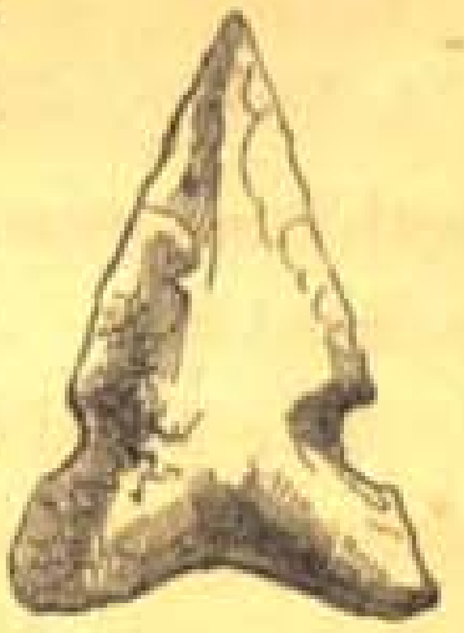

Fig. 11. No. 523.

* To these arrow-heads, called, particularly by the Northern peasantry, "elf-darts," or "elf-stones," are attributed certain superstitious powers. Thus, when cattle are sick, and that the cattle doctor or fairy doctor is sent for, he says the beast has been "elf-shot," or stricken by fairy or elfin darts (just as in Connaught and Munster they say it has been "overlooked"); and forthwith he proceeds to feel the animal all over, and by some legerdemain contrives to find in its skin one or more poisonous weapons, which, with some coins, are then placed in the water which it is given to drink, and a cure is said to be effected. This is a very old and wide-spread piece of folk-lore.

for holding the string which attached it to the shaft, Fig. 11, a variety common in the present day among the American Indians. It was then hollowed out at the base, to such an extent that in process of time it assumed the indented or Second variety of this series (Figs. 12, 13, and 14, all of dark honey-coloured flints), the perfection of chipping in some of the small specimens of which is truly marvellous. Upon reviewing the flint-flakes and rudely formed weapons and tools, we see that many arrow-shaped portions have been thrown off by the natural fracture; but all these have the usual curved cleavage on the under side; while those we now deal with are not only chipped at the edge into a more definite shape than the former, but most of them have been wrought upon both faces by repeated and well-directed blows of some sharp-pointed tool.

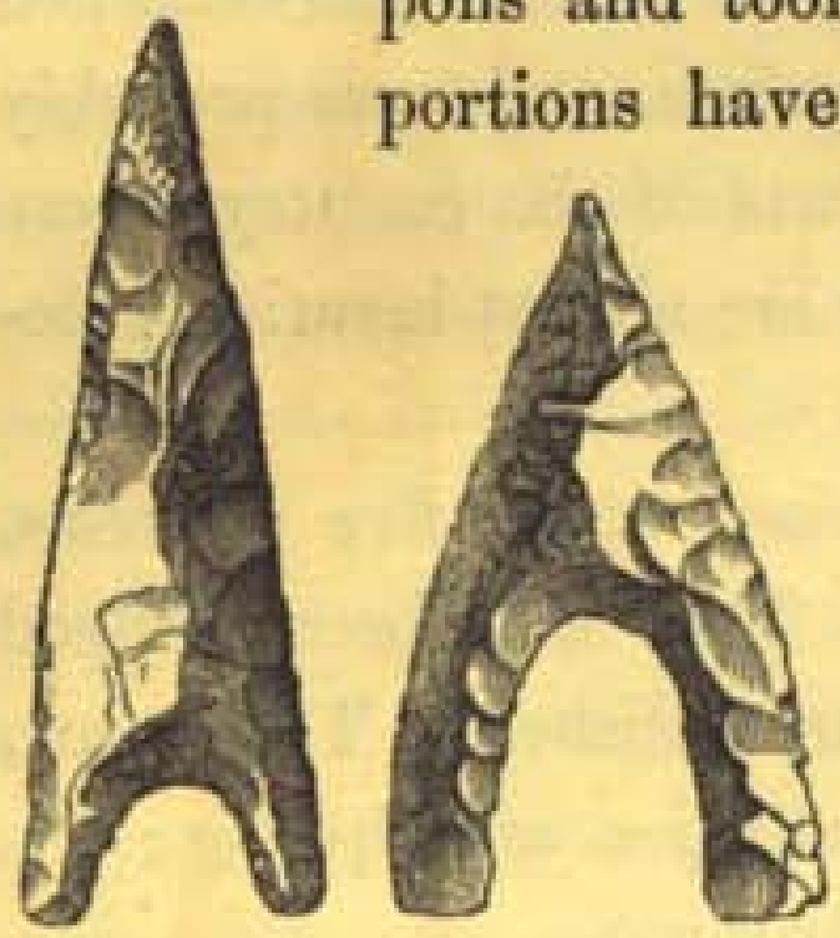

Fig. 12. No. 552.

Fig. 13. No. 584.

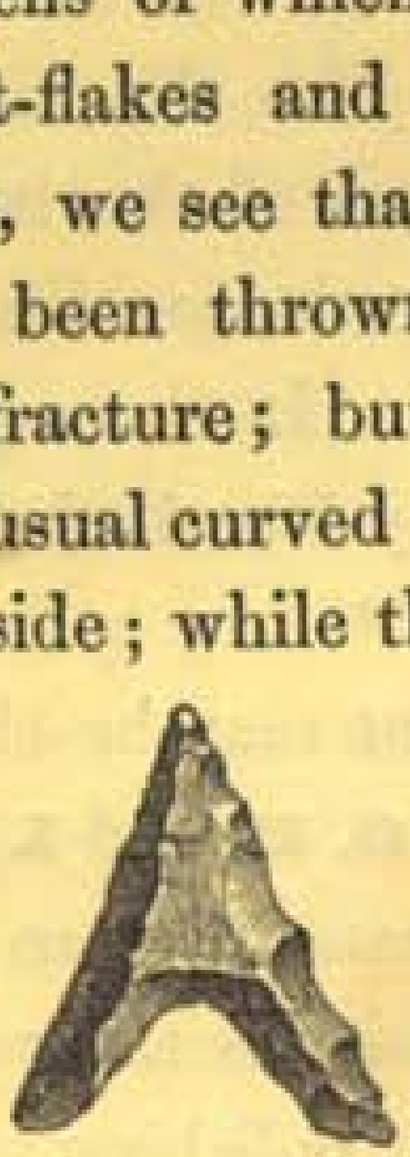

Fig. 14. No. 555.

The Third is the Stemmed Arrow, having a tang or projection for sinking into the shaft, and the wings on either side of which gradually bend into the "broad arrow" shape. Specimens of this class are arranged, for the most part, on Tray G, of which the accompanying representation, Fig. 15, serves as the type. Of this class, we possess in the Collection a remarkable example serrated upon the sides and edge, and here figured the natural size, Fig. 16. Flint implements of the jagged or saw character, although common in collections of Scandinavian Antiquities, are very rare in Ireland.

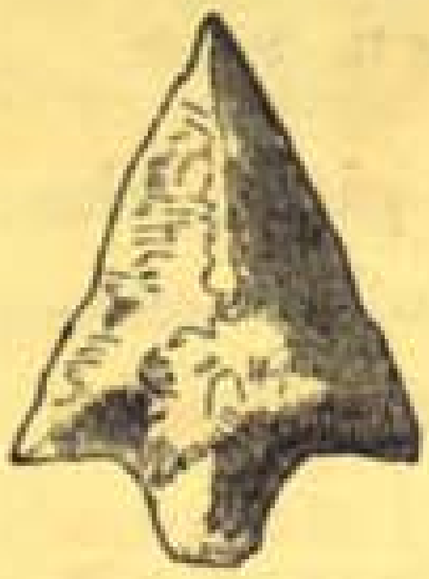

Fig. 15. No. 611.

Fig. 16. No. 688.

As we glance over the series of arrow-heads of this variety, we perceive specimens, Nos. 657 and 658, which approach the size usually attributed to the spear or javelin, and which, from their weight and magnitude, would, when affixed to a properly balanced shaft, appear too large and too heavy to have been projected by a bow, even when strung by the

Fig. 17. No. 658.

Fig. 18. No. 657.

lusty arm of a hardy Celt. The accompanying illustrations, drawn of the natural size, afford a good idea of these weapons. The broad one, Fig. 17, is a flint, and bears some slight traces of polishing; the narrow, Fig. 18, is of very dark Lydian stone, but showing a sufficiency of conchoidal fracture on its surface to establish its flinty character.*

* The engravings, Figs. 15, 16, 17, and 19, are from stereotypes of the wood-cuts attached to Mr. Du Noyer's paper in the "Archæological Journal," vol. vii. p. 282; they are, therefore, not so fine in the printing as the other illustrations of this class.

By prolonging the wings until they extended as low as the central stem, the Fourth variety was attained, or what may be denominated the true Barbed Arrow, many beautiful specimens of which are presented on Tray H. The wings or barbs of this variety became, it would appear, in time, so much prolonged and indented, as to present the shapes of these elegant specimens shown in the three accompanying figures, drawn the

Fig. 19. No. 716. Fig. 20. No. 724. Fig. 21. No. 725.

full size, the last of which, with a prolonged point, is the only example of the kind in the Collection.

The Fifth variety is the Leaf-shaped, Fig. 22, generally very thin, and chipped all over with great care. (See Tray I.)

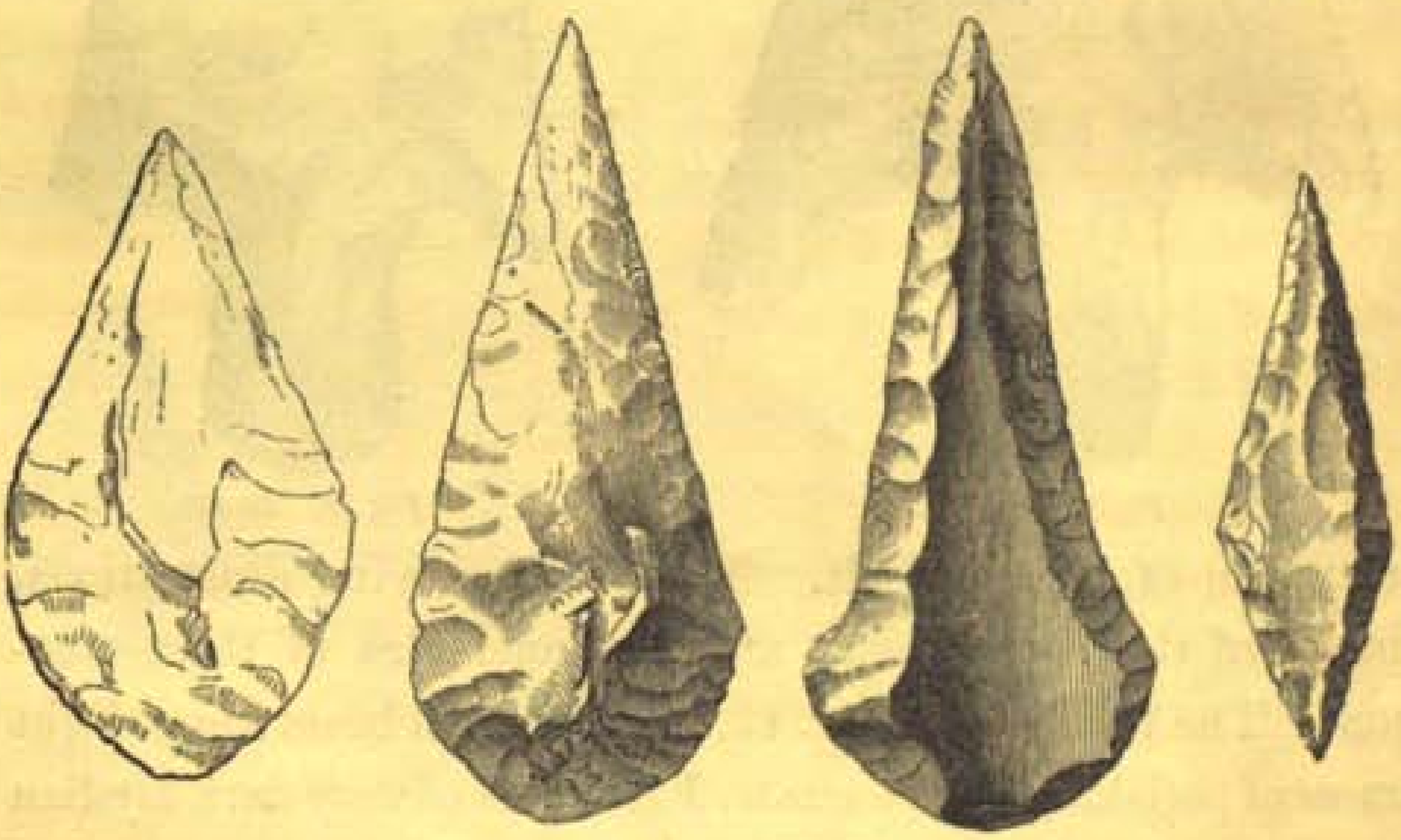

Fig. 22. No. 771. Fig. 23. No. 851. Fig. 24. No. 848. Fig. 25. No. 837.

It is much more simple in shape than any of the foregoing; but we have thus placed it at the end of the series, because it leads to the final and most perfect flint manufacture of

the weapon class—that of the Spear. The difference between the leaf-shaped arrow and the spear consists, not merely in the size, but in the outlines of the latter being almost straight. As, however, we pass down the series, we find some specimens of this variety of arrow-heads, especially Nos. 837, 848, and 851, which, although small, approach the spear-shape, as may be seen in the foregoing illustrations, figured the natural size, on the opposite page. See Figs. 23, 24, and 25.

SHELF I., *Tray* **F**, contains ninety-seven specimens of the first variety of arrow-heads, numbered from 494 to 590; commencing with the simple blocked-out form or type on the two first rows, which gradually assumes the perfect shape, as shown in No. 516. The first row instances the primitive attempts at the formation of the triangular flint arrow-head. No. 495 was discovered at Whitechurch, and No. 506 at Stradbrooke, county of Dublin, and were—*Presented by Sir William Betham.*

No. 511 represents the rude flint mass of the Triangular Arrow, a perfect example of which is seen in No. 534. Each of these is $2\frac{3}{4}$ inches long; and the latter object so exactly resembles the large shark's teeth occasionally found in a fossil state, that one would think it had been moulded from such, or, at least, that the idea of this form was suggested thereby. Nos. 514 and 523 are those engraved, as figures 10 and 11, on p. 19. The latter is indented on the sides, and is of exceeding rarity. No. 534 shows the commencement of the process of chipping, as well as the deep indentation given to the base. Nos. 513 and 572 are of very transparent flint, a variety which is occasionally found upon the Antrim coast. Some other specimens on this Tray appear to be of the same material, but of inferior quality. Nos. 552, 584, and 585, are represented on p. 20.

SHELF I., *Tray* **G**, contains eighty-one specimens of the Stemmed Arrow, the type of which is represented as the third variety on p. 20. The numbers run from 591 to 672. All those on the first row, except Nos. 595 and 596, are either very rudely chipped, or have been left imperfect. Nos. 599 and 604 present a very peculiar shape, not seen in any other examples of the arrow class; and No. 605 is of a perfect heart-shape, thick in the centre, and resembling a

modern ornament. The four dark-coloured specimens, Nos. 620, 631, 650, and 657, are of Lydian stone. The first articles on this Tray show the early process in the manufacture of this thin variety of arrow, which reaches perfection as we pass down the series of very beautiful specimens to the end. No. 606 is the largest specimen in the Collection, being 4¼ inches long, and was evidently in process of formation either as a spear or arrow-head—probably the former.

No. 655, together with several others arranged in the bottom row, have been very minutely and beautifully serrated on their edges. No. 658 was—*Presented by Lord Farnham;* and No. 660, with some others of a similar form, were—*Presented by the Representatives of Leslie Ogilby, Esq.*

Shelf I., *Tray* **H**, extending from Nos. 673 to 755, contains eighty-three specimens of arrow-heads of the fourth variety, in which the wings or barbs were prolonged as low as, and sometimes lower than, the central stem; the typical illustrations of which, figured on p. 22, are here numbered 716, 724, and 255. The size of the specimens on this Tray vary in length from 3 inches to ¾ths of an inch. No. 688 is the serrated specimen figured on p. 20.

Shelf I., *Tray* **I**, contains one hundred and ten specimens of arrow-heads, or small dart or javelin-points, numbering from 756 to 857, of which Nos. 771 and 851, figured on p. 22, are the types of this variety. No. 761 is a piece of transparent flint of a lozenge-shape, showing, on its surface, a somewhat different fracture from the usual conchoidal cleavage of flint; and No. 807 is a mutilated specimen of the same character.

While the form of the myrtle-leaf is that observed in the outline of the great majority of these specimens, we find it vary as we pass down the series, until, in some instances, it assumes that of a lozenge, and in others has a keel-shaped extremity, as shown by the examples given in Nos. 837 and 848, upon the two last rows in this Tray. See illustrations figured on p. 22.

Second Compartment.—Shelf I., *Tray* **K**, contains fifty-seven specimens, from Nos. 858 to 914. On the first row we find five flint articles, Nos. 858 to 862, which have attained the definite form of a weapon, somewhat between that of a spear and an arrow-head. Each is rounded at the base so as to form a truncated spear. Four of these are about 1½ inches in the longest direction; but one of them,

No. 860, here figured the natural size, is $3\frac{1}{8}$ inches in its longest diameter, and at its thickest part measures about half an inch. It has been chipped all over with great care, and has a sharp edge all round. This peculiar style of tool, or weapon, reached perfection in this specimen, which, whether used as a knife, arrow, spear,

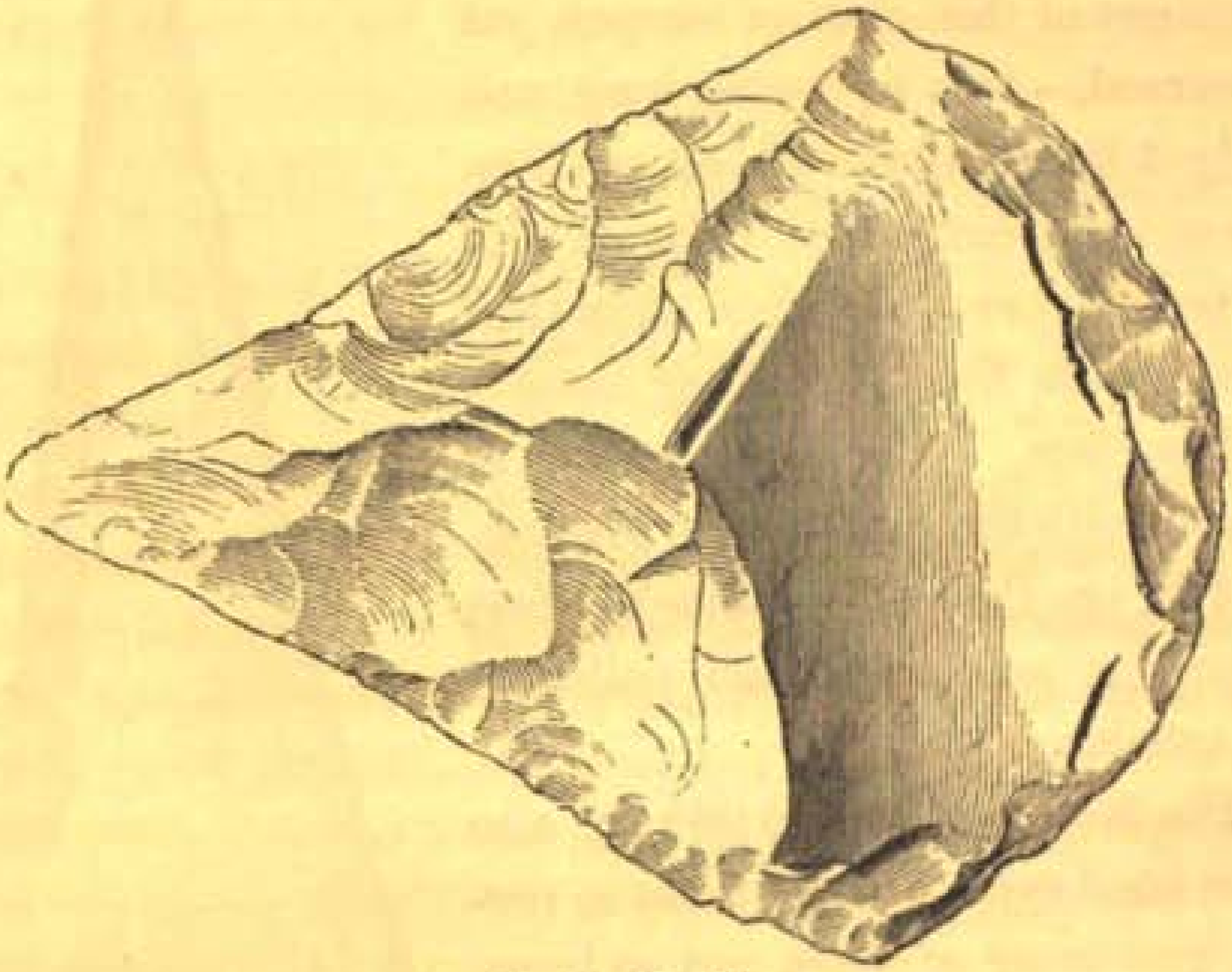

Fig. 26. No. 860.

or axe, was an implement of singular beauty of design, and exhibits great skill in the manufacture. The other articles on this Tray are chiefly of the lozenge-shape, and approach the form of the spear-head, with which the next series commences. They vary in size from No. 885, which is $4\frac{1}{2}$ inches long, and $1\frac{1}{2}$ broad, to No. 903, which is $1\frac{3}{4}$ths of an inch long, and $\frac{5}{8}$ths broad.

SPEAR-HEADS.—As already stated, it is difficult to draw the line of distinction between the large arrow-shaped flint weapon and the medium-sized javelin, or spear-head. Such weapons may have served the common purposes of both; but the spear, so far, at least, as we have the means of judging, was always flat, generally smooth and polished upon both faces, and in shape representing two unequal isosceles triangles placed on opposite sides of the same base. Upon Tray L we have a few fine specimens of this weapon, either perfect or in a

mutilated state; they differ from the arrow-heads in their flatness, thinness, polished sides, greater length, and straightness of outline. The accompanying illustration, here figured two-thirds the natural size, represents one of the finest specimens of this class of weapon yet discovered,—it is 6½ inches long, and nearly 2 broad at the widest portion. It was apparently first chipped into the proper form, and then smoothed down on the flat by rubbing upon a level surface. This description of weapon, with the exception of the disc, No. 490, on Tray E, exhibits the first attempt at smoothing and polishing flint articles.

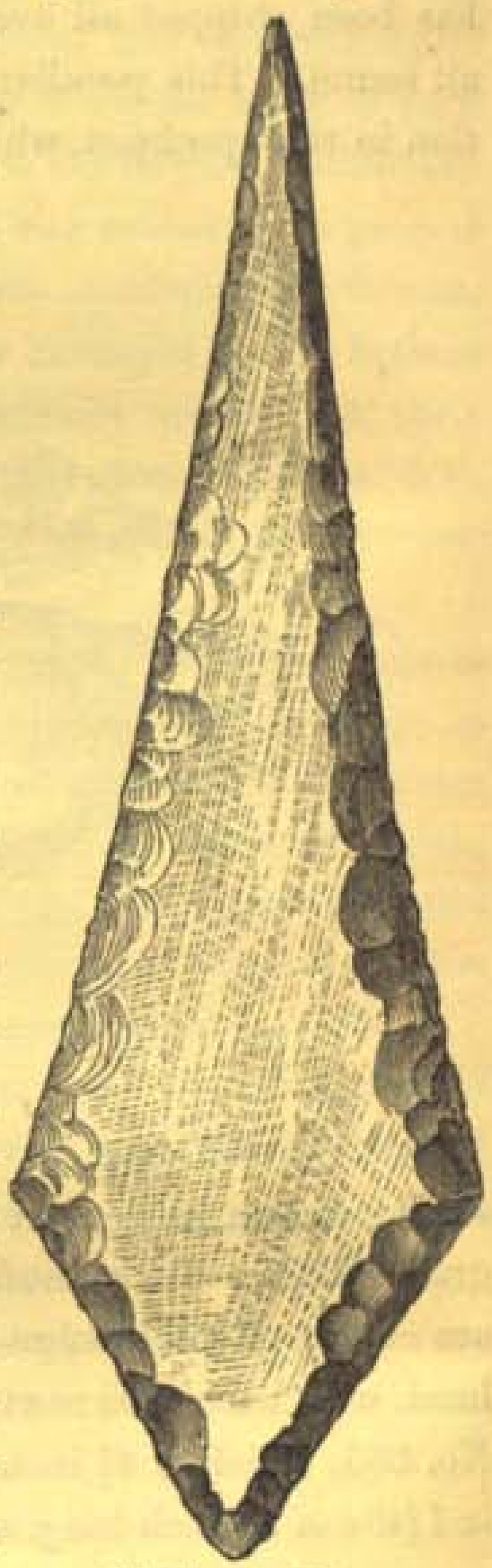

Fig. 27. No. 954.

The Nos. from 960 to 964 are also of the same type, although not so perfect, and some of them not so large. See likewise No. 1269, in the specimens from the county of Donegal tumulus in Rail-case A.

SHELF I., *Tray* L, contains fifty specimens of spear-heads, in all stages of development, numbered from 915 to 964. The three first rows, containing the objects from 915 to 934, show the first attempts in the process of spear manufacture. No. 915 is a rude flint-flake, found, along with other objects of a like nature (see No. 1262, in Rail-case A), in a large tumulus at Donaghanie, county of Donegal, and—*Presented by Arthur R. Nugent, Esq.* It is 4½ inches long by 2¾ broad. No. 916 was found in the parish of Tamlaght-o-Crilly, county of Derry. No. 918 is the most perfect example of the spear-head, in the rough state, of any in the Collection; it measures 6 inches long by 2¾ broad, and has been chipped all over. The flint mass was, however, defective, and this circumstance may have caused its rejec-

tion. As we advance toward the end of the third row, the form assumes the definite figure, as shown in No. 934; but the smoothing process, characteristic of this description of weapon, is first exhibited on Nos. 936, 937, and 938. No. 954 is that engraved on the opposite page. It was found in the county of Down, and was—*Presented to Dean Dawson by Mr. A. C. Welch, of Dromore.*

SPECIES II.—FLINT TOOLS.

Picks.—Having thus disposed of the various flint weapons and weapon-tools, from the simplest to the most complex and elaborately wrought implements; and having endeavoured, by arrangement, description, and illustration, to explain the process and art employed in their formation,—we now come to the consideration of those specimens that assume a more decided tool-shape, in the form of Picks, punches, points, chisels, or celts. Flint alone could, from its hardness, have been formed into a sharp-pointed tool, such as that here represented, Fig. 28, one-third the natural size; and all the specimens of which are arranged on Tray **M**. It is, together with the other articles of a like variety, of a dark-gray, close-grained material, carefully chipped into its present state; and as no specimen has been discovered in a more finished condition, it is, perhaps, the perfect instrument of its kind—the accuracy of the sharp terminal point being the object endeavoured to be attained. Held in the hand, it was probably used like the modern steel millstone pick, and employed in the execution of those finer kinds of workmanship displayed on the spears and arrow-heads. Although tapering at both ends, we invariably find one extremity with a finer point than the other. These may have been alternately pointed as they became blunted by use. A few tools of this class have narrow chisel-points.

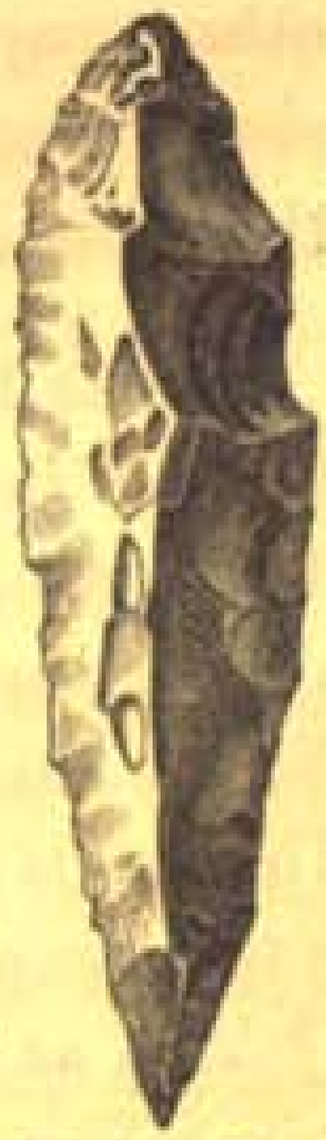

Fig. 28. No. 4.

Next comes the Flint Chisel, approaching in form, but not altogether taking the shape of the stone celt, and being in-

variably polished for a short distance round the cutting edge, which is usually a segment of a circle,—the remainder of the tool being left in the rough state, as it would cost much time, and great labour, to smooth so hard a material all over. These implements are invariably of the hardest flint, mostly yellow or orange-colour. No. 27, of the chisel variety, is a unique specimen (so far, at least, as regards this Collection) of semi-transparent horn-coloured flint, mottled with dark dendritic spots, caused by oxide of manganese, and resembling the so-called moss marks in agate. The accompanying illustration, Fig. 29, represents one of these celt-shaped tools which may have been used as cutters and carvers of wood, bone, or leather. This instrument, which is 3¼ inches long, by 2½ broad, could only have been employed effectively when fitted into a handle; but several others, upon Tray **N**, might have been used by the unassisted hand. Similarly shaped cutters will be found among the stone celts. See Nos. 130, 131, and 133, Tray **Y**.

Fig. 29. No. 24.

Shelf I., *Tray* **M**, contains nineteen articles, numbered from 1 to 19, of the sharp pick or punch class, described in the foregoing. The largest, No. 1, measures 10¼ inches long, and 2¼ inches broad: although approaching the form of a spike, it is blunt at each end. No. 2 is sharp at both ends; it is 7¼ inches long, and 1½ inch broad. The next is about the same length, but somewhat thicker; and No. 4 is that figured on p. 27. It is three-sided, is 6 inches long, and 1⅝ths of an inch wide at the broadest portion. The upper extremity is blunt, but the lower comes to an exceedingly sharp triangular point. Upon the second row there are four chisel-pointed and wedged-shaped tools of the same character. No. 8 is a dark honey-colour. The third row contains five implements, the first of which is a rude, wedged-shaped tool, 3½ inches long. No. 10 is a rude point, formed of the outer scale of a flint mass. The three next numbers are similar to those in the first row, but of smaller dimensions. No. 12, of dark cream-coloured flint, is a very perfect, elliptically-shaped tool, pointed at both ends, and 4½ inches long. On

the last row are the smallest of this variety of tool; and No. 17, which is only 3½ inches long, is very perfect in shape, and resembles that figured as the type of this class. No. 18 was found near Ballinderry, King's County, and—*Presented by W. F. Barton, Esq.*

SHELF I., *Tray* **N**, contains nineteen specimens of flint tools, of the celt species, extending from No. 20 to No. 38. The two first are small, celt-shaped flints, the first rough, and the second polished at the edge. Nos. 22 and 23 are of the same character, but of a larger size. No. 24 is that engraved on p. 28. No. 27 is 4¾ inches long, and formed out of that beautiful specimen of greenish, semi-transparent flint described on page 28. The largest of these tools, No. 38, is 7¾ inches long, by 2¾ broad; while No. 20 is but 1¾ths of an inch long. Some of these, as No. 23, are flat at one end, and may have been broken off either in the making or by use.

The flint celts, or chisel-celts, commence here with the smallest of this variety of tool, and extend to No. 37, which is of the true celt shape. It is smooth over the entire surface, but is only highly polished at the cutting edge. Nos. 25 and 36 are of Lydian stone; the former is evidently unfinished, and does not present any cutting-edge; the latter was found in the county of Meath. Nos. 24, 34, and 37, were procured from the county of Derry. Nos. 29 and 32 were—*Presented by Lord Farnham.*

In the RAIL-CASE A, opposite the second compartment, will be found (with the exception of the hammer-head, No. 7, on Tray **II**, and the bead No. 2, on Tray **PP**), the remaining specimens of flint in this Collection, consisting of 248 flint-flakes, or partially formed weapons and tools, purchased with Professor Oldham's Collection, but which it was not thought necessary to distribute through any of the Trays. Some of these exhibit the manufacturing process, and may be considered as knives, arrows, &c., in the secondary stage of formation. A continuation of the numbering on Tray **L** (964), added to the 38 articles on Trays **M** and **N**, and these 248 flakes, increase the aggregate enumeration of flints up to this point to 1252. Nos. 1253 to 1258 are six crude flint masses recently procured from the county of Antrim, through the kindness of R. Patterson, Esq., of Belfast. They present specimens of the different kinds of flint of which the ancient weapons of that material in the Collection were formed. No. 1259 is a flint mass, found in a crannoge in Loughlea, county of Roscommon. No. 1260 is a

large, natural flint, resembling a knife in shape. No. 1261, a very beautiful flat flint celt, 8½ inches long, and—*Presented along with the Library of the late W. E. Hudson, Esq.* Nos. 1262 to 1269, eight flint articles, discovered in a tumulus in the county of Donegal, with other stone implements, and—*Presented by Arthur R. Nugent, Esq.*; of these, No. 1262 is a large curved flint knife, imperfect, but originally about 5 inches long, and 2¾ broad; it is chipped all over on the convex side, is of a similar character to, although much larger than, Nos. 415 to 418, on Tray **D**. No. 1263 is a good specimen of the third variety of arrow-head (see Tray **G**). Nos. 1264, 1265, and 1266, specimens of the fifth variety of arrows. No. 1267, a specimen of the first variety of arrow. No. 1268 is a large, flat spear-head, in process of chipping: the most perfect of its kind in the Collection, having been, in all probability, just prepared for the polishing process. No. 1269 is one of the most beautiful specimens of flint spear-heads in the Collection, being even more elegant in its outline, and more truncated in the base, than 954, Tray **L**, figured at p. 26; it is slightly imperfect at the top, but is still 5 inches in length. With these was a small, perforated, four-sided sharpening stone, 2½ inches long (see Mr. Wilde's communication in Proceedings, vol. iii. p. 260). Nos. 1270 and 1271 are two arrow-heads of the second and fifth varieties, found in the excavations at Portglenone, in 1851 (see page 10). No. 1272, a very beautiful specimen of spear, or arrow-head of chert. Nos. 1273 and 1274, two arrow-heads, of the second and third varieties, from Ballyreagh, county of Antrim; the latter appears to have been acted on by fire. No. 1275, a piece of charred flint, one of eight articles, consisting of a bone bodkin, a thin scale of copper, and small pieces of stone, found mixed with fragments of human bones, in a large cinerary urn, discovered in a tumulus at the Hill of Rath, near Drogheda.—*Presented by Mr. W. Kelly* (See Proceedings, vol. ii., p. 261.)*

* In the Rail-case containing these flint articles will be found a number of specimens of obsidian, illustrating the process of weapon-making from flint as practised in this country in former times. They consist of six cores, twelve flakes, two spear and seven arrow-heads, all of obsidian; together with a small black celt, or chisel, probably used for flaking. These were procured from the island of Sacrificios, on the coast of Mexico, and were—*Presented by Edward Groves, M.D.* (See the Rev. Dr. Todd's communication, Proceedings, vol. iv., p. 371.)

This concludes the enumeration and description of the flint objects in the Collection, which now amount to 1275. As no allusion, of even the most remote and traditional character, to flint weapons, tools, or stone implements of any description, has yet been discovered in the searched Irish records, we must refer these objects to the very earliest period of the inhabitation of this island; but we are unable to connect them with any historic era or any particular people. They all belong to the pre-metallic period.

Among the uses to which flint and other sharp stone knives have always been attributed by writers, is that of Sacrifice; but so far as any documentary or traditional evidence relating to this country is concerned, we are not warranted in supposing that propitiatory sacrifices were offered during Pagan times, or, if they were, that flint or stone implements were employed in such usages. Funereal sacrifices appear to have been performed. That stone knives were used for sacrificial purposes in very early times, and in all countries, history leaves no doubt; but I am inclined to believe that as the forms of sacrifice, next to the rites of sepulture, were the latest retained by any people, and amongst those traditional usages in which all the details were longest preserved, the stone knives originally used, when there was no knowledge of metal, continued to be employed in later times, even when metal had become general; not so much on account of any supposed virtue in the stone, but because the usage was *old*, and the odour of sanctity attached to it; even as in the present day the operation of circumcision is performed by the Jews in many countries with a stone instrument;—and a reverence for the authority of the past influences the ceremonial, if not the spirit, of all religions.

Reviewing the flint weapons and tools already described, together with those of stone, of a somewhat similar character, now about to be enumerated, it is impossible to resist the conclusion that they all belonged to a people with industrial pur-

suits, arts, and habits of life identical with those tribes who, at one time, occupied the whole of north-western Europe and the other British Isles, as well as Erin. If they possessed a literature, the archæologist has failed to discover it; and so far as dim tradition lends its feeble light to aid us in the investigation, they appear to have been civilized from without. These propositions, if true, do not militate against the popular idea, first gleaned from the Bardic records and traditions, that Ireland was colonized by an oriental people; they only tend to prove the inhabitation of the island before the arrival of any such civilized colony.

These flint and stone relics, together with the sepulchral remains of the early races of this island, are to the antiquary what the footprints and fossil marks in geological strata prior to the present, are to the palæontologist, out of which he peoples, with plants and animals, a locality, long antecedent to its primeval inhabitation by man. They are the traces of the first wave of population—the pre-historic data which aid and confirm Bardic traditions. Certain it is, that oriental adventurers from some of the countries surrounding the upper border of the Mediterranean—the original seats of art and learning—passing in ships through the Pillars of Hercules, and coasting along the Atlantic-washed shores of Europe, never could have been a people trusting alone for support in time of peace, or for defence in war, to those rude flint and stone weapons and tools which accident has brought to light, and the labours of the antiquary have grouped together in this portion of the Collection. The men who trusted to the flake-knife, chisel, or arrow of flint, and the stone celt, although they might have crossed in their tree-stem canoes, or skin-covered corraghs, from the Continent of Europe to the nearest part of Britain, and from the nearest point of England or Scotland to Ireland, never could have constructed the craft, nor shaped the course of the vessel that launched upon that voyage of discovery referred to by the Irish Bardic historians.

CLASS I.—ORDER II.—STONE.

SPECIES I.—WEAPONS.

From the hard, sharp-fracturing flints used either as weapons, cutters, or weapon-making tools, we pass to the softer and more easily worked rocks, but such as still possess sufficient hardness, toughness, density, and susceptibility of polish, to form serviceable wood-workers, and, in case of necessity, effective weapons, although not susceptible of as sharp an edge, or point, as a flint, or any siliceous rock.

Arrows and Daggers.—Stone weapons (not silex), with the exception of celts and axes, and such projectiles as sling-stones and cannon-shot, must, from the nature of the material, be rare. Stone arrow-heads, of sufficiently small size and sharpness, would be too brittle to be either effective or durable. To obviate this difficulty, however, an ingenious contrivance was resorted to in the only instance in which we find a stone arrow, or javelin-head, in the Collection,—Fig. 30, No. 13, on Tray **O**, and here represented the natural size, and which is grooved on the sides for the retaining slips of the shaft to which it was affixed. It is of smoothed, dark shale, $\frac{1}{8}$th of an inch in thickness.* There are in the Collection a few stone knives, or dagger blades, attached, together with a miscellaneous assem-

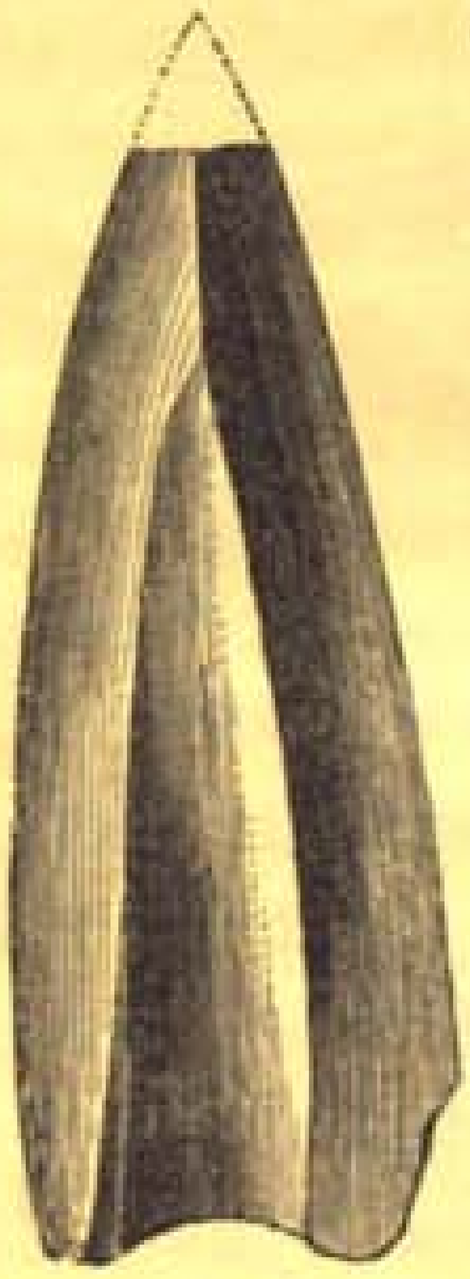

Fig. 30. No. 13.

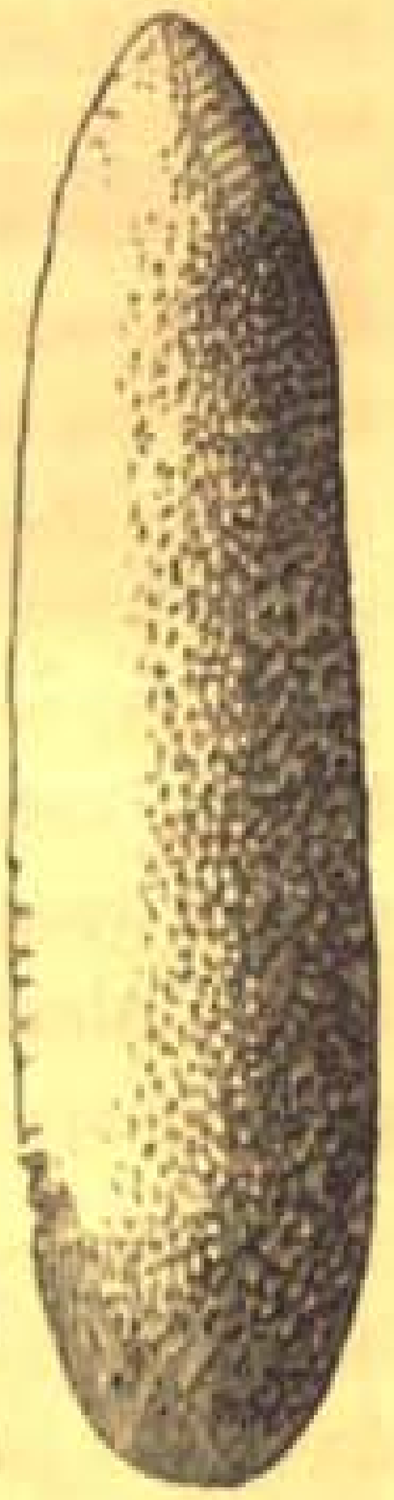

Fig. 31. No. 8.

* This illustration is printed from a stereotype block of that given in the "Archæological Journal," vol. vii. p. 283, referred to at p. 21.

blage of stone objects, chiefly of the weapon class, to Tray **O**, in the second Compartment, of which No. 8, figured on the last page, two-thirds the actual size, might be fixed into a handle, and used either as a knife or dirk. It is composed of red sandstone, was originally polished, but, from the action either of air or water, it has now become roughened upon the surface.

Of the sword, knife, or dagger-shape, but larger, and much sharper at the point, are those objects from Nos. 1 to 8, on the same Tray, the first of which is a remarkable, slightly curved, sword-shaped slate, 23 inches long, and nearly 2 broad, "found about eight feet under the surface, in gravel, under peat," in excavating a minor drain from Lough Aclaureen to the river Clare, county of Galway.

Of the sword-shaped stones, the specimen here figured, one-

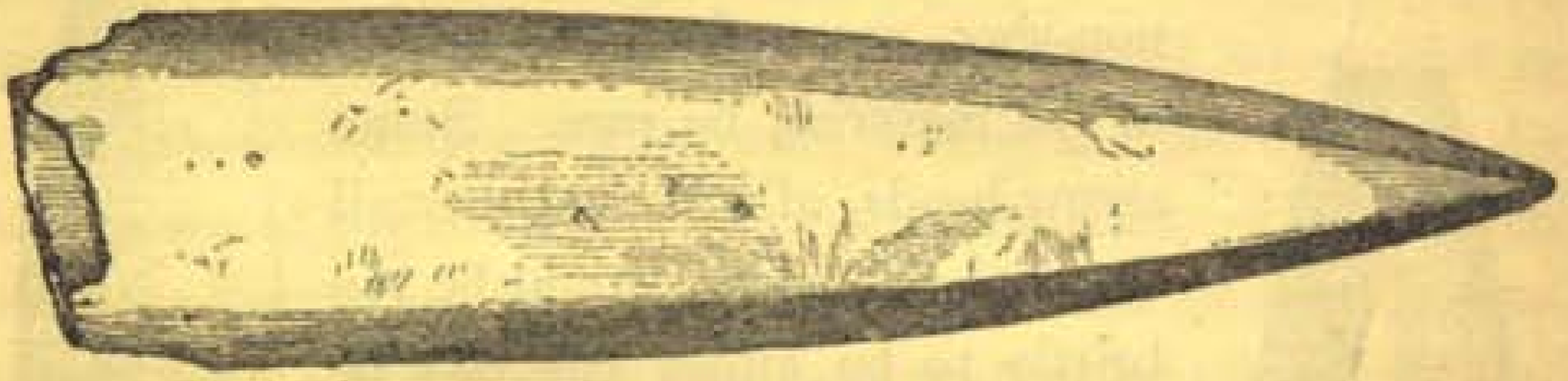

Fig. 32. No. 10.

half the natural size, is a good example. It is imperfect, but enough remains to show that it partook of the agave-leaved form of the bronze swords of the metal class. Most of these stone weapons came either from Connaught, or those portions of the Shannon bordering on that province. Two stone objects, resembling cleavers, will be found at the bottom of Tray **O**, of which this, here represented one-fourth the real size, is the most remarkable specimen. It is of shale, and was found in the Shannon.

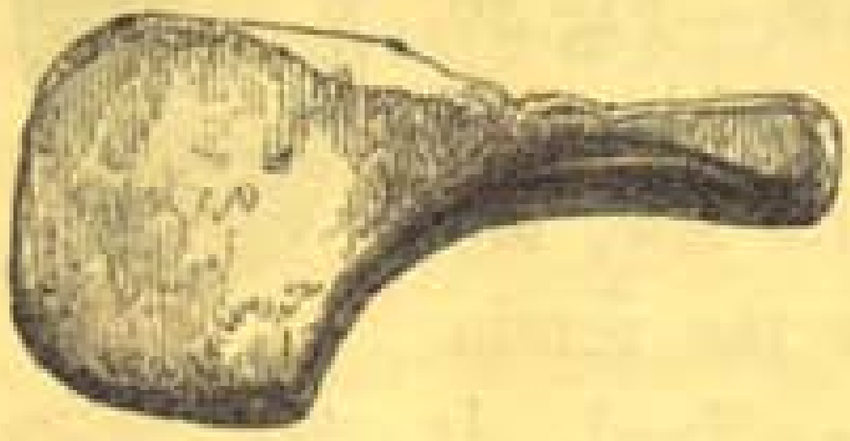

Fig 33. No. 20.

Most of the other stone articles which either approach in shape that of the weapon, or to which some such supposed use attaches, will be found among the Miscellaneous Species at the end of this section.

SHELF I., *Tray* O, contains twenty articles of the stone weapon, or weapon-tool species, and resembling swords, daggers, knives, and cleavers. No. 1, a sword-shaped piece of soft clay-slate, 23 inches long, and $1\frac{7}{8}$ broad, found, as described above, in cutting a drain from Lough Aclaureen, in the drainage district of Monivea, and which, together with No. 6, of slaty Lydian stone, an imperfect specimen of the dagger, or spear variety, also found in the same district, was —*Presented by the Board of Works.* No. 2, of slate, sharp at both ends, $12\frac{1}{4}$ inches by $1\frac{7}{8}$. No. 3, a light-coloured slate of the knife-shape, broad at top, and narrow at bottom, $10\frac{1}{4}$ inches by $1\frac{5}{8}$. No. 4, a very perfect spotted dagger of clay-slate, 10 inches long, by $1\frac{1}{4}$ broad, and $\frac{1}{2}$ an inch thick. No. 5, a rude, broad knife-like implement, $8\frac{3}{4}$ inches, by $2\frac{1}{4}$ at the bottom; of fine yellow sandstone, found in the shoal at Menlo, in the Corrib River, near Galway. No. 7, a double-edged knife, or dagger of slate, 4 inches by $\frac{3}{4}$ths; sharp at the point, like the following, No. 8, the most perfect specimen of the dagger variety of red sandstone, weather-worn, $5\frac{3}{8}$ inches by $1\frac{3}{8}$, and figured as the illustration of this species at p. 33.—*Presented by Lord Farnham.* No. 9, a celt-shaped knife, figured on p. 43; it is of fine red sandstone, $6\frac{1}{2}$ inches by $1\frac{3}{4}$; sharp at the point, flat at the right-hand edge like many celts, and having a ridge running up the centre. It was found in the county of Down. No. 10, a very perfect specimen of the sharp, two-edged sword, or spear, of soft clay-slate, 7 inches long by $1\frac{1}{2}$ broad at bottom; perfect at top, but broken off at bottom; figured at p. 34. No. 11, a thin spear-shaped piece of blue clay-slate, slightly imperfect at both ends, $7\frac{3}{4}$ inches long, $1\frac{1}{4}$ at widest part, and $\frac{1}{4}$ of an inch thick. It and No. 10 might have been used as models for casting metal weapons. It was found in the county of Westmeath, and was—*Presented by Dr. Clarke.* No. 12, the top of a spear-head, or broad sword of coarse gritty slate, $3\frac{1}{2}$ inches long, found in the county of Wicklow. No. 13, the arrow-head, Fig. 30, p. 33, of shale. On the third row we find four articles, varying in shape from that of a razor to that of a short cleaver. No. 14, of dark soft slate about the size and shape of a modern razor-blade, is $4\frac{1}{4}$ inches long, and $1\frac{3}{8}$ broad; the end formed into a sort of handle. Nos. 15 and 16, larger specimens of the same variety, are of shale; the latter $5\frac{1}{4}$ inches by $1\frac{7}{8}$. No. 17, a thicker specimen of this variety, $5\frac{1}{4}$ inches long, by $2\frac{1}{2}$ broad, of porphyritic greenstone, mottled with pink felspar. No. 18, a knife-shaped piece of metamorphic slate, $7\frac{1}{4}$ inches long

by $1\frac{5}{8}$ broad. Nos. 19 and 20, at the bottom of this Tray, are curious specimens resembling cleavers, having handles and sharp edges. The former, of fine crystallized greenstone, $6\frac{1}{4}$ inches by $2\frac{1}{2}$, was found in the county of Down; No. 20, of dark shale, $5\frac{3}{4}$ inches long, and $2\frac{3}{4}$ broad in the blade; sharp at the end and also at the lower edge, figured on page 34. Of the foregoing implements, Nos. 3, 7, 14, 15, 16, 18, and 20, were found in the excavations made in deepening the bed of the river Shannon, and were—*Presented by the Shannon Commissioners.*

Stone Shot.—In the bottom shelf of the Cross-case, between the second and third Compartments, are placed a number of round stones, some of them natural sandstone and ironstone nodules, but others, especially Nos. 1 to 12, are artificially formed stone shot, such as were used in the fifteenth and sixteenth centuries. They vary in size from $1\frac{1}{2}$ to 5 inches in diameter. Some are only partially formed.

SPECIES II.—TOOLS, AND WEAPON-TOOLS.

Chisels.—As we concluded the description of the flint tools and weapons, so (with the exception of the foregoing) we commence that of the stones, with the chisels,—the link appearing to be unbroken, although the form has been modified by the material. The Stone Chisel, typical illustrations of three varieties of which are given below, differs from that of flint in having, in general, angular side-edges, a square top, which, in some specimens, bears evidence of having been hammered; and in having the end, or cutting edge, instead of being rounded off, shaped on both sides like a turner's furmer. Of the chisel variety may be specified those objects upon Tray **P**, some of which approach in appearance to metal. But while we style these implements chisels, there is no doubt that they could have been inserted into handles, and used as war-axes. Fig. 35 is a unique specimen of its class; fixed across a handle, with each

Fig. 34. No. 5.

Fig. 35. No. 21.

Fig. 36. No. 2.

extremity projecting, it would also prove a formidable weapon, being 5 inches in length.

SHELF I., *Tray* **P**, contains twenty-four specimens of chisels, and chisel-shaped varieties of celts, numbered from 1 to 24, eighteen of which were discovered when deepening the fords of the river Shannon; chiefly those of Meelick, Keelogue, and Athlone, and were—*Presented by the Shannon Commissioners.* No. 2, of shale, Fig. 36, on p. 36, is 3 inches long by $1\frac{1}{4}$ wide. No. 5, Fig. 34, one-eighth the natural size, differs from the generality of such tools in being rounded in the handle, and chamfered off below by rubbing or grinding. It and No. 4 are of a hard, fine-grained siliceous basalt, approaching in appearance to metal; the precise locality from whence derived is unknown, but it was probably the coast of Ulster. The greater portion of the tools on this Tray have straight cutting edges, but a few of them are curvilinear, others are celt-shaped both on the sides and edges.

With the foregoing and following exceptions, all these implements are formed of shale, or clay-slate, such as may be found in the coal-measures, and in abundance on the sea border of the county of Clare. Nos. 14 and 18 approach clay ironstone. No. 16, of dark shale, approaching to Lydian stone, is 6 inches long, and $1\frac{1}{4}$ wide, and has nearly parallel straight side edges. No. 19 is a celt-shaped chisel, flat at top, and oval in the middle section, or grasp; it is formed out of fine-grained honestone or whetstone, is $7\frac{1}{2}$ inches long, and $2\frac{3}{8}$ broad. No. 21, of siliceous clay slate, is that represented by Fig. 35. No. 22 of siliceous basalt, passing into amygdaloid, is marked by a red lichen. No. 23 is a peculiarly formed, celt-shaped chisel, curved, and having a pointed extremity somewhat like the large celt, No. 38; it is $7\frac{1}{2}$ inches long, and 2 broad, and is formed out of a shale nodule, the strata of which may still be observed upon its surface. No. 24 is the ovoid chisel celt of dark shale figured on page 43, Fig. 46.

STONE CELTS—so called from the Latin word *celtis*, a chisel, in all probability their original use—are the most widely distributed stone implements in the world. They have been found in great abundance in Ireland, and in every locality and position, but chiefly in clay or gravel. The Academy's Col-

lection contains upwards of five hundred examples of this form of tool-weapon, about one-half of which were recovered from the mud, clay, or gravel laid bare in deepening the shoals and fords of the river Shannon, or its tributaries, during the years 1843 to 1848, and were presented to the Academy, with a great quantity of other valuable antiquities, by the Shannon Commissioners. (See Proceedings, vol. ii. pp. 312 and 594; vol. iii. pp. 65, 263; and vol. iv. pp. 35 and 394.)

The shape of the most common variety of stone celt is similar to that of the muscle shell, which would almost appear to have suggested the idea originally: many other objects in nature seeming to have given origin to the early forms of Art. The lower, or cutting end, is always hatchet or chisel-shaped, slightly convex, and rubbed down to as smooth and sharp an edge as it is possible for the material to attain. The middle usually swells into an oval form, and then tapers to a more or less rounded point; but while the general contour is preserved, the shape is somewhat modified by the description of stone of which the implement is composed.

In material the stone celts afford examples of nearly every description of rock found in Ireland suited for the purpose, by its hardness, toughness, absence of brittleness, and susceptibility of polish; from the hard sharp silex, the metallic basalt, the highly polished porphyry, the splintery felstone, the rare syenite, and the compact greenstone, to the smooth clay-slate or shale, the brittle sandstone grit, the soft whetstone, or even the micaceous schist,—with all their different varieties and combinations, &c. And as these objects have been found in such abundance, and in so many localities, the celt-maker must have been dependent on the suitable stone of his particular district for the materials of his trade. As yet, all the specimens which have turned up are formed of native, and mostly of rocks common in Ireland. The antiquary seldom possesses a sufficiently accurate knowledge (even if such were required) of all these stones, to be able to arrange them either

lithologically or topographically. The physical characters of polished rocks are not always sufficiently marked to permit of the former; and as great numbers have come into the Collection without any memoranda, the latter could not have been effected; they have, therefore, been arranged chiefly according to their size and shape, as most subservient to the secondary division of this classification; viz. that by Use.*

Much art has been displayed in the formation of these celts, which, when perfected, were polished with the greatest precision all over, exhibiting great varieties in shape, and great diversity of manufacture,—either owing to the character of the stone, or to the ingenuity or handicraft of the people who formed them. So far as I have observed in examining and arranging this Collection, all the celts remarkable for their beauty, size, or polish, were made out of the best materials, such as flint, porphyry, greenstone, syenite, or felstone; whereas those of ill-shape and rude manufacture have been formed of portions of slate or shale, simply ground down to a cutting or hacking edge, and many of which exhibit on their surface the natural or accidental formation. Possibly the former variety belonged to tribes more advanced in art, or were the property of the officers and chieftains, while the latter may have been used by the soldiery or common people. When it is stated that they vary in length from 22 inches to very little more than 1 inch in length, some idea may be formed of the range through which this series of implements extends. Some are of the most elegant form, and highly polished; others are rude slate stones, having the general characters of a triangular shape, with a rounded point and a sharp cutting chisel edge. In most the edge is rounded, but in some it is also bevilled or cut off obliquely; in others, again,

* In order to render this Catalogue as generally useful as possible, the Rev. Samuel Haughton, Fellow of Trinity College, and Professor of Geology in the University of Dublin, has kindly lent assistance, and carefully examined and named each stone in the Collection,—thus attaching a double interest to this heretofore neglected department of ethnological science.

it is nearly square. Some are round, or almost round, in the body or handle; others oval; and many, particularly those of slate, are quite flat. In a few, the form resembles that of a human canine tooth, and in others it partakes of the broad-bladed axe, while several were apparently constructed to act as wedges. From the extreme regularity of outline, and diversity of shape, as well as the high degree of polish which several of these articles exhibit, great time and care must have been expended on their manufacture; but then it must be borne in mind, that at the period when they were in use, human time and labour, compared with such in the present day, were of little value. Moreover, they were to the ancients what metal tools are to the moderns.

Among the most remarkable peculiarities observable in examining these objects is the symmetry and precision with which they were given the requisite form, and the perfection of their polish when the stone was susceptible of such. When we reflect on the circumstances under which they were made, and consider that each of the finer kinds must have been broken from the selected rock, then hewn into the rough outlined form of the celt, afterwards given its peculiar cutting edge and point, and finally polished with infinite care,—the whole process being effected without the use of metal, but simply by the application of another stone,—our wonder and admiration are increased.

The hammers and axes, both of stone and metal, or the swords and daggers of more modern times, do not present greater diversity of size and shape than those stone implements denominated Celts, which are so numerous, that it would not be possible to illustrate all their forms by as many as twenty illustrations.

In size, the stone celt, with a few exceptions, varies from 6 to 8 inches in length, and in breadth from 2 to 3½; the scale between which may be traced throughout the extensive collection in the Stone series. Its general figure and make is such as to give the heavy cutting blow of an axe, or

pick, and the smoothing or polishing effect of an adze or chisel. As the general type of the stone celt, of the best shape, the medium size, and bearing the highest degree of polish, the illustration here placed across the page, from No. 481, in

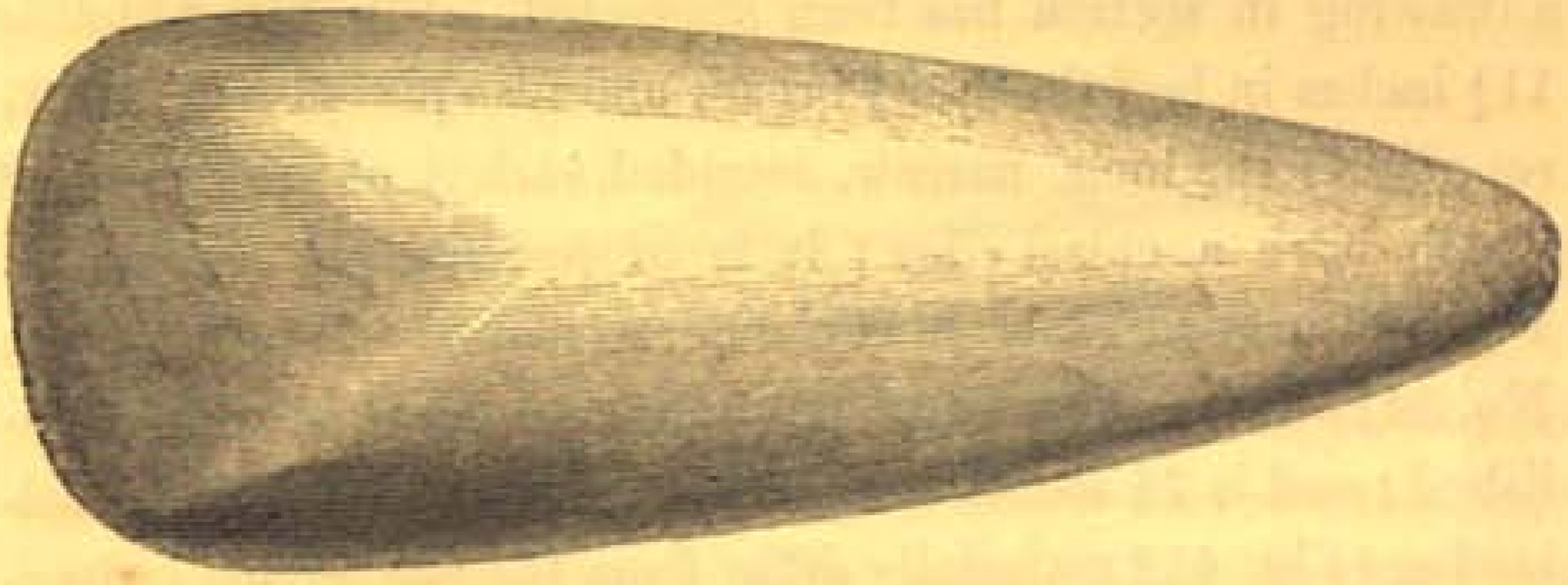

Fig. 37. No. 481.

Rail-case A, may be taken as an example. It is formed of felstone, is $5\frac{3}{4}$ inches long, and 2 broad above the cutting-edge.

The accompanying illustration presents us with six celts, which represent the typical forms of this class of implements; they have been all drawn to scale, one-eighth the natural size, and are thus placed in juxtaposition to show their relative sizes, and to exhibit their respective forms and pro-

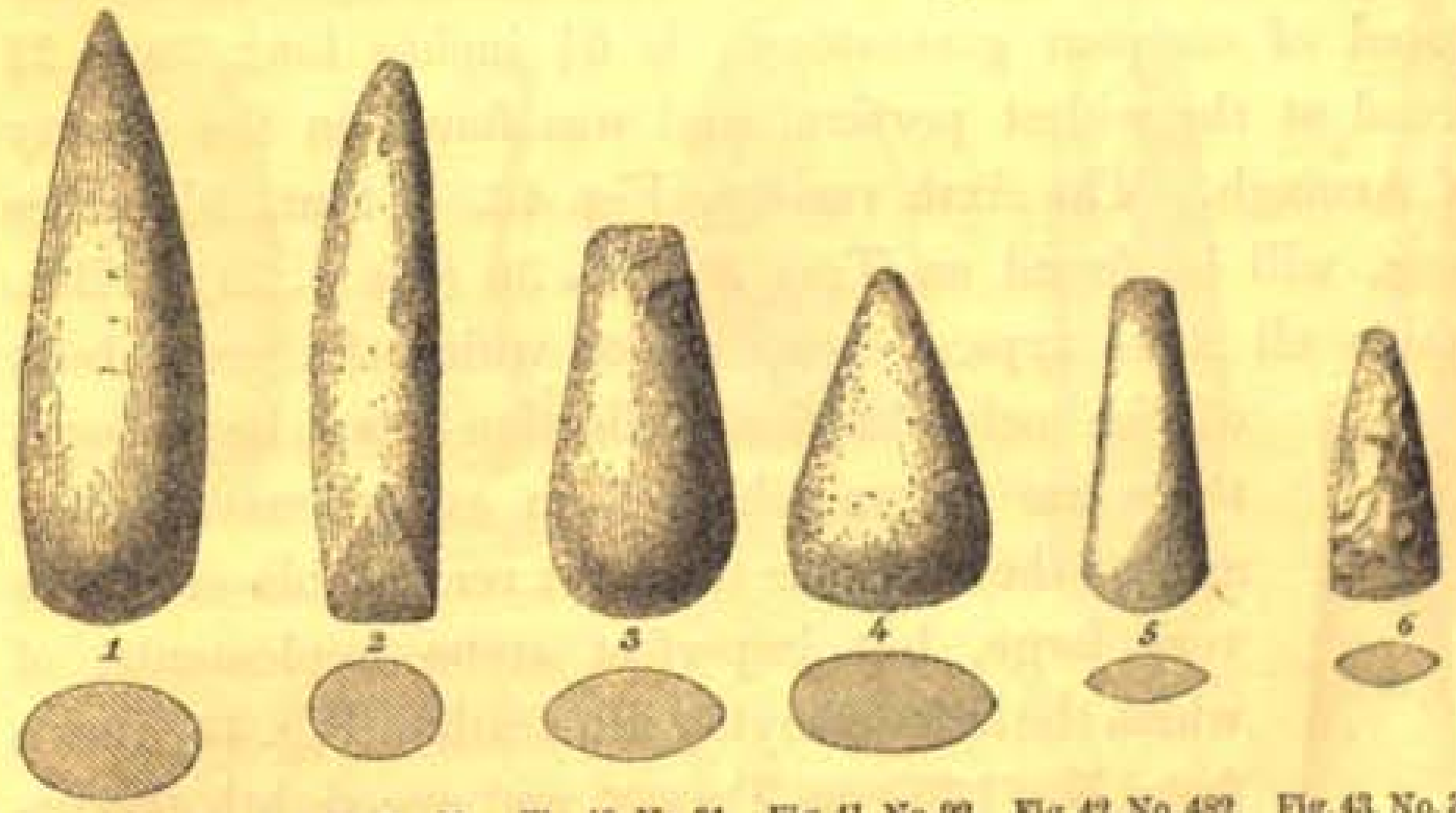

Fig. 38. No. 37. Fig. 39. No. 38. Fig. 40. No. 34. Fig. 41. No. 92. Fig. 42. No. 482. Fig. 43. No. 30.

portions. Fig. 38, which will be found on Tray T, No. 37, is an excellent example of the general character of the long, oval celt; it is 12 inches in length, and $3\frac{3}{8}$ wide at the thickest part; has a sharp, semicircular, but slightly oblique, cutting-

edge, and tapers to a rounded point at the upper end. This is one of the largest of the perfectly formed celts in the Collection; is composed of greenstone porphyry, and is highly polished on the surface. To this and each of the other figures a drawing in section has been appended. Fig. 39, which is 11¼ inches in length, by 2½ broad, and also placed on Tray T, represents the long, narrow, rounded variety of celt, most of which have a chisel edge; it is of fine-grained sandstone. Fig. 40 is a good example of the purse-shaped celt (see Tray S, No. 34); it is composed of crystalline greenstone, highly polished; and is 7½ inches long, and 3¾ broad. It and the following (Fig. 41) materially differ from the preceding, in having the widest part below at the cutting edge; whereas in the two previous examples it is about midway upon the length of the implement. Fig. 41 represents the triangular or heart-shaped celt, 6½ inches long, by 2 thick, and 3½ broad (see Tray W, No. 92). It is formed of crystalline greenstone, and may be considered rather a rare variety. Fig. 42 is one of the most elegantly formed and highly polished celts in the Collection (see No. 482 in Rail-case A). It is composed of compact greenstone; is 6½ inches long, and 2⅜ broad at the widest portion, and was found in the county of Armagh. The sixth variety, Fig. 43, of flint, 5¼ inches long, will be found on Tray N, No. 30 (see p. 29). But, beside all these typical forms under which the great bulk of the celts in the Collection may be classed, there are others which form exceptions thereto; and of these, by far the most remarkable are three very large, but imperfect stone implements, of which the accompanying illustration, Fig. 44, drawn from No. 136, on Tray Y, and one-eighth the natural size, affords us a very tolerable idea (see p. 58). In material it is a highly siliceous porphyritic felstone, with minute particles of hornblende, weathering white, or drab colour. This is 10½ inches long, and 4⅛ wide at the broadest portion; but there can be little doubt that two

Fig. 44. No. 136.

of these three large celts are now imperfect. They were found under the root of a large tree of bog-deal in the bog of Canrower, near Oughterard, county of Galway.

The largest celt yet discovered in Ireland is that attached to Tray **FF** (see No. 323), and formed of coarse clay-slate. It is

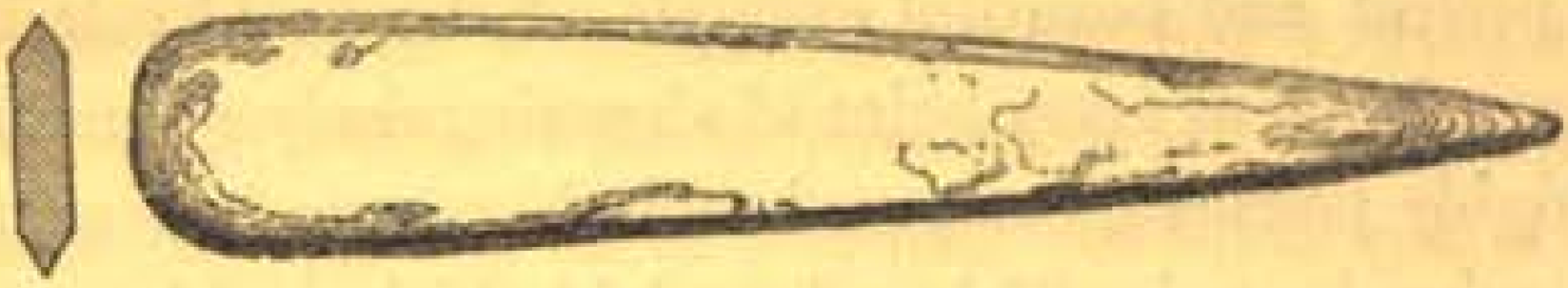

Fig. 45. No. 323.

about 22 inches long, and $3\frac{3}{4}$ broad at the widest portion; but it is only 1 inch thick; the arras has been removed on the edge, as shown by the diagram of its section. It might have been intended as the coulter of a plough for soft ground, but bears no evidence of ever having been so employed. This beautiful specimen was found in deepening the bed of the river Blackwater, two miles below Charlemont, county of Armagh.

As the celt was the principal tool and weapon, serving the purpose of the chisel, pick, punch, wedge, plane, hatchet, and battle-axe, among the early Celtic inhabitants of this

Fig. 46. No. 24.

Fig. 47. No. 48.

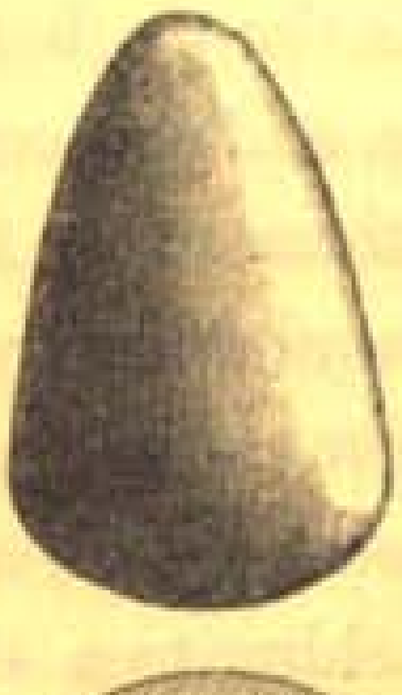

Fig. 48. No. 97.

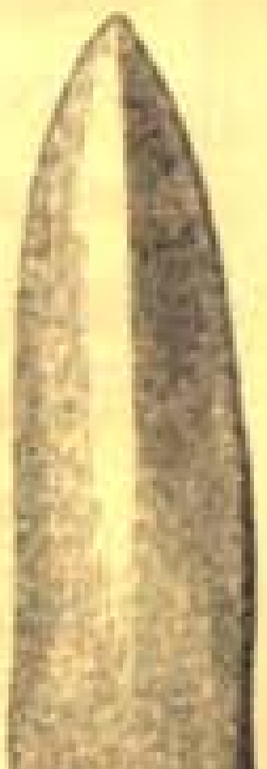

Fig. 49. No. 9.

Fig. 50. No. 124.

island, so it was modified to meet a variety of purposes, and has been shaped even to resemble that of the knife or dagger; in illustration of which the above five figures are given. In Fig. 46, we find a remarkable and rare form of chisel-shaped celt (see Tray **P**), here drawn one-fourth the natural size. It

is 4¾ inches long, and 1¾ wide at the broadest portion, and is formed out of dark shale. The second cut, Fig. 47, Tray **U**, No. 48, one-eighth the natural size, is a curved shale celt, ¾ths of an inch thick, and formed out of a natural nodule; it is 8¼ inches long, and 2¼ broad. Fig. 48, on Tray **X**, No. 97, is the most perfect and beautiful example of the ovoid celt in the Museum, being in every point of view singularly symmetrical: it is highly polished, composed of dark, compact greenstone; is 4¼ inches long, by 2⅝ broad, and 1⅜ thick, and here represented one-fourth the natural size. It resembles more the war celt than the tool. It was found in the Keelogue ford, and forms a striking contrast in shape and material to the rude shale celts obtained from that and the other passes of the Shannon, and described at page 48. The fourth cut, Fig. 49, placed on Tray **O**, No. 9, among the stone weapons, may be denominated the dagger celt, being shaped like that weapon at one end, and presenting the usual celt edge at the other, but it is rather thinner than most celts. It is 6½ inches long, and 1¾ broad, and formed of hard, siliceous sandstone. Fig. 50, one-fourth the natural size, represents the tooth-shaped variety of celt, of hornstone, and is 6 inches long. There are but eight of them in the Collection; six of which will be found on Tray **Y**.

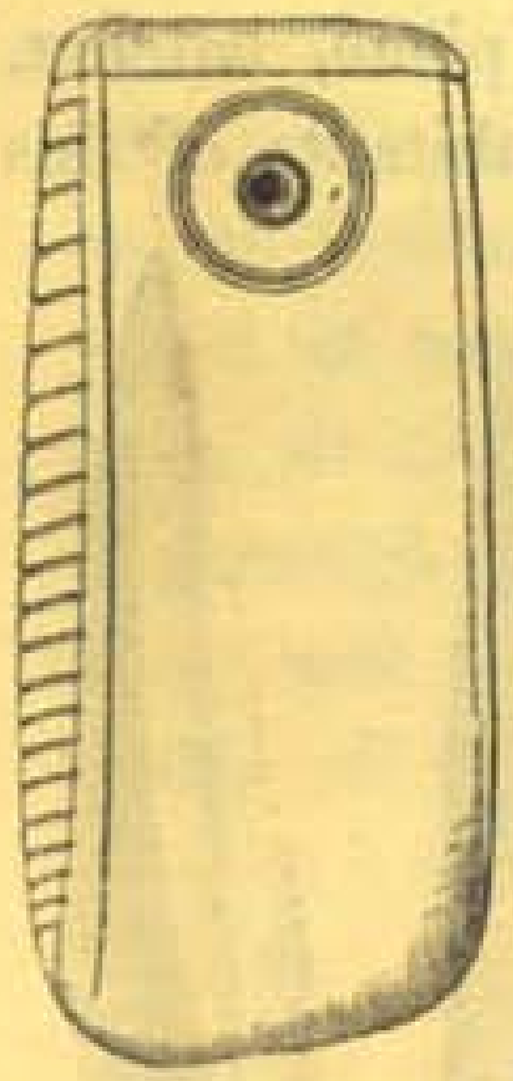

Fig. 51. No. 483.

In a few rare instances, small spear-shaped or chisel celts have been found perforated, as if for attaching to a string. There are three such to be seen in Rail-case A. That here represented in outline, one-half the original size, is a good example of this variety, and also exhibits some decoration on its edge and sides.* This is the only specimen

* Perforated chisels or celts are very rare in Ireland, but some have been found in Denmark and Sweden. See Nilsson's *Skandinariska Nordens Ur-Invånare, ett försök i Komparativa Ethnografien.* Lund. 1838–1843, Pl. I. Fig. 17. See also Worsaae's Illustrations of the Copenhagen Museum, p. 11, Figs. 13 and 14.

of a decorated celt in the Museum; but in the same case will be found a middle-sized celt of green felstone, fine-grained, weathering white, stained a bluish-colour, and marked with lines and scratches resembling, at first sight, Ogham characters. The Rev. Dr. Graves, who has paid great attention to that form of writing, considers that they do not constitute any real inscription; moreover, they are decidedly of recent formation, being cut in through the blue colour with which the surface of the celt has been stained, and which appears to be indigo. It is well known that weavers, in the north of Ireland, used a smooth celt, whenever they could find one, for rubbing on the cloth, bit by bit, as they worked it, to close the threads, and give a gloss to the surface. This indigo stain was, in all probability, thus obtained in working what is called linsey-woolsey, and the marks must have been put on subsequently.

In concluding the description of the forms and sizes of celts, the accompanying illustration, figured the natural size, presents us with the smallest celt belonging to the Collection, and which is probably one of the least which has yet been discovered in this country (see No. 196, Tray AA).

Fig. 52. No. 196.

From their great diversity in shape and size, one is led to regard these stone celts more in the light of tools than weapons, although the larger ones may, no doubt, have served the double purpose; and therefore they may be regarded as *Weapon-tools*. War must, however, be a secondary object to man, and all the appliances thereof subsidiary to his physical wants and comforts, even in the rudest states of society. That the stone celt was originally a hand tool, chiefly used with the hatchet or chisel-edge downwards, seems to be the accepted opinion. Subsequently the large celt appears to have been fixed in a cleft stick, or enclosed within the folds of a tough, slender branch. But, besides the

ingenious conjectures of antiquaries as to how they were actually used, we are here assisted by the double evidence of analogy and fact, for the stone celt, so handled, is still in use in several other portions of the world, particularly New Zealand, some of the South Sea islands, and along the borders of Nootka Sound. Some years ago an implement of this kind was discovered in the county of Monaghan, with the wooden handle, apparently of pine, 13½ inches long, attached,—as shown by the annexed engraving, copied from the full-sized drawing in the Academy's Museum.* It is said that when the Breton peasant finds a celt, called in most countries on the Continent a "thunder-stone," he places it in the cleft of a growing branch or sapling, and leaves it there until the wood has formed and hardened round it; but this must have taken a great length of time. We do not, however, find the slightest trace or mark of such a handle on a single celt in this Collection.

Fig. 53.

As in the flints, so with the celts, a careful examination of the different imperfect or uncompleted specimens enables us to form a very good idea as to the mode and process of their manufacture. The stone having been determined upon, it was roughly hewn into a shape approaching the required form, as may be seen by examining the specimens on Tray **Q**. The next stage appears to have been that of giving it the sharp cutting-edge, so as to test the suitability of the material, its toughness, hardness, susceptibilty of polish, and sharpness, before further time was expended upon it, or, perhaps, to render it immediately available. In some instances, however, it would appear that the final grinding or setting of the edge was not effected until after the instrument was polished, of which there is a notable example in

* See Mr. Du Noyer's description of Colonel Stewart's celt in the "Archæological Journal," vol. iv. p. 3.

No. 34, Tray T, and also in No. 13. The third step in the manufacture consisted in smoothing it longitudinally, by rubbing it upon a flat, curved stone. The effect of this part of the process was to give it the appearance of being planed into a number of faces, or surfaces meeting at obtuse angles. The accompanying illustration, from No. 13, Tray Q, shows this process in great perfection. In the Scandinavian Collection will be found the model of a large block of stone apparently used for sharpening stone weapons and tools. The fourth stage of the process appears to have consisted in rubbing the celt obliquely with another stone, so as to take off the angles or arrases formed by the foregoing, and giving it the appearance of having been rasped; traces of this part of the process may be seen on Nos. 32, 39, and many others. The fifth, and final stage, consisted in polishing the entire surface. Whether sand and water were used in any of the previous stages, and also as to how the final polish was given, are but matters of conjecture. This latter effect, however, fully equals, in a few specimens, anything which can be achieved in stone-polishing at the present day. Not the least worthy of admiration in several of these implements is the extreme precision and perfect symmetry of their outlines and proportions.

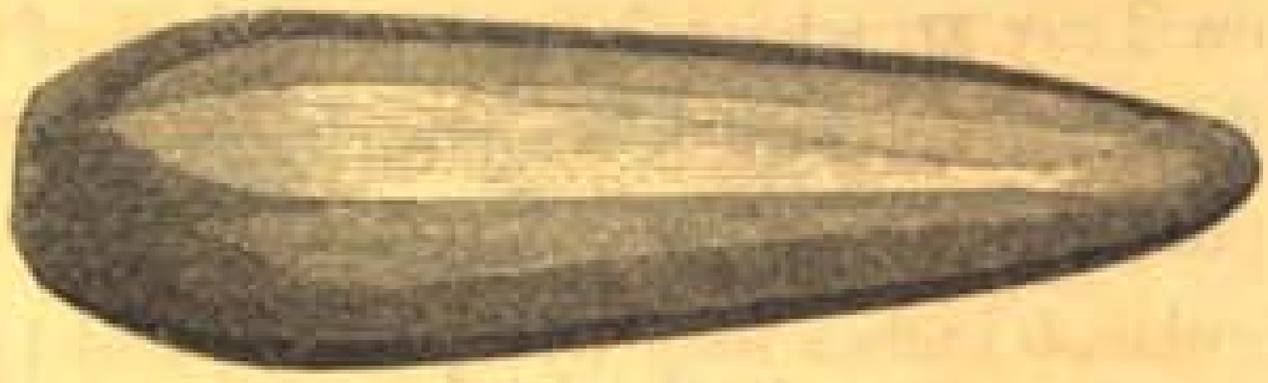

Fig. 54. No. 13.

The foregoing observations refer to the better varieties of stone celts, which are indicative of considerable ingenuity in their makers; but there are a vast number chiefly formed of dark shale, which are comparatively rude, and do not exhibit anything like the same amount of workmanship as the former; the great majority of such were found in the fords of the Shannon, and have been placed in the Cross-case between Compartments 1 and 2. Whether they indicate a more primitive condition, or an inferior state of art existing

among a ruder people contemporaneously with tribes who possessed the means and ability of forming the more perfect descriptions of celt, are questions worthy of attention. In many instances the slate celt appears to have been manufactured out of the accidentally formed mass, as may be seen by specimens on Tray **U**, where No. 43 is typical of the ordinary variety of flat slate celts; it is 8 inches long, and $3\frac{1}{4}$ wide at the broadest portion. No. 45 is a unique specimen of its kind, nearly rectangular, 8 inches long by $3\frac{3}{4}$ broad, and $1\frac{1}{4}$ thick. No. 46 shows the double cutting edges similar to some of those on Tray **R**. It is $8\frac{3}{4}$ inches long, and 4 wide at the broadest portion.

The Academy is indebted to a Commission appointed for deepening and improving the navigation of the river Shannon, for the acquisition of more than one-half of the stone celts in the Collection. The discovery of these celts is thus described by Mr. Griffith, Chief Commissioner, in the second volume of the Proceedings of the Academy, p. 312:—

"The fords of Keelogue and Meelick, on the river Shannon, are the first points of the river passable except by boat, above the falls at Killaloe, and consequently the main pass between the counties of Clare and Galway with Tipperary and the King's County. For the improvement of the navigation it was necessary to deepen the river at Keelogue ford, by excavating its bed to the depth of six feet below the bottom. The contractors dammed off a portion of the river, 100 feet in width, and 700 in length. The material to be excavated consisted, at the top, of two feet of gravel, loose stone, and sand; and at the bottom, of four feet of a mass composed of indurated clay and rolled limestone, which in some parts was found to be so solid and compact that it became necessary to blast it with gunpowder. This is a part of one of the Eskers which cross Ireland, and intersect the river at this point. In excavating in the loose material of which the upper two feet was composed, a considerable number of ancient arms, consisting of bronze swords, spears, &c., were found. Towards the lower part of the upper two feet were discovered a great number of stone hatchets (celts), similar in many respects to those which have been frequently met with in different parts of this country. The greater

number of them, which are black, are composed of the siliceous rock called Lydian stone, which is abundant in the neighbourhood of Keelogue and Banagher; but the others are composed of a sub-crystalline and apparently igneous porphyritic rock, none of which occurs in the neighbourhood, or, possibly, in the south of Ireland. Hence it is probable that the latter, which are much more perfectly executed than the black, were brought from a distance. These antiquities are evidently the relics of very different and probably distant periods. Owing to the rapidity of the current at Keelogue Ford, the annual increase of deposit must have been inconsiderable; "hence, though not more than one foot of silty matter may be found between the stone weapons of a very remote age, and the swords and spears of another period, still remote from us, yet centuries may have intervened between the periods of mortal strife which must have taken place in the river, probably between the Leinster-men and Connaught-men of old, disputing the passage of the river, at two distinct and, no doubt, very distant periods."*

The fact of finding so large a collection of these in a river ford favours the idea of their having been used as weapons as well as tools. With such a tool, assisted by the application of fire, uncivilized tribes of the present day can fell the largest tree by alternately charring and hewing; and by the same process they can shape it externally, and excavate it internally, into a boat or canoe,—a step in art which, in a country like Ireland, abounding in wood and water, must soon have suggested itself to the ingenuity and energy of its early Celtic people. The celt could be employed as a wedge; but even the largest of them might with facility be used with the hand as chisels or adzes, upon soft, newly-felled timber, and both ends might be used by the same worker, one for roughly picking, the other for clearing out. The celt would also prove a

* In the top shelf of the Cross-case, between the first and second Compartments, will be found two Trays, **HH** and **II,** containing, in addition to those already specified or distributed throughout the Collection, specimens of both kinds of celts discovered in the bed of the Shannon.

serviceable tool in mining operations, and remains of such have been found in ancient mines, especially in the neighbourhood of Killarney.

COMPARTMENT I.—SHELF II., *Tray* **Q**, contains thirteen rude, unfinished celts, in the first stage of manufacture, consisting chiefly of trap rock. Nos. 1 to 5, averaging 4 inches in length, have the cutting edges smoothed and formed, but the rest of the implement only rudely chipped, except No. 4, which is more perfect. Nos. 6 and 7 are merely chipped into shape, but show no smoothing whatever. No. 8 has only the edge finished; the remainder is rough. Nos. 9 and 10 are small celts, nearly perfect. No. 11 is $8\frac{1}{2}$ inches long; perfect at the cutting end, but unfinished above. No. 12 is a fragment. No. 13, of felstone, figured at p. 47, is one of the most remarkable objects of its class in the Collection, being $13\frac{1}{4}$ inches long by $3\frac{3}{4}$ broad, and showing the process of smoothing from end to end, probably by rubbing on a curved stone. It was procured from the parish of Desertmartin, county of Derry.

Nos. 1 and 9 are mottled greenstone schist; No. 2, dark syenite; No. 3 is shale. It and 9 were procured from the county of Antrim. Nos. 4, 8, and 12, are varieties of greenstone, and were—*Presented by Lord Farnham.* No. 5 is trappean ash. Nos. 6 and 7, mottled greenstone. No. 10, fine crystalline dark greenstone. No. 11, of green whetstone, was—*Presented by Arthur R. Nugent, Esq.*

SHELF II., *Tray* **R**, contains sixteen well-formed celts, numbered from 14 to 29, of the usual type, and varying in length, from No. 21, which is $7\frac{5}{4}$ inches, to No. 29, which is $4\frac{3}{4}$ inches. Nos. 19 and 20 exhibit red marks of lichen, which show that they were exposed to the action of fresh water, and that they were not totally imbedded in mud or gravel. These specimens present great variety on the cutting-edge, some being nearly circular (as 22 and 26), others oblique (as 17, 19, 27, and 28), while Nos. 14, 20, and 25, form segments of two circles meeting in the centre. No. 18, of fine crystalline syenitic greenstone, was—*Presented by Lord Farnham.* The remainder, except No. 27, were—*The gift of the Shannon Commissioners.*

Nos. 14, 17, 22, and 27, are composed of siliceous whetstone. No. 15 is pale green grit, weathering white. No. 16, mottled com-

pact grit. No. 19, porphyritic greenstone. Nos. 20 and 25 are mottled greenstone schist. No. 21, dark crystalline greenstone. Nos. 23 and 28, shale. No. 24, green flinty slate. No. 26, hornblendic syenitic greenstone. No. 29, finely crystalline greenstone.

SHELF II., *Tray* **S**, numbered from 30 to 36, contains seven celts of the massive, broad-headed character, three of them being—together with Nos. 13, 320, and 323—the largest in the Collection. No. 30 is $10\frac{1}{2}$ inches long, and $4\frac{3}{4}$ broad, of siliceous felstone, sharp at the edge, and most accurately smoothed. No. 31 is $11\frac{1}{2}$ inches long, and 5 broad, of the same character, colour, and stone as the former. No. 32 approaches the round-middled variety in shape, and is more elegant in contour than any of the previous long specimens: it is 11 inches in length, 4 broad, and $2\frac{5}{8}$ thick; it is also of felstone, and shows the peculiar oblique rubbing, as if it had been filed upon the upper two-thirds, perhaps to take off the planing appearance shown on No. 13; but the lower third is perfectly smooth, and the edge as sharp as a metal axe. No. 33, of siliceous basalt, is only $5\frac{3}{4}$ inches long, and 3 broad, but is of the same type as 30 and 31. No. 34 (Fig. 40, p. 41) is a very remarkable specimen, in having a much more circular end than any of those hitherto examined and from the peculiarity of its not being brought to a sharp edge, but ground off flat or square; this latter, added to the fact of its exhibiting some of the original flaws in the stone towards the upper portion, shows that it was only in process of manufacture; it, together with the two following, is of crystalline greenstone. No. 35 is 7 inches long, and tapers more than any of the foregoing, being 3 inches wide at the cutting-edge, and but $1\frac{3}{4}$ at the round top. No. 36 is 6 inches long, and $3\frac{1}{4}$ broad; it shows the same flattened edge as No. 34, and has a longitudinal ridge on the side, similar to No. 13. Nos. 30 and 31 were found at Baysrath, county of Kilkenny, and were procured with the Dawson Collection. No. 32 was found in Monmunny bog, parish of Ahavea, county of Fermanagh, and was—*Presented by the Rev. G. Sidney Smith, D.D.*

SHELF II., *Tray* **T**, holds six celts of the long and round character, from Nos. 37 to 42. No. 37 is the most perfect and beautifully formed of its variety; it is 12 inches long, swelling in the round centre to $3\frac{3}{8}$ inches in width, and tapering to either end, being but 3 inches broad where the cutting-edge joins the shaft, and 1 inch broad within

half an inch of the round top. It is composed of greenstone porphyry, and is engraved as Fig. 38, on page 41. It was found four feet under the surface, in the new cut of the Brosna drainage, near Clara, King's County, and was—*Presented by the Board of Works.* No. 48, of fine-grained sandstone, is a curved celt, similar in shape to No. 23 of the chisels, Tray **O**; it is 11 inches long, and $2\frac{5}{8}$ broad in the middle, but tapers to $2\frac{1}{4}$ immediately above the cutting-edge; it is the second figure in the typical illustrations at p. 43. No. 39, of coarse felstone, is $9\frac{1}{2}$ inches long, and partakes more of the usual conical celt-shape than either of the former, being 3 inches broad above the cutting-edge; it also swells slightly in the middle. It has been worked quite rough, as if picked or rasped all over, except at the cutting-edge, which is smoothed with great care and precision. No. 40 is of the same variety and material, $9\frac{3}{4}$ inches long, and $3\frac{3}{8}$ broad; it is rough all over, and, if ever polished, the air or water has acted upon it, and given it the present surface. No. 41, of honestone, is $9\frac{1}{2}$ inches long, and $2\frac{3}{4}$ broad at the widest part. No. 42 is of basalt, weathered, $8\frac{1}{2}$ inches long, and $2\frac{3}{8}$ broad at the widest part; it is nearly circular in the shaft, very rough on the surface, and has no cutting edge. Nos. 38 and 42 are from the parish of Tamlaght-o-Crilly, county of Derry. No. 40 was found in the Bog of Allen, and—*Presented by* —— *Bury, Esq.* No. 41 was found in the excavations in the gravel bed of Portna shoal, river Bann, on the Antrim side, and—*Presented by the Board of Works.*

Shelf II., *Tray* **U**, contains thirteen celts, from 43 to 55, of the flat and irregular-shaped varieties, and all formed of dark shale, passing occasionally into clay ironstone; in size they vary, from No. 46, which is $8\frac{3}{4}$ inches long, and 4 wide at the broadest part, to No. 51, which is but $5\frac{1}{4}$ inches long, and $2\frac{1}{2}$ broad. Nos. 45 and 46 may be taken as the types of the class of irregular celts; being the exceptions to the rule of the general form. They were, probably, stones previously so formed by nature, and taken advantage of by the celt-maker (see p. 48). All these celts were found in the Shannon fords, and are every way inferior both in shape and material to those of a better class of material. Nos. 43 to 46, and 54, were found in 1843, in the site of the works on the river Shannon, at Athlone, and were, with all others on this Tray—*Presented by the Shannon Commissioners.*

SHELF I., *Tray* V, contains twelve well-formed celts, numbered from 56 to 67; the upper row, of short hand celts, the lower containing the long variety. No. 56 is greenstone, round-edged, blunt-topped, slightly imperfect, 4½ inches long, by 2⅜ broad. No. 57, of coarse greenstone, pockmarked from weather action, rather round in handle, slightly broken at top, is 5⅜ inches long, by 2½ broad. No. 58, a perfect specimen in all respects, composed of crystalline greenstone, oval in section, widest in the middle, is 3½ inches long, and 2½ broad; procured from the county of Down. No. 59, of greenstone porphyry with pink felspar, perfect, except at edge, 5⅜ inches long, and 2½ broad. No. 60, a massive, broad celt, perfect of its kind, of greenstone, but much weather-worn, slightly oblique at cutting-edge, broadest below the middle, tapers to both extremities, with very round top; is 5½ inches long by 3¼ broad. No. 61, also of greenstone, much weather-worn; an ordinary-shaped small celt, 4¾ inches long, and 2½ wide. No. 62, a long, round celt of greenstone porphyry with pink felspar, slightly imperfect at the top and cutting-edge, thickest in the middle, and tapering to both extremities, is 8⅜ inches long by 2⅞ broad. No. 63, a very perfect specimen, but much weathered upon one side, top rounded; dimensions, 8 inches by 2⅞; composed of syenitic greenstone; is said to have been found near the Giant's Grave, in the townland of Kilhoyle, parish of Balteagh, and county of Derry. No. 64 resembles in form No. 62, and is, like it, composed of greenstone porphyry, but differs slightly from the former in the colour of the felspar, which is white instead of pink; it is thickest in the middle, where it is 2¾ inches wide; tapers to the top, and also to the cutting-edge, which is ⅞ths of an inch less than the centre. This beautiful celt, which is 8⅛ inches long, affords proof that the celt-maker employed similar materials to produce similar forms; it was found in deepening the fords of the Shannon, and forms a striking contrast, both in material and shape, to those rude, flat, short specimens that form the great bulk of the stone implements brought to light by those excavations. It was—*Presented by the Shannon Commissioners.* No. 65 is slightly imperfect at the top and surfaces; side-edges squared; cutting-end oblique; composed of felstone schist, with hornblendic streaks, a rock common in the south-west of Ireland. It is highly polished, although not quite perfected in out-

line, and appears as if it had been long in use, and much handled. No. 66 is a very pretty specimen of crystalline greenstone, 7½ inches long by 2¾ wide; angular in shape, with cutting-edge oblique, but slightly imperfect, as if not quite finished. This celt was found in the county of Derry. No. 67, a very perfect specimen of the massive kind, and very similar in character to No. 58, is 7⅜ inches long by 3¼ wide in the middle; it is composed of fine-grained greenstone porphyry, and was received from the townland of Lismoyle, parish of Desertoghill, and county of Derry.*

SHELF I., *Tray* **W**, contains twenty-nine celts, from No. 68 to 96, of two varieties, but all more or less triangular, and consisting of two rows of small ones, and a row of long massive specimens at the bottom. Nos. 68 to 71, 75, 82 to 85, 88, and No. 92, may be specified as good examples of the triangular celt. The latter is given as the type of this variety, Fig. 41, p. 41. No. 68 is a small celt of shale, from the coal-measures, 3½ inches long, by 1¾ wide. No. 69, of crystalline greenstone schist, 3¼ inches long, by 2¼ broad, is from the county of Derry. No. 70 is of shale, approaching clay-ironstone; square-edged, 3¼ inches by 1⅞; from Castledawson, county of Derry. No. 71 is of crystalline greenstone, similar in size. No. 72, of greenstone, a small, long, and narrow celt, imperfect at the edges, 4 inches by 1⅝, is from the county of Tyrone. No. 73, of shale, bevel-edged, is 3¾ inches by 1⅜. No. 74 is crystalline greenstone schist, 3⅞ inches long by 1⅞ broad; and No. 75 is fine-grained crystalline greenstone, triangular in shape, and 3¾ inches long by 1⅞ wide. This and No. 87 are from the parish of Rasharkin, county Antrim, from which locality many specimens of flint and stone tools and weapons were procured by the Academy, chiefly along with the Dawson Collection. No. 76, a small celt, approaching the tooth-shape (Fig. 50, on p. 43), flat on one side, round on the other, is 4⅛ inches long by 1¾ broad; edge slightly oblique; composed

* In the Donation Book, and also in the Proceedings for 25th January, 1841, we find an entry of—"A large collection of miscellaneous antiquities, consisting of stone, flint, bronze, and iron instruments, coins, &c.; presented by Captain (now Colonel) Portlock, M. R. I. A." There is reason to suppose that many objects in the flint and stone collection are those alluded to in that presentation; but when the arrangement and cataloguing of the Museum were commenced, the writer was unable to identify any of these specimens.

of crystalline greenstone, mottled with pink felspar. No. 77, mottled crystalline greenstone, 4⅛ inches by 1⅝. No. 78, broad and flat, 4¼ inches by 1⅞, of light-coloured crystalline greenstone. No. 79, a very small, flat, triangular celt of siliceous clay-slate, 3¼ inches by 1⅝. No. 80, a peculiarly-shaped triangular celt, of mottled schist, slightly imperfect, quite flat on the under side, 3⅜ inches long by 1½ broad. No. 81, a small tool-celt of shale, 3¾ inches long, by 1⅜ broad in the middle. No. 82, of the same material, but a little larger. No. 83, of siliceous clay-slate, imperfect at top, 4⅛ inches by 2⅛. No. 84, a perfect celt, of felstone, 4½ inches by 2¼, round-edged, sharp at top. No. 85, a good example of the small triangular celt, similar in form to No. 92, is 4½ inches long by 2½ broad, and composed of crystalline greenstone, but much pockmarked by weathering. No. 86, of shale, an ordinary short celt, 4⅝ inches by 2½. No. 87, shale, 5 inches long by 2½ broad, is square on right-hand edge, and shows the rasping process on its flat surface. No. 88, a very perfect small celt, polished on the flat, but rough on the side-edges, 4⅜ inches long by 2⅛ wide in the middle; of mottled crystalline greenstone, weathering white. No. 89, a well-smoothed celt, approaching the tooth-shape, round at top, 5 inches long by 2½ broad; of fine greenstone. No. 90, a massive celt, of very crystalline greenstone, 7¼ inches long by 3⅞ broad, and 1⅜ thick, rounded at the top, blunt at the edge. No. 91, also of crystalline greenstone; a punch-shaped celt, very round at the bottom, and blunted at the top, as if by hammering; is 6¾ inches long, 3½ broad, and 2⅛ thick; much pitted on the surface. No. 92, the triangular celt, figured at p. 41 as the type of its class, is 6½ inches long, 3⅞ wide, and 2 thick. This very beautiful specimen, like the two foregoing, is of crystalline greenstone, and was found in the castle of Confey, near Killeshandra, county of Cavan. No. 93, an imperfect specimen, 6 inches long, and 3⅜ broad, is formed out of fine-grained hornblende rock, being the first specimen of that stone met with among these objects. No. 94, triangular, of shale, 5 inches by 3½. No. 95, a triangular celt of pale shale, 5 inches by 3½. No. 96 is 6 inches long, by 2¼ broad, a chisel-shaped celt, flat, angular at side-edges, and formed out of a nodule of shale.

Nos 73, 74, 76 to 80, 82, 86, 89, and 93, were found in the fords of the Shannon, and were—*Presented by the Shannon Commissioners.*

THIRD COMPARTMENT.—SHELF II., *Tray* X, contains twenty-four small celts of either the round or the long character, from No. 97 to 120; the two upper rows are small specimens, illustrative of the former; and the bottom row affords eight objects characteristic of the latter description. Nos. 97 and 106 are of a peculiar ovoid form, and may be considered as types of the small round celt, while Nos. 116 and 117 illustrate the long variety. No. 97, one of the most perfect and beautiful specimens in the Collection,—of dark, fine-grained, compact greenstone, $4\frac{1}{4}$ inches long, by $2\frac{5}{8}$ broad, and $1\frac{1}{2}$ thick, is figured on p. 43, Fig. 48. No. 98 is of the same variety, but smaller, and not so perfect;—of highly crystalline greenstone, $3\frac{1}{2}$ inches by $2\frac{1}{4}$. No. 99, of syenite, square at edge, round at top, but more truncated than 97, is $3\frac{3}{4}$ inches by $2\frac{1}{2}$. No. 100, of fine-grained syenite or crystalline greenstone, 4 inches long, by $2\frac{1}{2}$ above the cutting-edge, partakes of the triangular form. No. 101, of the same material, $4\frac{1}{8}$ inches long, by $2\frac{1}{4}$, semicircular in edge; procured from the county of Down. No. 102, of syenite, triangular, but more massive than the foregoing, is $4\frac{1}{4}$ inches by $2\frac{1}{2}$; top round, but not pointed. No. 103, of dark hornblendic greenstone, 5 inches by $3\frac{1}{8}$; edge slightly oblique. No. 104, of gray grit, $2\frac{7}{8}$ inches by $1\frac{5}{8}$; oblique-edged; not likely to have been inserted in a stick, and used as a weapon, but may have been fastened into a horn or bone handle. No. 105, of siliceous whetstone, $3\frac{3}{8}$ inches by $1\frac{7}{8}$; its top is sharp-edged, as No. 107, its sides flat. No. 106, of similar material; a very beautiful specimen of the ovoid class, but slightly imperfect at top; its length is $3\frac{3}{8}$ inches by $1\frac{7}{8}$; edge remarkably sharp, and more circular for its size than any in the Collection, extending over one inch of the entire length. No. 107, of pale whetstone; found in the King's County; $5\frac{1}{2}$ inches by $2\frac{1}{8}$, cutting-edge very oblique, top quite sharp, and suited for cutting, like the usual lower edge; side-edges flat, as No. 105. These two, Nos. 105 and 107, show that the same varieties of celts were made out of similar stones. No. 108, of green grit, $3\frac{3}{4}$ inches by $1\frac{7}{8}$; has the edge oblique, and the top quite round and polished, like No. 97. No. 109, felstone, light drab-coloured; length $3\frac{3}{4}$ inches by $1\frac{1}{4}$. No. 110, of fine-grained, mottled, siliceous slate, is $3\frac{5}{8}$ inches long, by $2\frac{1}{4}$ broad, but imperfect. No. 111, of very fine-grained crystalline greenstone, and partaking of the slate-celt character, $3\frac{1}{8}$ inches by 2. No. 112,

of light-coloured honestone, $3\frac{1}{2}$ inches by $1\frac{3}{4}$, is triangular in shape.

The lower row consists of eight long celts. No. 113, of hornblendic greenstone, $6\frac{1}{4}$ inches by $2\frac{3}{4}$, from the county of Derry, shows the effects of great exposure. No. 114, of coarse sandstone, $5\frac{7}{8}$ inches by $2\frac{3}{4}$; a very remarkable specimen, resembling, in some respects, the tooth-shaped, but apparently, from one of two circumstances: it was either originally a larger celt, and was broken off obliquely, or, a flaw having been discovered in the stone by the maker, he endeavoured to work it out by rubbing, and so rendered it slightly concave on that side; the imperfection may be seen above the lower wire. It is altogether a rude specimen, as might be expected from the material. No. 115, of syenite, $6\frac{7}{8}$ inches by $3\frac{1}{4}$, has the cutting-edge very round. No. 116, of felstone, from Knocktopher, county of Kilkenny, 5 inches by $1\frac{7}{8}$, having a sharp chisel-edge, is a good specimen of the long celt, like No. 37, but of smaller variety. No. 117, of coarse gray sandstone, $5\frac{1}{8}$ inches by 2, same variety as former, but more circular at edge, from which it tapers to a very small point. It was found near the tumulus on Killiney Hill, county of Dublin, and was—*Presented by the Rev. W. Wildbore.* No. 118, of sandstone, is $4\frac{3}{8}$ inches by 2. No. 119, crystalline felstone schist, $4\frac{1}{2}$ inches by 2; of the round character, with semicircular cutting-edge; from Baysrath, barony of Knocktopher, county of Kilkenny. No. 120, of crystalline greenstone, with green hornblende and pink felspar, $4\frac{1}{2}$ inches by $2\frac{1}{2}$; triangular, with oblique edge.

No. 97 was found in the bed of the Shannon, at Keelogue, and was, with Nos. 104 and 110—*Presented by the Shannon Commissioners.* Nos. 99, 100, 106, 108, and 111, were—*Presented by Lord Farnham;* and No. 120, by *the Representatives of Leslie Ogilby, Esq.*

SHELF I., *Tray* **Y**, contains sixteen celts and celt-shaped objects, from No. 121 to 136. The two top rows consist of eight tooth-shaped celts, the type of which variety is No. 124, Fig. 50, at p. 43. No. 121, of metamorphic schist, is 6 inches long, by $2\frac{1}{4}$ wide, and presents the rounded back. No. 122, of a like character and material, and similarly placed, is $4\frac{1}{4}$ inches by $1\frac{3}{4}$; it was found in Portna Shoal. No. 123, of shale, 5 inches by $1\frac{7}{8}$; was found near Oughterard, county of Galway; it and the following are placed on the rounded backs, so as to show the under flat surface. No. 124, of

hornstone, figured at page 43 as the type of this variety, is 6 inches by $2\frac{1}{4}$. No. 125, of common slate, is a small, perfect specimen, 4 inches long by $1\frac{5}{8}$ broad, from the county of Down. No. 126, of pale hornblendic schist; a small, but perfect specimen, is $3\frac{7}{8}$ inches long, by $1\frac{5}{8}$ wide. No. 127, of siliceous basalt from the county of Antrim, highly polished, and placed with the flat surface exposed; measures $4\frac{1}{2}$ by 2 inches. No. 128, of whetstone, placed on the flat surface; is $4\frac{3}{8}$ inches long, by $1\frac{1}{2}$ wide. No. 129, the handle of a celt-shaped implement, of fine-grained doleritic trap, hornblende predominating, $7\frac{1}{4}$ inches long by $2\frac{5}{8}$ wide; oval in section, and imperfect at both extremities. No. 130, the dimensions of which are $1\frac{7}{8}$ inches long by $2\frac{3}{8}$ wide, is an imperfect and very flat and thin celt-shaped piece of slate, apparently about a third of the original. No. 131 is a remarkable short, thin celt, of shale, evidently intended as a tool; flat at the upper straight edge, $2\frac{7}{8}$ inches deep, and 3 across the widest part. No. 132, the fragment of a celt, $3\frac{1}{4}$ inches long, by $2\frac{1}{8}$ wide, composed of mottled felstone. No. 133, the fragment of a flat, fish-tailed celt, 3 inches long, by $2\frac{7}{8}$ths wide, somewhat similar in shape to No. 130, and showing a beautiful greenish-white crystalline surface. The following is the mineralogical result of Professor Haughton's analysis of this rare specimen:—"It is composed of albite, or soda felspar, 86·43, and lime augite, 13·57 parts, and also contains lime and iron garnet as an accidental mineral. This rock is not known to me as Irish, and is not a common rock anywhere; but I have seen specimens of it in Switzerland, and I should not be surprised to hear that it exists *in situ* in the county of Donegal."

At the bottom of this Tray are placed three very peculiar celts (see p. 42), and differing altogether in shape from any implements of this variety in the Collection. They are flatter and broader than any other specimens which have yet been discovered, in which respect they resemble the bronze or iron hatchet. They are formed out of highly siliceous greenish-gray felstone, the two latter porphyritic, weathered on the surface to a drab colour, and highly polished. No. 134 is 8 inches long by 4 broad in the blade, and measures $1\frac{3}{8}$ inches in thickness at the upper end, which is oval. At first sight they appear fractured or unfinished at the upper end or handle; but although two of them are evidently broken off

obliquely, this one has been smoothed down, and has a cross notched upon it. This end, however, compared with the perfection, shape, and high finish of the rest of the implement, does not appear to have been the original termination, but was smoothed down and notched after it had been injured. The ends of each have been weathered, or acted on by the wet peat in which they must have remained for many centuries. No. 135 is similar in character to foregoing, but somewhat larger, and proportionally broader in the blade; it is $9\frac{3}{4}$ inches long, by $5\frac{3}{8}$ across the cutting-edge, and $1\frac{5}{8}$ thick. No. 136, given as Fig. 40, on p. 42, is $10\frac{3}{8}$ inches long, by $4\frac{1}{8}$ broad at the widest part, and $1\frac{1}{2}$ thick in the handle. These three matchless specimens were "found in the shallow bog of the townland of Canrower, near Oughterard, county of Galway, immediately under the root of a large bog-deal tree, or 'corker,' as it is called there, by a man named Naughton. Having dug round the root, he put his hand under it to raise it, and brought out these stone hatchets. Although several portions of the root have been cut away for firewood, the central mass still remains; the place abounds in bog timber." (Communication received from G. F. O'Fflahertie, Esq., of Lemonfield, upon whose property they were found.) These are the nearest approach to stone axes for felling timber of any in the Collection.

Nos. 124, 126, 129, and 132 were—*Presented by the Shannon Commissioners.* No. 130 was found in the river Bann, on Toome Bar, Antrim side, near Toome Castle, about three feet under the surface, and was—*Presented by the Board of Works.*

SHELF I., *Tray* **Z**, contains eighteen different-shaped celts, from Nos. 137 to 154, chiefly of the long character, and most of which are slightly imperfect, apparently from natural deficiency in the stone, but which the maker endeavoured to rectify by rubbing down and polishing the surfaces, so as to take out the flaws. They have all been—*Presented by the Shannon Commissioners.* No. 137 is $8\frac{5}{8}$ inches in length, by $2\frac{3}{4}$ broad; it is shaped somewhat like No. 13, on Tray **Q**, showing several faces worked upon it. The cutting-edge is round and blunt, and the left side-edge flat. It and the three following are composed of felstone. No. 138 is $8\frac{1}{8}$ inches in length, by 3 broad. No. 139 is broad, imperfect at top, and exhibits several flaws; it is $6\frac{1}{2}$ inches long, by $3\frac{1}{8}$ broad. No. 140 is $6\frac{5}{8}$ inches long, by $2\frac{1}{2}$ broad, and shows several flaws not worked

out. No. 141, of red sandstone, 5½ inches long, by 2 broad, is very irregular in outline, and rounded at top; this and the three foregoing were found at Keelogue. No. 142, composed of crystalline greenstone, with white felspar, is 5½ inches long, by 2⅛ broad, is broken at top, but has a very sharp and perfect cutting-edge. No. 143, long and triangular, defective on left side, 6 inches long, by 2½ broad, tapering to ¾ths of an inch; this and the following are of the same material as the foregoing. No. 144 is 7⅛ inches long, by 2¾ broad, and remarkable for its crookedness and irregularity of surface on both sides, caused apparently by working out the flaws; edge slightly oblique. The lower row contains ten specimens. No. 145 is of the ovoid shape, like No. 97, on Tray **X**; it is 3¾ inches long, by 2⅛ broad, is slightly imperfect at top, rounded at the cutting-edge, and composed of crystalline greenstone, with yellowish felspar. No. 146 approaches the chisel-shape, having straight side-edges, and a somewhat square cutting extremity; its dimensions are 4⅛ inches long, by 2 broad, and its composition, felstone. No. 147 is a very short, broad celt of shale, 4¼ inches long, by 3 inches broad, squared and rubbed flat at the top (probably a broken specimen), with an oblique edge. No. 148, of crystalline greenstone, with white felspar, indented at sides to take out the natural flaws; its dimensions are 4½ inches long, by 2 broad. No. 149, composed of coarse crystalline greenstone, 5¼ inches long, by 2⅜ broad; side-edges flat, much flawed, apparently by the original hammering. No. 150, of mottled syenitic greenstone, 4⅜ inches long, by 2⅛ broad, much flawed, but, being of valuable material, an effort was apparently made to give it form. No. 151, flat, of shale, 4¾ inches long, by 2¼ broad. The three following specimens are more perfect of their kind than the foregoing, and present good examples of the better class of celts procured from the Shannon. No. 152, of fine-grained greenstone, long and narrow, 4¾ inches long, by 2 broad, with a very oblique edge, sharp-topped; has flat side-edges, nearly straight, prolonged into the cutting extremity, which they meet at a well-defined angle. No. 153 is broader than the foregoing, 4¼ inches by 2⅜; sharp chisel-edged in the centre, but rounded off at the corners; composed of felstone, mottled with greenish-yellow felspar. No. 154, of the same material, with a narrow cutting-edge, slightly oblique, but unusually prolonged at the sides; its dimensions are 4⅛ inches long, by 1¾ broad.

SHELF I., *Tray* **AA**, contains fifty-six small celts, numbered from 155 to 210, including the smallest form of weapons or weapon-tools in the Collection; but a careful examination of them will, we think, convince the inquirer that they were used as tools only. The two first rows are of the broad, flat character; several are imperfect, but vary in size from 3 to 2½ inches in length, and in breadth from 2⅛ to 1½ inches. The third row contains nine celts of the long character, varying from No. 167, which is 4 inches long, by 1½ broad, to No. 173, which is 2⅝ inches long, by 1¼ broad; some of these are chisel-edged. The fourth row contains ten examples of the same form, but narrower; the dimensions of which vary from No. 183,—which is 4 inches long, by 1 inch broad, and presents a peculiar form of cutting-edge, somewhat between that of the chisel and the celt,—to No. 181, which is flat and oval, 2⅝ inches long, by 1¼ broad. The fifth row consists of seven very small squarish celts, resembling those in the top row, but partaking more of the chisel than the celt character;—see especially Nos. 168, 188, and 189. No. 190, procured in the county of Down, is of whitish honestone. The sixth row contains ten of the smallest celts in the Collection. They are of the flat, round, and triangular shape; some are apparently chisels, and others minute celts. In length they vary, from No. 198,—which is of the long chisel character, nearly round in the shaft, and resembling those in the fourth row, 2⅜ inches long, by ⅝ths of an inch in thickness,—to that numbered 197, the least in this row, and which partakes more of the chisel than the celt form; it is 1⅜ths of an inch long, and ⅝ths thick. No. 196 is that figured on page 45; it is a specimen of the smallest true celt in the Collection, not quite 2 inches long, and only ⅞ths of an inch in thickness at the broadest part. No. 193, on this row, is a perfectly triangular celt, but only 2⅛ inches long, by 1¾ broad. The last row contains eight celts, all, with the exception of Nos. 205 and 206, of the very flat, thin character. They vary in size from No. 203, which is 2 inches long, by 1¾ broad, to No. 210, which is little more than 3 inches long, by 1⅝ across.

As named by Rev. Professor Haughton, these specimens of celts and chisels may be arranged under the following heads. The type of the class is felspathic trap, variously streaked, and mottled with hornblende, as Nos. 157, 165, 167, 168–170 to 176, 178, 181, 185

to 189, 191, 192, 194, 195, 197, 198, 202, and 203. Some of these are finer-grained varieties than the others, as 158, 159, 161, 162, 164, 205, and 206. But the two first specimens on this Tray, 155 and 156, are composed of fine-grained siliceous basalt. Nos. 166, 200, 201, and 204, are also of siliceous basalt; No. 200 being of the fine-grained and pitted character. No. 160 is siliceous trap, approaching jasper. Nos. 163, 169, 177, and 196, are of amygdaloidal felspathic porphyry. No. 199 is of the same material, with red felspar. Nos. 179 and 210 are of shale, passing into Lydian stone. Nos. 182, 207, 208, and 209, are dark shale. Nos. 183 and 193 are felstones, the former gray. No. 184 is clay ironstone.

Nos. 160, 169, 171, 174, 177, 184, 195, 202, and 208, were procured from the county of Derry; Nos. 179, 190, and 210, from the county of Down; No. 183 from that of Armagh; No. 186 from Antrim; No. 187 from Donegal; and No. 188 from Tyrone. Nos. 155, 167, 180, 196, and 209, were—*Presented by the Shannon Commissioners*; and Nos. 168 and 199 by *Lord Farnham*.

Shelf II., *Tray* **BB**, contains thirty medium-sized and small celts, of either the long or oval character, extending from No. 211 to No. 240, and presenting a very interesting lithological collection. They vary in size, from No. 230, of felstone, 5½ inches long, by 1⅞ broad, to No. 237, a small celt, 3⅜ inches long, by 1⅞ broad, composed of felspathic trap, mottled with hornblende. The two first rows partake of the long and narrow character; the third, of the broad or triangular. Many of these celts, particularly Nos. 212 to 215, and also 225, 228, 230, 231, and 239, are irregular on the surface, from the original flaws of the primary manufacture not having been worked out. Some of the specimens on this Tray exhibit remarkable peculiarities, not noticed in the foregoing; for example, Nos. 218 and 224 are cut off obliquely at the top, where the surface is equally polished with the rest of the implement. Whether this was the original fashion of the celt, or is an evidence of repair, is a question incapable of solution at the present day. No. 220 is also a unique specimen, presenting nearly the same curvature at both extremities. No. 226 has a cutting-edge at both extremities. The remaining celts on this Tray resemble those already described and measured on the foregoing. Nos. 211, 220, 235, and 239, are of siliceous basalt; Nos. 219 and 236 are of the same material, mottled

with spots of reddish felspar. No. 232 is of very fine-grained basalt. Nos. 212, 218, and 223, are of light-coloured, fine-grained, syenitic greenstone. No. 221 is a dark variety of the same. Nos. 213, 214, 224 to 227, 237, and 238, are composed of felspathic trap, mottled with hornblende. Nos. 215, 222, and 234, are of mottled felstone. No. 216 is of greenish-yellow honestone. No. 217 is formed of hornblendic crystalline greenstone. Nos. 228, 230, 231, and 240, are of felstone. No. 229 is of dark shale, the only specimen of it on this Tray. No. 233 is of mottled greenstone porphyry.

No. 212 is from the county of Tyrone. No. 216 was found at Grangemore, near Killucan, county of Meath, on gravel, six feet below the surface of bog. Nos. 222, 224, and 236, came from the county of Derry; and No. 230, from the county of Antrim. Nos. 238, 239, and 240, were—*Presented by Lord Farnham.*

Shelf II., *Tray* **CC**, contains thirty-three celts of different patterns, numbered from 241 to 273. The two first rows are small; the last consists of specimens of the long character; each row containing eleven celts. In the first they vary in size, from No. 245, which, like the type of the majority of those on the preceding Tray, is composed of felspathic trap, mottled with hornblende, but of a dark variety, and is $3\frac{1}{4}$ inches long, and $1\frac{3}{4}$ broad,—to No. 241, of shale, which is $4\frac{1}{8}$ inches long, and 2 broad, and has a sharp cutting-edge at both extremities. In this row, most of the specimens are of the flat character, and many have an oblique cutting-edge.

The second row contains eleven celts, averaging a larger size, and in dimensions extending from No. 257, which is $3\frac{1}{4}$ inches long, by $2\frac{1}{8}$ broad, up to No. 253, of shale, which approaches clay-ironstone, and is $4\frac{1}{2}$ inches long, by $1\frac{1}{2}$ in breadth. No. 252 is flat on the under surface, and resembles an ordinary celt split in two. No. 255 is very perfect of its class, and is composed of dolerite, a rock less common in Ireland than basalt, and only occasionally met with in the Collection. No. 256, of basalt, resembles the ovoid celt figured at page 43, Fig. 48. No. 262, of shale, with a drab-coloured surface, resembles the blade of a modern axe.

The last row contains eleven long celts, varying in size, from No. 266, which is $5\frac{1}{2}$ inches long, by $2\frac{1}{8}$ in breadth, up to No. 270, of hornblendic greenstone, $7\frac{1}{2}$ inches long, by $2\frac{1}{2}$ broad; it is slightly curved, and, together with several other specimens on this Tray, is

imperfect on the surface. No. 269, of ironstone shale,—a bad material for making celts, and decomposing in some places,—it is, however, of interest to the antiquary, from exhibiting the remains of the manufacturing process, both in the longitudinal smoothing, and the diagonal rasping or filing. No. 272 is a curved specimen of felstone porphyry, in shape somewhat between Nos. 38 and 48, already figured at pages 41 and 43.

Of the foregoing specimens, not already described, the following lithological specification has been made. Nos. 242 and 258 are of dark shale, approaching Lydian stone. Nos. 243 and 261 are dark shale. No. 244, felspathic trap, mottled with hornblende; of the same stone are Nos. 247 to 252, 257, 259, 266, some of which are of a darker character than others; and No. 251 is a porphyritic variety. Nos. 246 and 254 are of felstone; 260, crystalline greenstone; 262, of shale; 263, of greenstone, coarsely porphyritic; 264 and 265, felstone porphyry; 267, hornblendic greenstone; 268, greenstone; 271, felstone, passing into porphyry; 272, felstone porphyry; and 273, greenstone porphyry, with reddish felspar.

Nos. 242, 243, 247, 248, 250, 253, 255, 257, 258, 260, 261, 269, and 270, were—*Presented by the Shannon Commissioners;* Nos. 244 and 249—*by Lord Farnham;* and No. 256—*by the representatives of Leslie Ogilby, Esq.* No. 251 was procured from the county of Antrim; No. 252, from the county of Armagh; and No. 268, from the county of Derry.

Shelf II., *Tray* **DD**, contains twenty-two celts of an inferior description both as to manufacture and material; most of the good and characteristic varieties having been disposed of in the foregoing enumeration. The numbers on this Tray run from 274 to 295; and in size the specimens vary from No. 275, which is only $3\frac{5}{8}$ inches long, by $1\frac{3}{8}$ broad, to No. 295, which is $8\frac{1}{2}$ inches in length and $3\frac{3}{8}$ broad. Many of these celts are imperfect both on the sides and upper ends. Among those formed of shale, No. 290 is a good specimen. No. 291 has a hole partially drilled through its upper end, and apparently by a metal tool. No. 293 is one of the rudest specimens of the long round celt in the Collection; it is $7\frac{3}{8}$ inches in length, but slightly imperfect at top, and $2\frac{1}{4}$ inches in breadth across the middle. Although so rude in the shaft, it has one of the sharpest cutting-edges of any celt in the Collection. No. 294 is an

excellent example of the type of stone which appears to have been carefully sought out for making these articles, viz., felspathic trap, mottled with hornblende (see p. 61); and which, although not very rare, is by no means a common rock. It is called *Petrosilex* by German geologists; usually, felstone or felspathic trap by us.

Nos. 274, 280, 283, 284, and 288, are of siliceous basalt. Nos. 275, 276, 282, 285, 286, 289, and 294, are varieties of felspathic trap. No. 277 is of felstone. Nos. 278, 281, 290, 291, 292, and 295, are varieties of shale. No. 292 shows planes of stratification. No. 279 is gritty slate. No. 287 is hornblendic schist. No. 293 is clay-slate.

Nos. 278, 280, 288, and 289, are from the county of Antrim; No. 277, 279, and 362, from the county of Derry; No. 293 is from the county of Cavan; and No. 295 from the county of Armagh.

SHELF I., *Tray* **EE**, in the top corner of the third compartment, holds a collection of nineteen peculiarly shaped celts, from No. 296 to 314. No. 296 is a very well-shaped tool, of massive shape, $7\frac{1}{2}$ inches long, by 3 broad, and 2 thick; being more than usually bulky in the middle. It is without a single flaw, and has one of the most perfect sharp tops of any in the Collection, for, in general, such portions are broken off; it also shows the planing on one side, similar to No. 36. This specimen was found $3\frac{1}{2}$ feet under the bed of the river Blackwater, in the barony of Garrycastle, King's County, during the drainage of the Derryholmes district (see Proceedings, vol. v., App., p. 58), and was—*Presented by the Board of Works.* No. 297 is a massive, round-topped celt, $8\frac{1}{2}$ inches long, and $3\frac{1}{2}$ broad, of green grit; its edge has been broken off, as if by hammering. This and the five following were procured from Lough Gur, county of Limerick. No. 298 is $8\frac{1}{4}$ inches long, and $3\frac{1}{8}$ broad, flat, oblique-edged, very sharp, and accurately formed. No 299, a most perfect specimen, 6 inches long, by $2\frac{3}{8}$ broad, has a semicircular cutting-edge sharp as a modern axe, and a perfect round top, similar to No. 297. No. 300 is a small, chisel-topped celt, $4\frac{1}{2}$ inches long, by $2\frac{3}{8}$ broad. No. 301, a flattish, but perfect celt, is $6\frac{1}{8}$ inches long, by $2\frac{1}{2}$ broad. No. 302 is a remarkable-shaped celt, like No. 24 on Tray **P**, containing the chisels, but is much larger, being oval in figure, and wanting the shoulder to the

edge; it is $5\frac{7}{8}$ inches in length, and $2\frac{5}{8}$ broad at the widest part, which is nearly in the middle. No. 303 is $7\frac{1}{2}$ inches long, and 3 broad, triangular in form, with a bevilled edge, like the tooth-shaped variety, and resembles No. 40, on Tray **T**, being broadest at the shoulder, where the edge and sides meet. It was found, with the four following specimens, in the bed of the river Corrib, in excavating the ancient ford at Menlo, near Galway. No. 304 is a rude, natural piece of shale, sharpened and rounded at the edge and the top, $6\frac{1}{2}$ inches long, by $2\frac{3}{4}$ broad. Nos. 305, 306, and 307, are of the same character and material, showing on their surfaces the natural cleavage, but shaped by art on the cutting-edge. These five celts were—*Presented by W. T. Mulvany, Esq.*, in 1852, on the part of *the Board of Works* (see Proceedings, vol. v., App., p. 59). They resemble the common kind found in the Shannon. No. 308 is $6\frac{1}{4}$ inches long, by $2\frac{1}{2}$ broad; it is imperfect at top, but has one of the most beautifully-shaped sharp cutting ends of any in the Collection; it is composed of felstone porphyry. The six remaining celts, at the end of this Tray, are of a small character, and inferior make and shape.

No. 296 is composed of greenish-gray translucent felstone; No. 297 is of green grit, weathering white; No. 298, of red felspathic slate; Nos. 299 and 308, of greenstone and felstone porphyries; Nos. 300 and 301, of felstone; Nos. 302, 303, 314, 320, 321, and 324, are of either fine-grained crystalline or hornblendic greenstones, or of greenstone schists; Nos. 304 to 307, and 315 to 318, are of dark shale; Nos. 309, 310, and 313, are of felspathic trap, mottled with hornblende; Nos. 311 and 312, of siliceous basalt; No. 319, of coarse micaceous hornblende slate; No. 322, of coarse gritty slate; and No. 323, of coarse micaceous clay-slate.

Nos. 308, 309, and 310 were found at Loughan Island, on the river Bann, county of Derry, and were, with No. 314, from Portna—*Presented by the Board of Works.*

Shelf III., *Tray* **FF**, contains ten celts of the largest description, and, with one exception, all of the broad, flat character, numbered from 315 to 324. No. 315 is a very thin, flat shale celt from the Shannon find, showing the natural surface on the sides, and marked by red lichen on the edges; but an examination of the cutting-edge where it turns into the shaft shows that the rubbing down of

this surface occurred after the staining had taken place, subsequent, however, to the chipping process which gave it shape, as if it had been lost, and had lain in the water until the red lichen formed upon it, and was then recovered and re-sharpened. It is 7¼ inches long by 3⅝ broad, and ⅝ths of an inch thick. Nos. 316 and 317 are of the same character, the latter having, however, a better cutting-edge. No. 318, from Oughterard, county of Galway, is a large, flat, elliptical celt, above 10 inches in length, and 2⅝ broad in the middle, and sharpened at both extremities. Passed through a wooden handle, it would make a formidable battle-axe. No. 319, of coarse micaceous hornblende slate, a rude, rough celt, much acted on by air or water. No. 320, from the county of Armagh, is a very remarkable celt of the long flat character, 13¾ inches long, 4½ broad, and 1¼ thick. No. 321 is of the long rude type, with a sharp edge and round-pointed top; it is 7¼ inches long by 2¼ broad. No. 322, a rude celt, 7¾ inches long by 3¼ broad. No. 323, the largest celt in the Collection, figured on p. 43; is 21¾ inches long, 3¾ broad, and 1 thick. No. 324, a rude celt of schist, but polished at the cutting-edge, is 9⅝ inches long by 3⅜ broad. It and Nos. 316 and 317 were found in the Shannon.

Nos. 315 to 318 are of dark shale, the latter having lines of stratification visible; No. 320 is of greenstone; No. 321, of hornblendic greenstone; No. 322, of coarse, gritty slate; No. 323, of coarse, micaceous, clay slate; and No. 324, of hornblendic greenstone schist.

In the Cross-Case between the first and second Compartments will be found, with a few exceptions, the remainder of the celts; nearly all of which were found in the bed of the Shannon, and were presented by the Commissioners for Improving the Navigation of that river. Trays **GG** and **HH** are occupied with celts from the great Shannon find, and present examples of the two materials found in that locality,—the former affording samples of the shale, and the latter of the trap-rocks and felstones. In shape, the specimens on these two Trays differ materially—those of shale being all flat, but almost invariably perfect at the cutting-edge, while those of the harder rocks on Tray **HH** are mostly of the long and round character, and have been much injured. Nos. 325, 326, 327, and 328, are dark shale; Nos. 329 to 335 are dark shale, approaching Lydian

stone; Nos. 329 to 353 are all dark shale with planes of stratification, except No. 344, which is calcareous shale.

SHELF I., *Tray* **GG**, contains twenty-nine celts, numbered from 325 to 353. In size they vary from No. 343, which is $7\frac{5}{8}$ inches in length, by 3 in diameter, to No. 337, which is $4\frac{1}{2}$ inches long, by $1\frac{7}{8}$ in breadth. Except in a few instances, the precise localities from whence these were obtained have not been ascertained; however, Nos. 332 and 344 are stated to have been found in the bed of the ford at Keelogue, but they do not present anything remarkable.

SHELF I., *Tray* **HH**, contains thirty-seven celts, numbered from 354 to 390. Those on the top row, twelve in number, are generally short and broad, and vary in size from No. 360, which is $3\frac{3}{8}$ inches long, to No. 365, which is $4\frac{5}{8}$ inches in length. Those of the second row are mostly of the smaller varieties, varying from No. 366, which is 3 inches long, to No. 377, which is $4\frac{1}{8}$. In the bottom row the specimens are generally of the long thin variety, and vary in size from No. 378, which is 7 inches long, to No. 385, which is $4\frac{1}{2}$. No. 378 is marked with red paint, which it appears to have been used to stir. No. 379 and 380 are slightly curved, and much water-worn; the latter, as well as No. 382, is stained with a deep red colour by the lichen already alluded to. No. 381, felspathic slate streaked with hornblende, bears the marks of the secondary, or rubbing process, similar to No. 13. No. 383 is the most perfect specimen of the lot, although composed of yellow sandstone; it is $5\frac{3}{8}$ inches long, and $2\frac{1}{8}$ broad, where the cutting-edge joins the body. No. 354 is hornblendic greenstone; Nos. 355 and 387 are siliceous slate; Nos. 356 and 378 are gritty slate; Nos. 357 and 358, shale; No. 359, pale green felstone; Nos. 360 to 364, and 371 to 376, are felspathic trap, mottled with hornblende, Nos. 361 and 364 being dark varieties, and No. 362 a light variety. Nos. 365 and 384 are dark shale; Nos. 366, 368, and 379, are dark shale, approaching Lydian stone; No. 367, fine-grained greenstone; Nos. 369, syenitic greenstone; No. 377, porphyritic greenstone; No. 380, crystalline greenstone; No. 381, porphyry; Nos. 382 and 390, clay-slate; No. 383, yellow sandstone; No. 385, fine siliceous slate; No. 386, mottled felstone porphyry; No. 388, felstone schist; and No. 389, dolerite. This concludes the classified celts attached to Trays. Of the remaining, amounting to one hundred and twenty-

one, 87 were found in the Shannon excavations, making the entire amount of chisels and celts discovered in that locality one hundred and fifty-seven, have been placed on the second and third shelves in the cross-case, between the first and second Compartments; they are nearly all of shale, of the flat character, and of medium size. Several are marked with the red lichen, already alluded to, which proves that these specimens were not imbedded in mud or gravel, but had, at least, one side exposed to the action of running water.

The First Cross-case, Shelves II. and III., contains ninety celts, eighty-one of which (numbered from 391 to 471) were found in the Shannon, and which, together with six others in the Railcase, were—*Presented by the Shannon Commissioners.*

Of the other nine celts on the third Shelf, numbered from 472 to 480,—No. 473 is a small specimen, 3½ inches long, formed out of a shale nodule, and found 15 feet under bog in the townland of Lisachrin, parish of Desertoghill, and county of Derry. No. 474, of dark shale, and 475, of felstone slate, mottled with hornblende, were procured from the parish of Rasharkin, county of Antrim, a locality that has afforded many other specimens of stone implements, as already stated. No. 476 is a chisel-shaped instrument, formed out of a piece of clay-slate, very rude and unfinished in the body, but most accurately shaped, polished, and sharpened to a semicircular cutting-edge. This evidently was a tool in which the edge alone was serviceable: had it answered the purpose of a weapon-axe, more time and labour would, in all probability, have been expended upon its external figure.

Rail-cases A and B.—The remaining thirty celts will be found in the end of Rail-case A, and the commencement of Rail-case B, and are numbered from 481 to 511. From Nos. 481, 482, and 483, have been drawn the illustrations, Figs. 37, 42, and 51, at pp. 41 and 44.

No. 484, measuring 3½ inches long, by 1½ broad, is a small, decorated, chisel-shaped celt, of shale, resembling, in most respects, the foregoing number. It has four small perforations, not thorough, but surrounded by engraved circles. This came to hand after the decorated celt, Fig. 51, p. 44, was described. No. 485, of siliceous slate, 3⅛ inches long, by 1½ broad, is perforated at the smaller extremity, somewhat chisel-shaped, and flat on the side-edges. No. 486 is

2½ inches long, by 1⅞ broad, of pale hornblendic schist; it was found two feet under the surface, in gravel, over moory, alluvial soil, in the townland of Gardenfield, parish of Tuam, and county of Galway, during the drainage of that district in 1851, and was—*Presented by the Board of Works.* No. 487, already described at p. 45, and covered with marks like Ogham characters, is 7⅞ inches long, by 3 broad, and was procured from M. J. Anketell, Esq., of the county of Monaghan. No. 488, of shale, 6⅛ inches long, by 2 broad, is a thin, narrow celt, in shape like No. 481. No. 489, of pale green felstone, is 5 inches long, by 1⅞ broad. No. 490 is flat on one side, but on the other ovoid, not unlike Fig. 47, p. 43; its dimensions are 3⅞ inches long, by 2¼ broad, and it is composed of a remarkably light clay-slate, of the rotten-stone type, similar to No. 461 of the Shannon celts; it was procured from the county of Down. The three next specimens resemble in shape the muscle shell. No. 491, composed of felspathic trap, mottled with hornblende, is 5⅛ inches long, by 2 broad. No. 492, of shale, 3¼ inches long, by 1¼ broad, is similar in shape to the foregoing; its broad end being rubbed into a celt-shaped cutter, and on the other retaining the natural spike. No. 493 is another muscle-shell-shaped celt, of gray sandstone, 3¾ inches long, by 1¼ broad. The four following numbers, from 494 to 497, are long, chisel-shaped instruments, with celt edges. The first is round-handled, 3⅛ inches in length, by 1⅛ broad; it is composed of gritty slate, and was found in the drainage works of Pettylough, on the Farnham estate, county of Cavan. No. 495, a long, round-bodied chisel-celt, of fine-grained, compact grit, is 4¾ inches long, by 1⅛ broad. No. 496, a long, narrow, chisel-shaped tool, of gray felstone, 3⅞ inches long, by 1¼ broad; procured from the parish of Tamlaght O'Crilly, county of Derry. No. 497, a dark variety of felstone, mottled with hornblende, is 3⅞ inches long, by 1⅛ broad. No. 498, of same material as the last, but of a light variety, is the lower portion of a very beautiful shaped celt, found in Portna Shoal; it was —*Presented by the Board of Works.* No. 499 is small and chisel-shaped, of gritty shale, 3⅜ inches long, by 1⅜ broad. Nos. 500 and 501 are of felstone, mottled with hornblende; the former is 3 inches long, by 1⅜ broad; the latter 3 inches in length, by 1½ broad. No. 502, of dark dolerite, with spangles of mica, is 3¾ inches long, by 1½ broad.

No. 503, of hornblende slate: a small celt, from the county of Down, much weathered, but perfect in outline; its length is $3\frac{1}{2}$ inches, by $1\frac{1}{2}$ broad. No. 504, a hand chisel, of pale slate, $2\frac{3}{4}$ inches long, by 2 broad, is remarkable for being found in an urn near the ruins of Trummery church, county of Antrim. No. 505, of shale, $3\frac{7}{8}$ inches long, by $2\frac{1}{8}$ broad, was—*Presented by Captain Walsh.* Nos. 506 and 507 are of felstone, mottled with hornblende; the former is a well-polished, medium-sized celt, $4\frac{5}{8}$ inches long, by $2\frac{3}{8}$ broad, remarkable for the extreme sharpness and perfection of its edge, which presents a wavy line rarely seen in celts, but which may be observed in Nos. 482 and 498 in this compartment; the cutting-edge is prolonged on one side, and not on the other; it was found in the excavations above the new bridge at Killeshandra, county of Cavan. No. 507, similar in shape to No. 481, is $5\frac{1}{4}$ inches long, by 2 broad; it was found in Drumrane reach, in the bed of the old river near Ballinamore, county of Leitrim. No. 508, of hornblendic syenite; round-handled, and very perfect, is $5\frac{1}{8}$ inches long, by 2 broad, and $1\frac{1}{2}$ thick; it was found near Killeshandra during the drainage operations there, and was, with the two previous specimens—*Presented by the Board of Works.* No. 509, of coarse, decomposing greenstone, and 510, of basalt, are bulky celts, resembling punches, with which they might not improperly be classed. No. 511 is a dark shale celt, $6\frac{5}{8}$ inches long, and 3 broad; it was found in gravel, $4\frac{1}{2}$ feet beneath the surface of the river Suir, above Knocknageera Bridge, barony of Eliogarty, and county of Tipperary, and was—*Presented by the Board of Works.* No. 512, the last in the Collection, of shale, $3\frac{1}{4}$ inches long, was found near Rathbarn, county of Sligo.

Nos. 485, 488, 491, 492, 495, and 497 were—*Presented by the Shannon Commissioners;* and Nos. 494 and 502—*by Lord Farnham.*

The total number of stone celts in the Academy's Collection at present amounts to five hundred and twelve.

Upon the composition and lithological characters of these stone celts, Professor Haughton, having carefully examined every specimen in the Collection, has furnished much valuable information, of a kind which has not heretofore been associated with antiquarian researches. Upon reviewing this grand col-

lection of celts, we cannot but be impressed with the fact already alluded to, that all the good specimens, evidently designed for special purposes, and given certain definite shapes, were formed out of rocks characterized by the possession of all the requisite qualities for such articles; while the rude, ill-formed, and apparently inexpensive implements of this class were made of shale, slate, schist, grit, or any other stone which offered within the reach of those who required them.

Of the better qualities of rock suited for celt-making,—the type of the felspathic extreme of the series of trap rocks is the pure felstone, or petrosilex, alluded to at page 65, of a pale bluish or grayish green, except where the surface has been acted upon, and the average composition of which is 25 parts quartz and 75 felspar. Its physical characters are absence of toughness, and the existence of a splintery conchoidal fracture almost as sharp as that of flint. It was this which caused it to be preferred for the manufacture of all sharp cutting celts. This rock is closely allied to obsidian and some varieties of trachyte, and exists at Bellrock, Ballymurtagh, county of Wicklow; Carrickburn, county of Wexford; Knockmahon, county of Waterford; and Benaunmore, Killarney, county of Kerry.*

At the hornblendic extreme of the trap rocks we find the basalt, of which also celts were made; tough and heavy, the siliceous varieties having a splintery fracture, but never affording so cutting an edge as the former. It is composed of augite, zeolites, and magnetic iron, and is confined to Antrim alone.

* In Rail-case B has been placed, for the sake of comparison, a celt found in the cutting of a railway between Kingstown and Spanishtown, in the island of Jamaica, and—*Presented by G. M. Miller, Esq., C. E.* It is $8\frac{3}{8}$ inches long, and $4\frac{1}{2}$ broad at the widest portion, pointed at one end, and very sharp at the round cutting-edge. It is shaped like a muscle shell, is highly polished, and does not possess a single flaw; it may be taken as one of the most beautiful specimens of a celt, and one of the most perfect samples of the material most precious in the formation of such instruments, being a greenish felstone.

Intermediate in character between these two rocks, we find all the varieties of felstone, slate, and porphyry streaked with hornblende, from which the great majority of the foregoing implements have been made.

There can be little doubt that these rocks were specially sought after for the manufacture of the required implements; it is also apparent that the knowledge of these stones and the formation of these tools and weapons was a special art, and that there was a trade in them from one part of the country to another.

In the absence of direct proof, the inquirer must form his own opinion respecting the precise use of the typical Stone Celt,—as to whether it was a tool or a weapon, or served the office of both. Whether the celt was the *Lia miledh*, or warrior's stone alluded to at p. 17, is also a question worthy of investigation. The following most interesting references to documentary evidence, bearing upon this question, have been communicated by Mr. Curry:—

In the ancient Irish tract descriptive of the career of Congal Claringnech, prince of Ulster, preserved in the Library of the Academy, we read that Fergus "put his hand into the hollow of his shield, and took out of it a *Leacán laechmhileadh* [the semi-flat stone of a soldier-champion], and threw a manly cast, and struck the hag [a druidess] on the front of her head, which it passed through, and carried out its own size of the brains at her poll."

In the Book of Ballymote it is said that Eochaidh, son of Enna Ceinnselach, threw a cast of a *Liagh churadh* (a champion's flat stone), which he held in his girdle, which struck Laidcainn, the poet, in the forehead, where it remained, and he was killed by it.

In the record of the battle of the Ford of Comar, near Fore, in the county of Westmeath, and which is supposed to have occurred in the century before the Christian era,—it is said that "there came not a man of Lohar's people without a broad, green spear, nor without a dazzling shield, nor without a *Liagh-lamha-*

laich [a champion's hand-stone], stowed away in the hollow cavity of his shield . . . . . And Lohar carried his stone like each of his men; and seeing the monarch, his father, standing in the ford with Ceat, son of Magach, at one side, and Connall Cearnach at the other, to guard him, he grasped his battle-stone quickly and dexterously, and threw it with all his strength, and with unerring aim, at the king, his father; and the massive stone passed with a swift rotatory motion towards the king; and despite the efforts of his two brave guardians, it struck him on the breast, and laid him prostrate in the ford. The king, however, recovered from the shock, arose, and, placing his foot upon the formidable stone, pressed it into the earth, where it remains to this day, with a third part of it over ground, and the print of the king's foot visible on it."

The account of the battle fought near Limerick by Callachan Cashel against the Danes, about A. D. 920, and preserved in the Book of Lismore, describing the warfare of the period states, that "their youths and their champions and their proud, haughty veterans, came to the front of the battle to cast their stones, and their small arrows, and their smooth spears on all sides." So that even so late as the tenth century stones were used in battle in Ireland.

From these it is manifest that the stone used was sharp at one end, and unconnected with a handle, or it could not (making every allowance for the mode of expression of the period) have passed through and through the head. It appears to have been a naked celt thrown with the hand.

SLING-STONES.—At page 17 we gave a description of the flint sling-stone, and this seems the proper place to describe similar implements of stone. In Rail-case B will be found a number of flat, oval stones, of small size, numbered from 1 to 9, and which apparently belong to this species of weapon. No. 1, here figured one-third the natural size, is formed out of a piece of hard gritty sandstone, of a reddish colour, and is $3\frac{1}{16}$ inches in the long, and $2\frac{1}{2}$ in the short diameter, and is $1\frac{1}{2}$ thick. It is geometrically perfect in all its proportions,

and exhibits great skill and labour in its formation. Whether used as a finger-stone, or projected with a sling, a more perfect missile of its kind could not possibly have been formed; and it is only to be equalled by the flint weapon of the same

Fig. 55. No. 1.

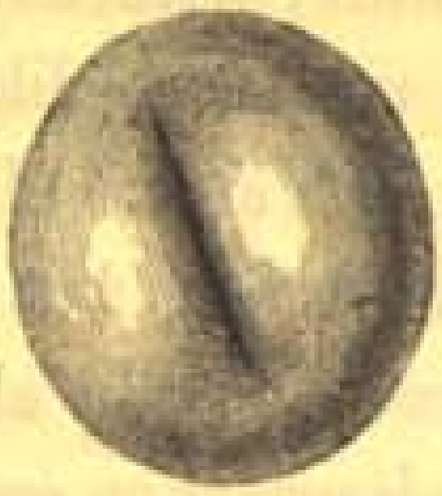

Fig. 56. No. 3.

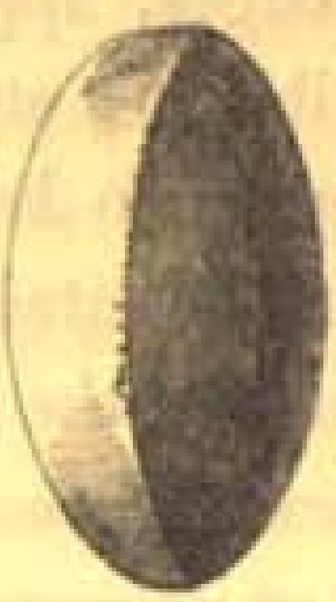

Fig. 57. No. 5.

variety already figured at page 18, and to be found on Tray E, No. 490. That such stones, as well as the sharp, polished celt, were risked in the cast, is true; but their value as destructive engines can only be measured by the importance attached to the death of a celebrated leader or champion at the time they were in use; and the perfection which was, in all probability, attained in early times in projecting such implements as celts, finger-stones, or sling-stones, may be estimated by the precision with which stones were flung at faction-fights in modern times. No. 2 is a perfect specimen of the foregoing, but somewhat flatter and longer, and not so very regular in its proportions; the edge is also rather sharper; it is made of limestone pebble, and is 3¼ inches long, by 2½ broad, and 1¼ thick. In the centre of each flat surface may be observed a slight indentation, such as might be effected by rubbing with a metal tool. This curious mark is generally cut into the stone from about a line, or the eighth of an inch, obliquely to the perpendicular line of the implement, and has been observed on many similarly formed, and also on shuttle-shaped stones in this country and in Northern Europe. Models of some of these will be found in the Scandinavian collection. While the foregoing were evidently formed with the greatest care, and according to some definite rule, and for a precise object, natural stones, approaching them in shape,

appear to have been employed for like purposes, of which we possess some examples in this Collection. Nos. 3 and 4, the former represented one-third the natural size by Fig. 56, are natural quartz rock pebbles, flat, and nearly circular, with round edges, apparently water-worn, and resembling, as far as possible in a state of nature, artificially formed sling-stones, and appear to have been used for a like purpose; they both bear the indented line on each side. This mark is sometimes polished like the rest of the surface, but more frequently bears the mark of a tool, as if worked in by sharpening the point of a knife or dagger, for which use they may have been occasionally employed. They were, in all probability, carried in either the satchel, the girdle, or the hollow of the shield. If taken in the hand, a more perfect finger-stone cannot well be imagined. No. 3, which is $2\frac{5}{8}$ inches in the largest diameter, was—*Presented by Lord Farnham.* No. 5, Fig. 57, formed out of quartz rock, was either another variety of sling-stone, or is in the formative process towards No. 1, from which it differs in having a more pointed extremity, and flat side-edges. It is $2\frac{7}{8}$ inches long, $2\frac{1}{8}$ broad, and $1\frac{1}{4}$ thick in the middle, from which it inclines on all sides to the flat side-edge, which is $\frac{7}{8}$ths of an inch in breadth in the middle, and about $\frac{1}{2}$ an inch at each extremity. This, with Nos. 1 and 2 (being the three altogether artificially formed stones of this class in the Collection) were found during the Shannon excavations, but the precise localities, or the peculiar circumstances under which they were discovered, have not been recorded. They were—*Presented by the Shannon Commissioners.*

No. 6 is a sling-stone of quartz rock, similar to No. 1. It is nearly $3\frac{5}{8}$ inches long, is $2\frac{3}{4}$ broad, and $1\frac{1}{2}$ in thickness. This remarkable specimen, which is the longest of the variety, and was found in the Dunshaughlin Crannoge,* is a natural flatted oval stone, which has been rubbed or ground on the edge so as to take off any irregularity which may have presented on

* For the description of a Crannoge, or stockaded island, see Section III., Wooden Materials.

the natural surface; it also shows the commencement of the oblique indentation on the sides as if a metal tool had been sharpened upon it. No. 7 is an oblong or kidney-shaped natural stone, 5 inches in length, and rounded at the extremities; the side indentation is not artificial: it also was procured from Dunshaughlin. No. 8 is like the foregoing, of quartz rock, but is a smaller specimen, being only 3¼ inches in length. No. 9, an oval, naturally-formed stone, of gray grit, 3⅛ inches long, 3 broad, and 1¾ thick, smooth on the surface, but has been artificially rubbed all round the edge; in fact, the process of forming it into a perfect sling-stone had been just commenced.

In the ancient metrical story of the *Tain-bo-Cuailgne*, or great cattle raid of Louth, several descriptions are given of the dress and arms of the early Irish soldiery, extracts form which have been kindly furnished by D. H. Kelly, Esq.* Thus, in Cuchullin's conflict with Leathan, the champion made a sign to his slingers to remain under cover of the Bards, and to sling round stones over their heads at Meabh, Queen of Connaught. Again, in his combat with Cuir Mac Dalot—the warrior, "on his antagonist fixing firm his eyes, flung his eight balls high up into the air; and whilst on them his attention was fixed, slung one so dextrously that it struck Mac Dalot's shield, and right through it reached his face. And so great was the force of the ball by Cuchullin flung, that through his head it passed, driving his brains out at the hind part of his fractured skull." And in the description of his chariot and armour, after enumerating his swords, spears, arrows, and shields, &c., it says, he bore "in his hands his slaughter-dealing sling."

This concludes the weapons and weapon-tools of stone; and, according to our classification, the tools proper follow next in succession.

* The Rev. Dr. Graves has recently placed at our service a valuable translation of this MS., made by Mr. Curry.

SPECIES II.—TOOLS.

HAMMERS.—Next to the stone-hatchet or celt, used as a tool or weapon, and either held directly in the hand, or fitted into a wooden handle, we may take up the stone hammer, into which the handle was inserted. This necessitated the formation of an aperture, which was a decided advance in art; yet the typical form of the celt was retained in the earliest of these tools. The hole was probably produced by rotatory friction, as in rubbing or drilling with another hard, round stone, and the use of sand and water. Yet, as the stone hammer descended to much more modern times than weapons of the same material, metal may have been employed in making the aperture. Indeed, in some of the most perfect specimens in the Collection, a careful examination of the edge, and also the inner surface of the hole, leaves no doubt that the piece was cut out with a metal drill (see in particular Nos. 7, 9, 10, 12, and 21, on Trays **II** and **KK**). Where metal was used, the sides of the apertures are cylindrical, and in some cases the circular lines left by the tool may be seen, as in No. 7; where, on the contrary, a stone was used, the edge of the aperture is deeply splayed on each side, and the septum broken through, as shown in several of the hammers on Tray **II**, especially No. 5. From an examination of the specimens it would appear, that in the earliest and rudest, the site determined upon for the hole was first chipped, or punched into a hollow, or indentation, and then the rotatory or grinding action of a hard, round, stone chisel, or punch,—such, perhaps, as some of those on Tray **M**,—was employed. By the same process the opposite side of the hammer was worked upon until the apertures met in the centre. The commencement of this process may be seen in the ovoid-shaped stones on Tray **NN**, where we find a series of objects illustrating the process of the formation of the aperture (see p. 94).

The stone hammers in the Collection may be divided into five varieties. First, the celt-shaped, of which the accompanying illustrations are good examples; the large, rude specimen, Fig. 58, one-fifth the natural size, is said to have been recently in use before it came into the possession of the Academy; and is provided with a modern wooden handle. It is composed of coarse hornblendic greenstone, is $10\frac{3}{4}$ inches in length, rounded at one extremity, and pointed at the other. Such an implement would be very effective in driving stakes, propelling wedges, chipping and shaping stones, or hammering punches, chisels, or cutters, in mining operations, or in slaughtering cattle. In this, and all the other varieties of celt-shaped hammers, the aperture is placed behind the centre. In the small specimen, No. 5, Fig. 59, we find the type preserved, although it is somewhat pointed at the end, behind the handle; it is $4\frac{3}{4}$ inches long, and shows, in a remarkable

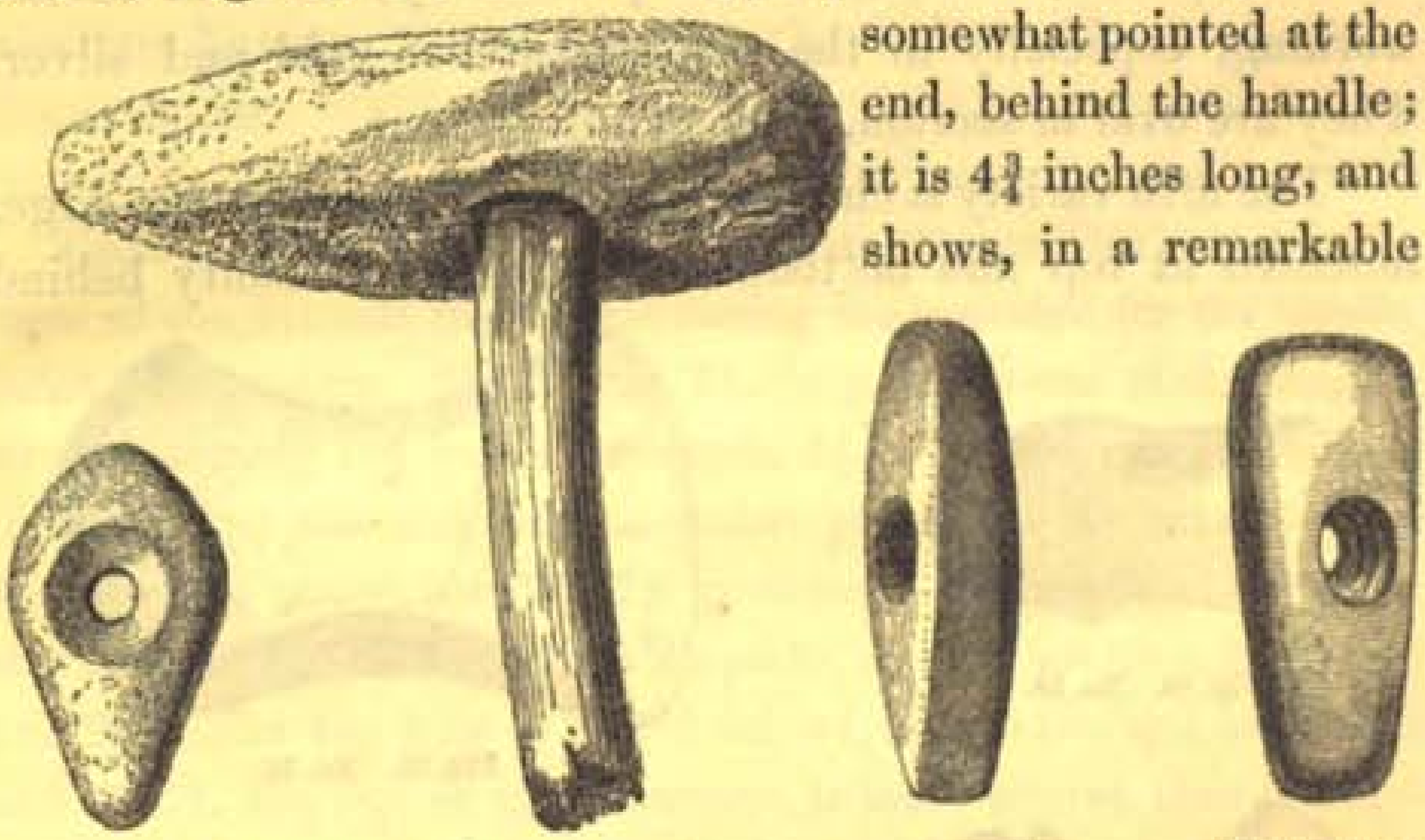

Fig. 59. No. 5. Fig. 58. No. 1. Fig. 60. No. 15. Fig. 61. No. 7.

manner, the deep splay for the hole. Of the same description is No. 4, also on Tray II.

The second variety, Fig. 60, is narrower than the former, and resembles the modern stonemason's hammer, of which Nos. 14, 15, 16, and 17, on Tray KK, are good examples. In these, the particulars of which are given in the description of that Tray, the aperture is in the centre, or very nearly

so. Fig. 61, No. 7, of flint, shows the track of the metal tool upon its aperture. It is, like all the others, except No. 9, one-fifth the natural size.

The third variety, Fig. 62, is egg-shaped, three specimens of which, Nos. 8, 9, and 10, are shown on Tray KK, and of which the accompanying illustration, drawn one-fourth the actual size, affords a good example. The aperture is small and cylindrical. It is of greenish micaceous sandstone. The fourth variety is the mallet, or maul, Fig. 63, of which we find two fine specimens, composed of gneiss, highly polished, with small, accurately cut apertures, and having rounded faces at each end. Such implements were, in all probability, used in metal-working, especially in the manufacture of gold and silver. They are oval in section, as shown in the cut.

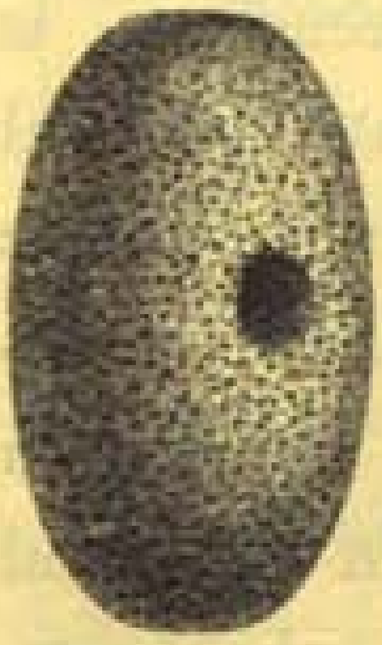

Fig. 62. No. 9.

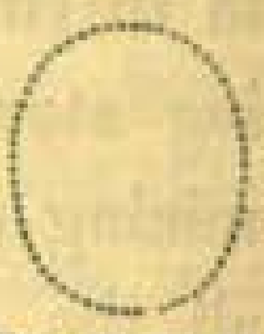

Fig. 63. No. 12.

The fifth variety is characterized by its broad hatchet-edge, indented at top and bottom, and massive extremity behind the handle, like a modern pole-axe. These three illustrations are all of the same variety, although presenting great diversity in size. Fig. 64 is of red sandstone, and only $5\frac{1}{4}$ inches long; while Fig. 65, which is of serpentine, and may be styled a massive sledge-hatchet, is $8\frac{1}{4}$ inches long, and $4\frac{7}{8}$ wide, the aperture being $1\frac{5}{8}$ in diameter; it weighs 6 lbs. 6 oz. The third specimen of this variety,

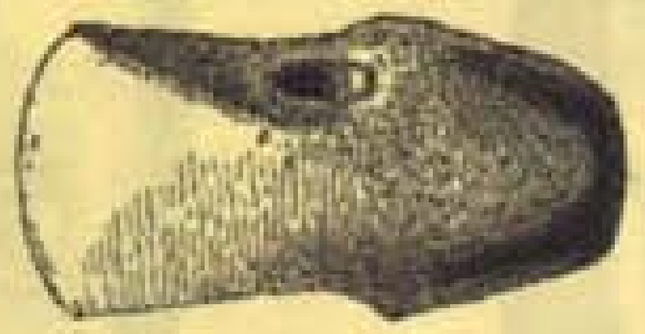

Fig. 64. No. 19.

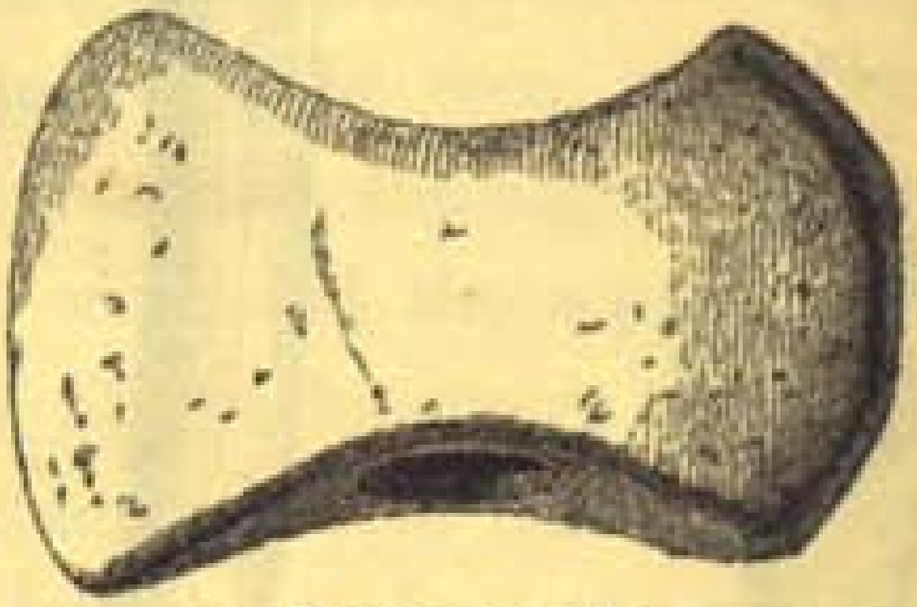

Fig. 65. No. 18.

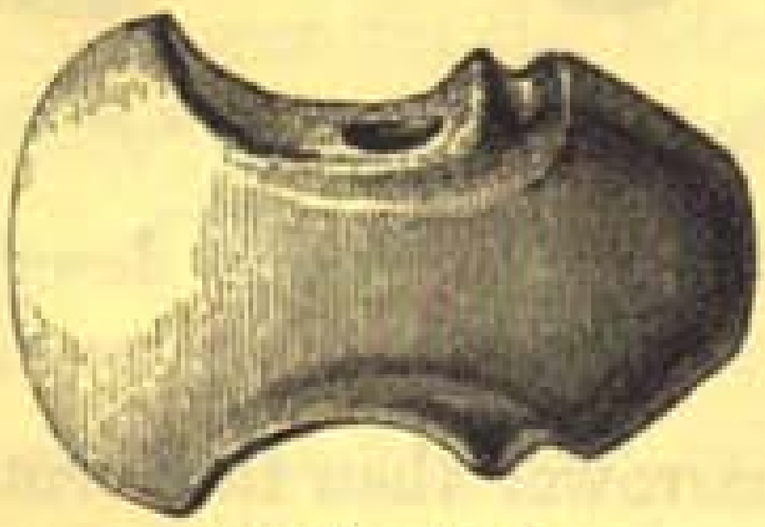

Fig. 66. No. 21.

Fig. 66, is, with its fellow, No. 20, one of the most beautiful specimens, both in design and execution, of the stone battle-axe which has been found in the British Isles. It is composed of fine-grained hornblendic syenite, and is highly polished all over, including even the sides of the aperture. It is 5⅜ inches in length, and 3½ broad at the widest portion. The edge is as sharp as that of most celts, while the hammer end is smoothed and polished; thus it might have been used as a maul in the workshop of the goldbeater; or as a war-mace, or battle-axe, have been wielded by the hand of the chieftain.

Stone hammers, and not unfrequently stone anvils, have been employed by country smiths and tinkers in some of the remote country districts until a comparatively recent period. The Irish name for a hammer is *ord*, a sledge,—a generic term; hence *lamh-ord*, the hand-sledge; *cas-ord*, the short, winding hammer; and *maoelin*, the little bald, or clawless hammer, &c.

COMPARTMENT III.—SHELF III., *Tray* XI, contains seven hammers of the flat celt shape, and having the aperture for the handle behind the centre. No. 1, Fig. 58, on p. 79, is one of the largest size, measuring 10¾ inches in length, 5¼ in breadth, and 2¾ thick; it is round at one end, and somewhat pointed at the other, and is composed of coarse hornblendic greenstone. No. 2 is of the same character, but much broader at the point, is 10 inches long, 5⅛ broad, and 2¾ thick: the hole is placed behind the centre, and in both it and No. 1, the top, or upper surface, is more convex than the bottom. No. 3, a portion of a large hammer, of dolerite, 5 inches long, 4⅞ broad, and 3½ thick, is more pointed at the end than either of the foregoing, but has the hole for the handle apparently more in the centre. The fracture through the middle of the fragment enables us to see that the hole was made from both sides, meeting in the centre. It was found at Brown's Bay, Island Magee, county of Antrim, in 1846, and was—*Presented by J. Huband Smith, Esq.* No. 4 is the largest specimen in the collection, being nearly 12 inches in length, by 5¾ broad at the widest portion, and 2½ thick. It is also of the celt shape, but slightly indented, so as to pre-

sent curves in the outline between the handle-hole and the point, which latter is $7\frac{3}{4}$ inches from the centre of the hole; both ends are round; the upper surface, presented by its present position, is convex. This specimen, together with Nos. 2 and 5, are formed of white coal sandstone. No. 5 is a miniature example of the former, but the outlines are much more elegant; it is $4\frac{3}{4}$ inches long, $2\frac{7}{8}$ broad, and $1\frac{1}{8}$ thick. The hole is behind the centre, but the anterior portion is comparatively more prolonged than that of the preceding. The aperture is remarkable, showing the process of cutting out the piece, the splay being so great that it is $1\frac{3}{4}$ inches wide at the surface, while it is but $\frac{5}{8}$ths of an inch in the clear of the bore. Nos. 6 and 7 have the handle-hole nearer the centre than any of the foregoing. No. 6 is of close-grained grit, $4\frac{7}{8}$ inches long, by $2\frac{1}{2}$ broad, and $2\frac{7}{8}$ thick; it is slightly imperfect. No. 7, represented by Fig. 61, on page 79, is of a somewhat different shape from any of the former; it is $5\frac{3}{4}$ inches long, $2\frac{3}{4}$ wide, and $1\frac{5}{8}$ thick, presenting nearly a flat face at each end. It is of smoothly polished flint. From the circular cutting within the aperture, one is led to the belief that it was formed with a metal drill, and not made with another stone.

Shelf III., *Tray* **KK**, contains fourteen hammers and hammer-shaped axes, from Nos. 8 to 21. Nos. 8, 9, and 10, are oval-shaped hammers, similar in form to those egg-shaped stones, with indentations in the sides, which may be seen at the top of Tray **NN**. No 8 is $4\frac{1}{2}$ inches long, by $2\frac{3}{8}$ broad, and $1\frac{7}{8}$ thick. The ends are rounded; it is slightly flattened in the middle; the aperture is in the centre, and is less bevilled than in the specimens on the foregoing Tray. It, together with Nos. 15, 16, and 17, upon this Tray, were found in the excavations at Portna Shoal, river Bann, and were—*Presented by the Board of Works.* (See also page 10.) No. 9 is egg-shaped, $4\frac{3}{8}$ inches long, $2\frac{5}{8}$ broad, and $2\frac{3}{8}$ thick, rounded at the extremities, and remarkable for being an example of a hammer in which the bore of the aperture presents parallel sides, it having been apparently drilled out by some metal tool. This and No. 8 are of greenish micaceous sandstone, smoothed, but not polished. It was procured from the bed of the Shannon, about 50 yards above the bridge of Athlone, and was—*Presented by the Shannon Commissioners.* No. 10, Fig. 62, composed of crystalline

syenite, pitted on the surface, is of the same pattern, but broader; it is 4½ inches in length, 3 broad, and 2⅜ thick. An examination of the aperture, the sides of which are nearly parallel, will show the central ridge, where the septum between the borings was broken through.

Nos. 11 and 12 are mauls or circular mallets, of gneiss, smoothed all over with great care. In both the aperture is comparatively small for the size of the tool, and is cut out with great precision, the sides being parallel and the surface perfectly smooth; so far as we are now capable of forming an opinion, nothing but a metal drill could have taken out the circular piece which originally filled this aperture. These mauls are slightly larger at one extremity than the other. No. 11 is 3½ inches long and 2¼ broad. No. 12, Fig. 63, on page 80, is 3½ long, and 2⅜ broad: it shows the ridge where the boring from either side met. It was—*Presented by Lord Farnham.*

No. 13 is a small tool, like a stone-breaker's hammer, only 3½ inches long, and composed of gneiss. It was found at Higginsbrook, near Trim, and was—*Presented by F. Higgins, Esq.*

Nos. 14, 15, 16, and 17, resemble modern stone-masons' dressing hammers; have large oval apertures nearly central, and sharp pick or wedge-shaped points, which taper to both extremities, one of which has a round striking-face, and the other a wedge or hatchet edge.

No. 14 is 6½ inches long, and differs from the others of its class in having a hatchet-edge 2⅜ inches in length, while the rounded extremity at the other end is but 1¼ inches broad. The hole is very large for the size of the hammer, being 1¼ inches in diameter, and slightly bevilled; owing to the thinness of its sides, it has been fractured at this point; it is of gray sandstone, weathering brown.

No. 15, of fine hornblendic greenstone, represented as Fig. 60, at p. 79, is the most perfect specimen of its kind, and resembles the modern stone-mason's iron hammer. It is 6 inches long; 2⅛ inches wide at the broadest portion, and 1½ thick. The hole, which is nearly in the centre of the tool, is oval, being 1¼ inches in length, and 1 inch in the transverse diameter; it is slightly dished or hollowed. The cutting-edge is hatchet-shaped, and nearly square; the

hammer-end slightly rounded. No. 16 is of coarse gray sandstone, $4\frac{5}{8}$ inches long, and much acted on by the atmosphere; it differs from the former in the broadest portion being behind the centre, where it is $1\frac{3}{4}$ inches broad; the hole is more oval than even the former, being $1\frac{3}{8}$ths by $\frac{7}{8}$ths of an inch in diameter. No. 17—This very perfect specimen, composed of fine-grained white sandstone, presents nearly the same form on either side of the aperture, which is very large, and has slightly sloping sides. It measures $4\frac{3}{8}$ inches long, by $1\frac{5}{8}$ in breadth, is round at one end, and hatchet-shaped at the other; the hole is 1 inch in diameter.

No. 18, a large sledge-axe, of serpentine, such as that found in Connemara, measuring $8\frac{1}{4}$ inches long, $4\frac{7}{8}$ broad at the cutting-edge, and also at the back, is indented to the width of $2\frac{5}{8}$ inches in the centre at top and bottom. The aperture is very large, has nearly parallel polished sides, and is $1\frac{5}{8}$ inches in the clear. This massive implement is $3\frac{1}{4}$ inches thick; and is represented by Fig. 65, at p. 80. It was found at Killilea, county of Down, and was—*Presented by the Rev. Dr. Hincks.* No. 19, represented as Fig. 64, p. 80, shows the intermediate form of indentation between No. 18, on the one hand, and No. 21, on the other. It is composed of red sandstone, is $5\frac{1}{4}$ inches long, by $2\frac{5}{8}$ broad, behind the aperture, and $2\frac{1}{4}$ thick. The hole is comparatively very small, and has parallel sides.—*Presented by Lord Farnham.* Nos. 20 and 21 are two beautifully formed battle-axe hammers, the first of sandstone, the second of fine-grained hornblendic syenite. No. 20 is $4\frac{3}{4}$ inches long, and $3\frac{1}{2}$ broad at the hatchet-edge; it is more curved in its indented sides, but it does not present the same amount of ornamentation as No. 21; the hole is smooth and round. It was found in the county of Galway, and—*Presented by A. B. Cane, Esq.* No. 21, figured as 66, on p. 80, is the most beautiful specimen of battle-axe hammer discovered in this country. It was found in the river at Athlone, is $5\frac{1}{2}$ inches long, $3\frac{1}{2}$ broad at the hatchet-edge, and was—*Presented by the Shannon Commissioners.*

Punches, cutters, punch-hammers, and pounders, the original type, and the perfect form of which are expressed by the accompanying illustrations, naturally occupy the next place to the hammers. With three exceptions, the sixteen

tools of this class in the Collection have been attached to Tray LL, which is placed in the lowest space of the third Compartment. They are all more or less conical, or wedge-shaped, and vary in section from a round, No. 22, Fig. 67, to an oval or elliptical form, No. 35, Fig. 68. The head or upper portion generally bears the marks of hammering, while the lower part is usually smooth, and either round or formed into a chisel-edge. Several of these punches have a groove on the side, more or less indented, round which was twisted a gad or flexible rod, which held it like a blacksmith's punch or chisel in use in modern times. In some of the rude forms this indentation is very slight; but in other specimens,—as No. 35, figured above, which is 5½ inches long, by 4¼ broad, and composed of hard greenish grit, smoothed all over, and polished at the edge,—it is cut in very deeply. In the absence of any authority whereby to determine the date of such an implement as this, we are led to associate it with the use of metals, and to consider it as coeval with the finer description of hammers figured in the foregoing section.

Fig. 67. No. 22.

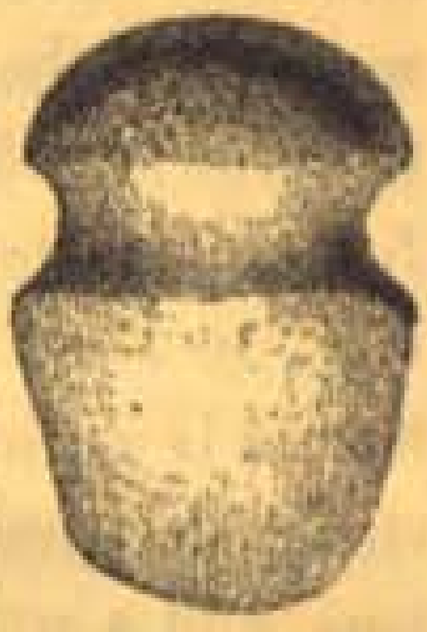

Fig. 68. No. 35.

In the thirteen specimens given on Tray LL, we find punches of the rudest and most massive form, as set forth in the following description. Most of them have been procured from the south of Ireland, several from the neighbourhood of Killarney; and as many of them have been found in ancient mines, they are usually associated with mining operations, and have been denominated "miners' hammers."* The three most highly finished specimens, Nos. 35, 36, and 37, are placed in Rail-case B.

* In the Rev. W. Hamilton's "Letters concerning the northern coast of the County of Antrim," we read an account of the discovery, in 1797, of a number of tools in an ancient mine at Ballycastle. See p. 34.

SHELF III., *Tray* **LL**, contains thirteen punches and miners' hammers, so called, numbered from 22 to 34, which, with the three more definitely-shaped examples of this description of tool in the Rail-case, amount together to sixteen specimens. No. 22, Fig. 67, is a massive punch, of gray quartz, $6\frac{1}{2}$ inches high, by $5\frac{3}{4}$ broad at top. It has an indentation chipped into it all round, for adapting to it the gad or holder. It was found at Ross Island, near Killarney, and was—*Presented by Mr. R. Hitchcock.* No. 23, a smaller specimen than the foregoing, composed of white sandstone, weathering brown, is $5\frac{1}{2}$ inches long, and $4\frac{1}{4}$ wide at the top; it was procured from Innisfallen, Killarney, and was the gift of the late Robert Ball, Esq., to Dean Dawson, with whose collection it was purchased. No. 24 is an oval-shaped, rude hammer-punch, of fine gray sandstone, flattened at the ends, and grooved at the sides, $5\frac{3}{4}$ inches long, and 4 wide. Nos. 25, 26, and 27 are three rude implements, fractured by use; found beneath six feet of peat in an old copper mine, in the townland of Boulysallagh, parish of Kielmore, near Skibbereen, county of Cork, and which were—*Presented by Captain H. Thomas* (see Proceedings, vol. ii. p. 64). They are composed of gray, micaceous, gritty sandstone. No. 25, greenish. Nos. 26 and 27 appear to be natural-shaped stones, slightly modified for use; the latter is $6\frac{1}{2}$ inches long. No. 28 is a heavy celt-shaped pounder, of metamorphic slate, with a cutting-edge, very perfect in all respects, $5\frac{3}{8}$ inches in length, by 3 broad. No. 29 is oblong, square-edged, of the massive chisel character, and composed of dark shale; it is $6\frac{3}{8}$ inches long, by $2\frac{1}{2}$ broad at one end, and $1\frac{5}{8}$ at the other, and is $1\frac{1}{8}$ thick; it is blunt at both extremities. No. 30, a rude pounder, 6 inches long, by $3\frac{1}{4}$ broad, of coarse yellow grit. No. 31, a natural-shaped stone, showing scarcely any traces of manufacture, but exhibiting marks of having been used as a punch or pounder; it is $5\frac{1}{2}$ inches long, by $3\frac{5}{8}$ broad, and resembles No. 25. No. 32 is a celt-shaped punch, 9 inches long, by $3\frac{3}{4}$ broad, tapering to a point at top. No. 33, a pounder, or heavy celt, $5\frac{1}{4}$ inches long, by $2\frac{3}{4}$ broad; its thick end is much broken by use. No. 34, an egg-shaped or oval stone, flattened on the sides, $6\frac{7}{8}$ inches long, by $4\frac{3}{8}$ broad.

No. 35, in RAIL-CASE B, is a true punch or cutter, with a sharp, wavy edge; it is polished for about an inch up the body of the tool,

but all the rest of the stone is pitted, except the under side, which is rubbed flat (see Fig. 68); it is 5⅜ inches long, by 3¾ broad, and, together with No. 36, is composed of hard greenish grit. No. 36, is an oval, flattish stone, indented at both sides towards the top; it is 6½ inches long, by 3 broad. No. 37 is of the same character as the foregoing, but sharp at the edge, and 3⅝ inches long, by 1⅞ broad; it is formed out of a piece of micaceous green grit.

Whetstones—large and small, round and quadrangular—vary in size from No. 48, figured below, which is 7⅛ inches long, to No. 68, which, with the foregoing, is placed on Tray MM, and is only 2¾ inches long, but perforated at both extremities. Articles of this nature were used for polishing other stones, or for sharpening and polishing metallic implements of the tool and weapon class. Being always a necessary appliance of art, they have come down without much alteration to the present time, of which examples are afforded in the cutler's oil-hone, and the water rag-stone of the carpenter, or the rough dry-stone for sharpening the scythe or hay-knife. The antique specimens, which are almost invariably composed of sandstone, are usually found in connexion with metal objects, and particularly in crannoges.

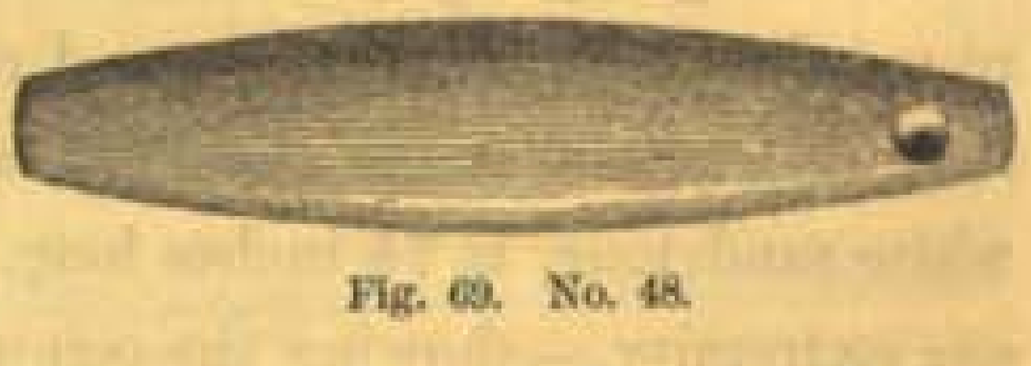

Fig. 69. No. 48.

Shelf I., *Tray* MM, contains thirty whetstones, numbered from 38 to 68, and composed, for the most part, of sandstone; several are natural formations, rubbed into their present shape by use. They may be divided into the oblong, flat, round, four-sided, and conical; several of the smaller ones are perforated. In size these tools vary, from No. 48 figured above, which may be taken as the type of the large oblong variety, to No. 68, the last on the Tray, which is only 2¾ inches long, by ½ an inch broad. Of the five in the top row, the first is an example of the long four-sided sharpening-stone, and is 7⅛ inches in length, by 1½ broad. The four next are examples of the flat variety, and average 6 inches in length, by 2 in breadth; they have

evidently been much used, and are all composed of sandstone. The second row also consists of five specimens; No. 43, of a soft variety of whet-slate, is $5\frac{1}{2}$ inches long, $1\frac{3}{4}$ broad, and 1 inch deep; it is a medium between the flat and the long. No. 44, partially natural, of gritty sandstone, has been rubbed round on one side, and flat on the other; it is 6 inches long, by $2\frac{5}{8}$ broad. No. 45, a piece of fine-grained gritty sandstone, nearly natural in shape, but bearing evident marks of having been used in sharpening, may be taken as the type of the round variety. No. 46, in composition similar to the last, is the most perfect specimen of the round variety, being as accurately shaped as if it had been turned in a lathe; it is $6\frac{1}{4}$ inches long, by $1\frac{3}{8}$ broad. No. 47, of coarse white sandstone, $5\frac{3}{4}$ inches long, by $2\frac{1}{4}$ across near the base, and $1\frac{1}{4}$ at the top, is rounded at both extremities, and resembles a stone pestle. No. 48 (Fig. 69), placed across the Tray, and composed of medium-grained white sandstone, is $7\frac{1}{2}$ inches long, by $1\frac{1}{2}$ broad. It is indented at one extremity,—showing the commencement of a hole.

The third row contains five specimens of the flat variety. No. 49, a whet-slate, $5\frac{3}{4}$ inches long, by $1\frac{5}{8}$ broad, and 1 thick, is chisel-edged at the lower end, and round at top. No. 50, of fine sandstone, is a small variety of the former. No. 51, a hard description of whet-slate, is 5 inches in length, flat, square-edged, but broken at the extremity. No. 52, of soft whet-slate, of the same class, but flatter than the foregoing, and imperfect at the end, is $5\frac{1}{4}$ inches in length; it is both perforated and decorated at the top. No. 53, of whet-slate, is an irregular specimen of the long variety, $4\frac{3}{4}$ inches in length. Nos. 54 and 55 are of gritty sandstone.

The fourth row contains six small specimens, the largest of which, No. 56, of sandstone, resembles No. 48, the type specimen, but is only $4\frac{3}{4}$ inches in length, and little more than 1 inch in breadth. No. 57, of sandstone, is perforated at top.

The last row contains nine small specimens, which, with one exception, are all of sandstone, perforated, and averaging $3\frac{1}{2}$ inches in length. The excepted specimen, No. 66, of blue slate, is indented on the surface, possibly by rubbing, and might have been used as a mould for casting metal. No. 68, of sandstone, and much worn, has two apertures.

Nos. 38, 39, 42, 52, and 53, were found in the Ballinderry crannoge, near Moate, county of Westmeath; Nos. 44, 48, and 52, came from that at Dunshaughlin, county of Meath; Nos. 50 and 63 are from the county of Wicklow; Nos. 58 and 59 were found in the Strokestown crannoges, county of Roscommon; and No. 66 came from the county of Tipperary.

In addition to the foregoing, several other whetstones may be seen in the Museum, as part of the typical articles retained together under the head of "Finds."

BURNISHERS.—Under this head may be classed Nos. 69 and 70, in Rail-case B, two small specimens of soft honestone, of a light drab colour; the former of which, here figured two-thirds the natural size, is 4 inches long, $1\frac{3}{4}$ broad, and $\frac{3}{16}$ths thick, thinning towards the edge. The second specimen,

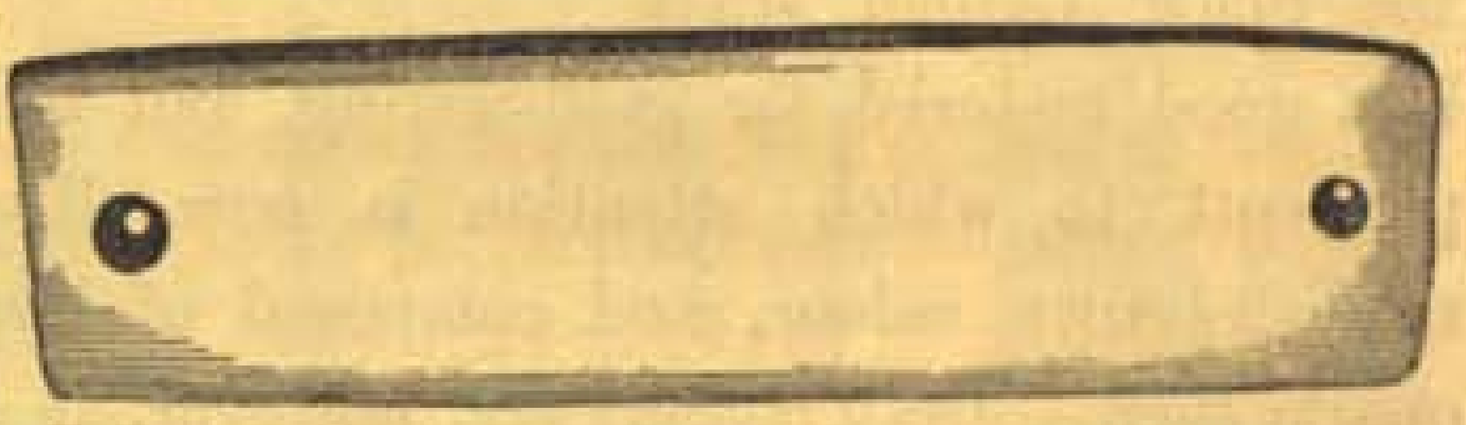

Fig. 70. No. 69.

No. 70, of the same make as the former, is slightly imperfect, and only $\frac{7}{8}$ths of an inch in breadth; it is, however, beautifully smooth, and polished on the upper surface. These implements, both of which are perforated, might have been used as burnishers. "They were found in a bog at Corren, three miles from Armagh, in the year 1833, in a box bound with a gold band, together with some gold circular plates, and several jet beads of various shapes." They were purchased for the Museum along with the Dawson Collection, and bear the foregoing inscription.

Of the class of burnishers,—tools which must have been in use during the metal age,—may be specified a few natural stones also in Rail-case B, and numbered 71, 72, and 73.

TOUCHSTONES.—In all countries where the use of gold was known, touchstones for testing the purity of that metal were employed by the workers thereof; and hence we find several specimens of such in the Royal Irish Academy's Collection. They appear from their make to have been worn on the person, several being provided with a hole for the at-

tachment of a string. They have been placed along with the small objects of personal decoration, such as beads and rings of necklaces (to which latter they were probably pendants), on Tray **PP**, at the end of the top shelf of the third Compartment, and amount to nine specimens, numbered from 74 to 83. They are of two kinds, flat and four-sided, with and without perforations. The accompanying illustration, the natural size, and composed of quartz, is a good example of the latter variety. As already stated, the black Lydian stone is a good material for gold-testing, but most of those implements to which attention is now directed are of a reddish-brown colour, and composed of jasper; a few are quartz rock. Both colours are, however, in accordance with De Boot's description of the true touchstone, which he thus defined:—"Atrum et ferreum habet hic lapis colorem *interdum rufum*, ad polituram aptus." See p. 11 of this Catalogue.

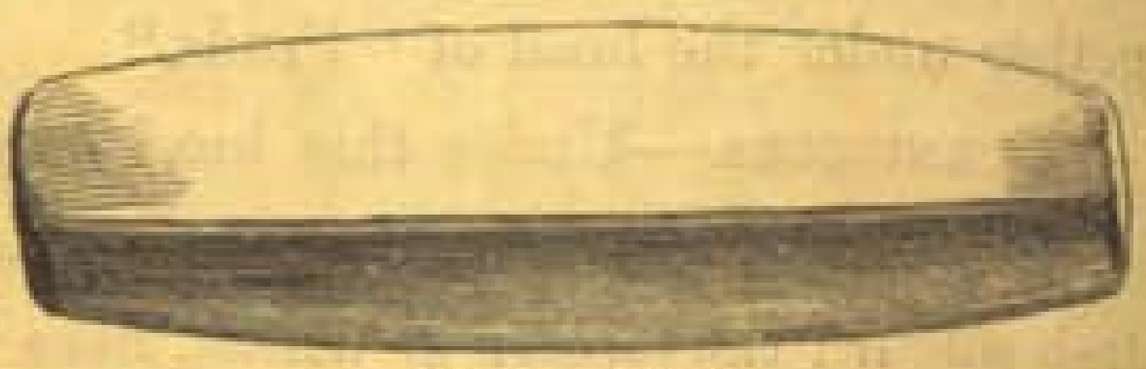

Fig. 71. No. 81.

Tray **PP** contains, on the bottom row, nine touchstones. No. 74 is the largest of the set, 4 inches long, 1½ broad, and composed of jasper slate. No. 75 is an oval, perforated touchstone, also composed of jasper-slate. No. 76,—a four-sided piece of quartz rock, of a reddish colour, and very similar to the type-stone figured above,—is 2¼ inches long, by ½ an inch broad in the middle. No. 77, of jasper, long and perforated, 1¾ inches in length. No. 78,—flat, rounded at the edge, and perforated, 2½ inches long, by 1¾ broad,—is a piece of very fine grit, of a yellowish drab colour, and very hard upon the surface. No. 79, composed of jasper, is 1¾ inches long, and highly polished. No. 80, represented by Fig. 71, is, like No. 76, of the sharpening-stone shape, and composed of quartz rock. No. 81, a flat, perforated piece of jasper, 3½ inches long, was—*Presented by Lord Farnham.* No. 82, of jasper-slate, is 3¼ inches long, by 1 broad, and ⅜ths of an inch thick.

Moulds.—On the fourth Shelf of the Cross-case, between the first and second Compartments, are arranged sixteen stone moulds, some of great antiquity, and others apparently very modern. Of the former may be specified those which were evidently employed in casting bronze celts and arrows, as Nos. 83 and 85, here figured one-fourth the natural

Fig. 72. No. 83.

Fig. 73. No. 85.

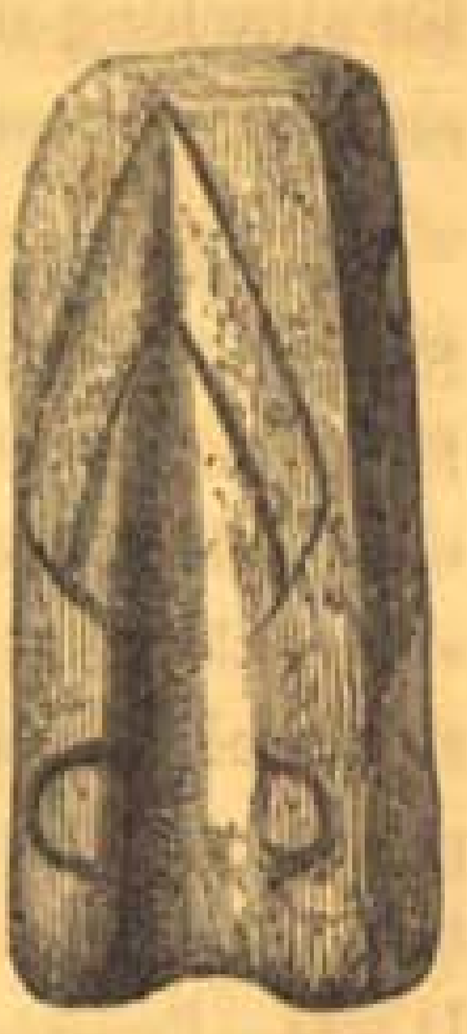

Fig. 74. No. 90.

size. The first is a triangular piece of coarse white sandstone, indented on both sides for castings;—upon that here presented, we find the mouldings for a simple celt, 3 inches long; and another for one 4 inches long, with a cross stop, and a ring for attachment to the shaft. This stone is 7¼ inches long, 5¼ wide, and 2½ thick, and was found in the Lough Scur crannoge, county of Leitrim. Lead castings now taken from this mould present us with weapons of which there are many similar in bronze in the Academy. Nos. 84 and 84A are the upper and lower stones of a celt-mould, composed of white sandstone, which came into the Museum with the Dawson Collection, but their antiquity is questionable: if genuine and old, they were never sufficiently finished to have been in use; and if employed now, they would not, in technical language, "deliver." No. 85, Fig. 73, however, is the half of a celt-mould of undoubted antiquity,—of mica slate, much worn on the surface by age and exposure; it is 6¾

inches long, and 4 wide, and presents upon the surface—as shown in the cut—the apertures by which it was adjusted by pins to the other half. No. 90, Fig. 74, is a piece of sandstone, about 3 inches in length, having moulds on three of its sides, so as to economize the material; on that represented on page 91, we find the mould for an arrow which had rings for attaching it to the shaft. No. 92, described below, is for a similar purpose.*

The Moulds, amounting to sixteen, are arranged on the FOURTH SHELF of the FIRST CROSS-CASE, and numbered in continuation of the Stone Tools, following the Touchstones, from 83 to 97A. No. 83, of coarse white sandstone, a celt mould, of a triangular form (see Fig. 72), shows the side on which two moulds are cut, one for a small, simple celt, apparently of the earliest variety; and the other for a grooved celt, with a stop and string ring. Upon the under side we find the mould of a celt similar to the first, but about 5 inches long. It was—*Presented by Mrs. Lambert.* Nos. 84 and 84A, both sides of a sandstone mould, $6\frac{1}{2}$ inches long,—for a stopped celt, $5\frac{3}{4}$ inches long: it was procured from the county of Carlow, but its antiquity, as already stated, is very questionable. No. 85, of mica slate, much weathered, is a ribbed celt, or paalstab mould, $6\frac{3}{4}$ inches long, and 4 broad (see Fig. 73). On each side may be seen apertures, which, in all probability, fixed it to the upper half-mould in casting. No. 86, a clay-slate mould, apparently unfinished, 4 inches long, by 2 broad. No. 87, a crucifix mould, of red clay-slate, $3\frac{1}{2}$ inches long, by $1\frac{3}{4}$ broad. No. 88, a piece of quartz rock, 5 inches long, indented with several circular apertures on both sides; these may have been used in button-casting, or were formed by the end of a drill, or "bit and brace," working in them for a long time. It was found at Killaderry, near Derryart, and was—*Presented by Lord G. A. Hill* (see Proceedings, vol. iii. p. 24). No. 89, a quadrangular piece of micaceous sandstone, $2\frac{1}{4}$ inches each way,—and presenting on the flat side a circular mould, probably for a harness stud, $1\frac{1}{4}$ inches broad. No. 90, a very curious sandstone weapon-mould, see Fig. 74, about

* See Mr. Du Noyer's valuable Paper upon Celt Moulds in the "Archæological Journal," vol. iv. p. 327.

3 inches long, and 1¼ broad; it has a mould on three of its faces; that represented in the engraving is for a broad arrow with side rings; upon the obverse of this side we find one for a small spear, or leaf-shaped arrow; and on the right side another arrow mould; while the left bears the marks of a worked-out arrow mould. The material being, perhaps, scarce, the block was preserved, and a new mould cut upon it as often as required. It was found at the edge of Lough Ramer, county of Cavan. No. 91 is a piece of sandstone, 4½ inches long, indented with two sharp, well-cut moulds, apparently for harness studs and buckles;—from the county of Antrim. No. 92, a small piece of agalmatolite or potstone—abundant in the county of Donegal, and locally called "Cam-stone"—2 inches in the longest, and 1½ in the shortest diameter; it has on each side a circular mould, either for a button or a harness stud. This was found in the Ballinderry crannoge. No. 93, a piece of clay-slate, 4¼ inches square, having three partially finished moulds on the upper surface for casting metal ornaments, probably for horse-trappings; it was found at Tullylaggan, Desertcreat, county of Tyrone, and was—*Presented by T. Greer, Esq.* No. 94, a flat piece of green grit, 3 inches long, by 2 wide, with an ornament mould on each side. No. 95, a piece of rottenstone slate, about 2 inches square, having several circular moulds, probably for casting shot, and bearing the date 1631. No. 96, a piece of soft chloride slate, 2½ inches long, and formed into an arrow-mould; it was found at Dundalk, and—*Presented by P. Brophy, Esq.* No. 97, a fragment of sandstone mould, found in the Dunshaughlin crannoge, is 3½ inches in the longest diameter. No. 97A, a small slab of brown slaty sandstone, 5 inches across, bearing some circular marks like moulds, and two incised crosses, possibly not of any great age. It was found at Kilmury church, Minard, near Dingle, and—*Presented by G. V. Du Noyer, Esq.*

Oval Tool-stones.—In most collections of Celtic antiquities may be seen oval or egg-shaped stones, from 4 to 5 inches in the long diameter, and more or less indented on one or both surfaces; their use is at present problematical. The examination of an isolated specimen will afford us little assistance in solving the question of the purpose to which they

were applied; but, grouping several together, we arrive at some idea respecting their use, as may be seen by inspecting the Collection on Tray **NN**, in the top shelf of the Third Compartment. They were evidently tools, and are denominated *Tilhugger-steens* by Northern antiquaries, who consider them chippers of flint or stone, and believe that, in working, they were held between the finger and thumb applied to these side cavities. On placing a series of them in a row, we get some insight into their use, as we then perceive that the indentation on the side, which has been chipped or picked out with a punch of some description, is but the first step in the process of the formation of a hole, either for the handle of a hammer, or to make it into a ring-stone for a net, or some such object. Some of these stones are natural water-washed pebbles; others are evidently shaped by art. The accompanying illustration, Fig. 75, No. 98, affords a good idea of one of these implements; it is 4 inches long, by 3 wide, and composed of pink felspar. As we follow on the series to the second row upon this Tray, we find the indentation getting, in each specimen, deeper and deeper, until it passes through; and the object then becomes converted into an oval ring, such as may be seen in No. 115, Fig. 76, here figured one-fourth the natural size, and which may have been used as a sink-stone or net-weight, similar to those upon the fifth row of this Tray.

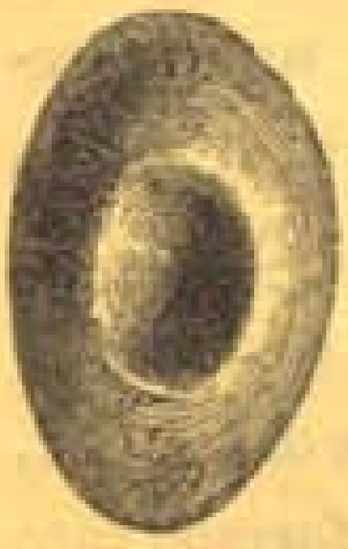

Fig. 75. No. 98.

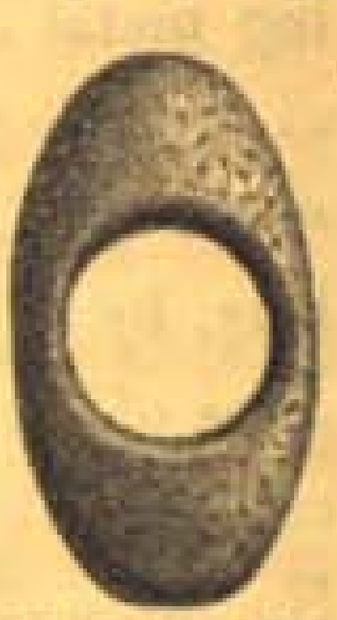

Fig. 76. No. 115.

Sink-stones, for either nets or fishing-lines, are by no means rare, as they continue in use even to the present day; and quoit-like discs, of sandstone, from 4 to 6 inches in diameter, and with a hole in the centre to attach them to the bottom-rope of a net, are not uncommon in localities where lead is scarce. Some of these may be seen on the third shelf of the Second Cross-case, Nos. 10 to 14. But, besides these rude implements, we find others formed with more care, and

which are generally supposed to have been attached to either lines or nets; for example, No. 32, Fig. 77, in Rail-case B,—here figured one-fourth the natural size, and composed of soft white sandstone, traversed by a vein of quartz,—

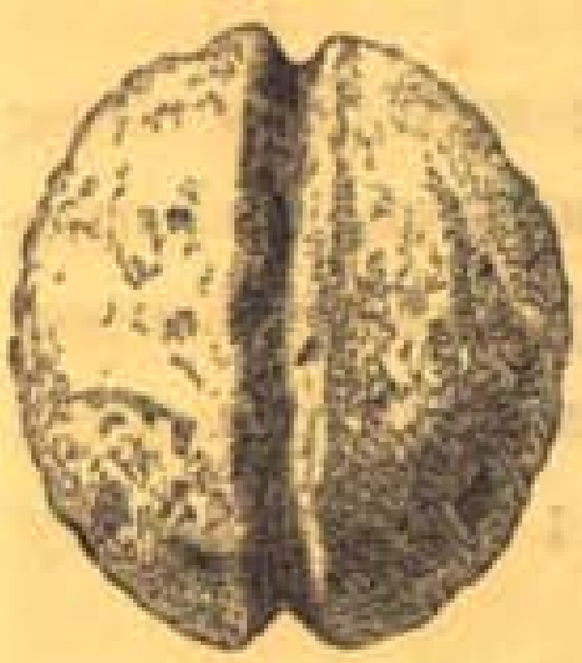

Fig. 77. No. 32.

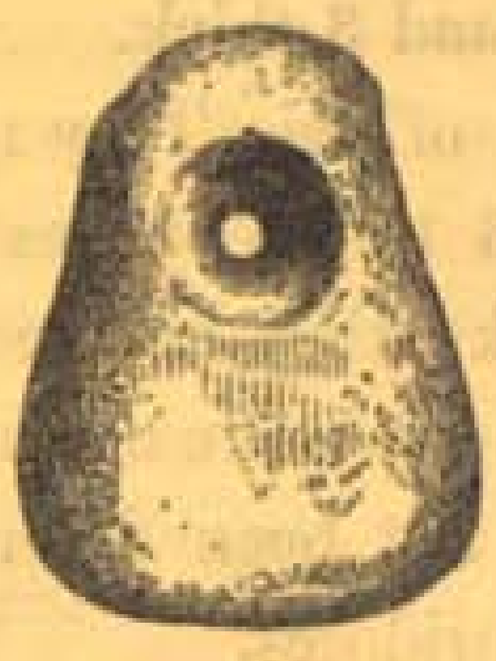

Fig. 78. No. 123.

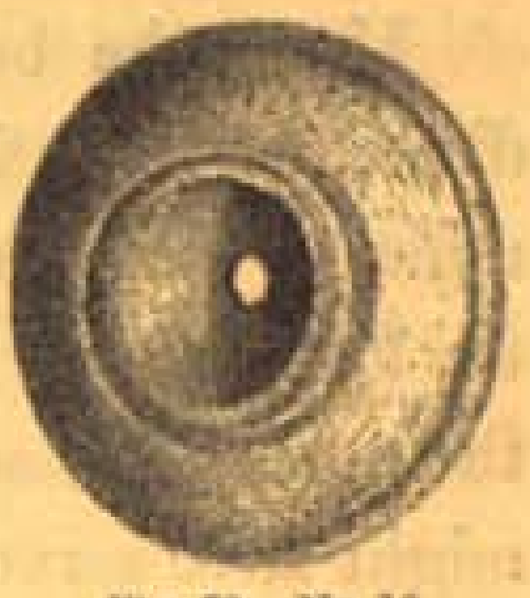

Fig. 79. No. 10.

is encircled by a groove round the long axis for retaining a string or thong; and No. 123, Fig. 78, on Tray **NN**, is a plummet-like piece of sandstone, 3¼ inches long, with a hole at the small extremity. Of this latter class we find a very beautiful globular specimen, No. 122, formed out of a very heavy limestone-and-ironstone nodule. It is 9½ inches in circumference, and has a projection above for the attachment of a string. While these three stones would form useful sink-stones, still we have no direct authority bearing upon the subject; and it has been conjectured that the stone represented by Fig. 77 was one of the "Flail-stones" attached by a thong to a stick, used in early Irish warfare, and to which some allusion is made in the account of the feats of the Ulster champion, Cucullin. On the other hand, a perforated stone (especially No. 122, which has been formed with great care) might have been used as a plummet, or the weight for a steelyard or ouncel, an implement in much more frequent use than a beam and scales in the western parts of Ireland, up to a very recent period. The circumstance of No. 123 being discovered near the wall of the church of Innisboheen, county of Wicklow, rather confirms the supposition of its being a plummet.

Of the variety of perforated circular stones possibly used

as net-weights, the beautiful specimen, No. 10 (Fig. 79), in the second Cross-case, and here figured one-fifth the natural size, may be given as a perfect example. It was evidently turned in a lathe, out of a piece of sandstone, and is 4⅞ inches in the long diameter, and 3 thick.

Upon the bottom of this Tray may be seen four stone discs, varying from 3 to 4½ inches in diameter, and averaging ½ an inch thick; they are accurately smoothed upon the flat surface. Such stones are not uncommon in crannoges; their precise use has not been determined; if larger, they might have served as griddles.

SHELF I., *Tray* **NN**, contains thirty articles of a miscellaneous description, between Tools and Food Implements, and numbered from 98 to 127. The two first rows are, with one exception, egg-shaped or circular stones, indented upon one or both sides, as shown by the foregoing cut, Fig. 75, from No. 98, which is 4¼ inches long, and 3 wide. It is not quite symmetrical in shape, being, probably, a natural pebble, smoothed by art upon the surface; it is indented upon both sides, the hollows, which have rounded edges, approaching to within ¾ths of an inch; it is composed of pink felspar, a rather rare rock in Ireland. No. 99, a similarly shaped stone, but of basalt, 4¼ inches long, by 2¾ wide, and smoothed on the surface; it is indented on both faces, but by shallower hollows than the foregoing; the edges of these hollows are also sharper. Upon the surfaces of both these indentations we find rude carvings; that here presented to view bears the figure of a man. No. 100, an egg-shaped stone, 3½ inches long, by 2½ broad, indented upon both sides, and composed of coarse white sandstone. No. 101, of the same type as the foregoing, but rather flattened on the sides, is 3⅜ inches long, and 2¼ broad; the hollows are narrower, deeper, and rounder, compared with the size of the stone, than in the foregoing specimens; it is composed of white sandstone. No. 102, of white sandstone, decomposing; 2¾ inches long, and 2¼ broad; indented on both sides, but much more slightly than any of the foregoing. No. 103, of sandstone, a small but very perfect specimen, 2¾ inches long, by 2⅛ wide, is deeply indented on both sides; it was dug up in a field near

Trummery church, county of Antrim. No. 104 is a piece of quartz rock, of an oval shape, and wrought with great care, something more than $2\frac{1}{4}$ inches long, and rather less than 2 broad; it is indented on one side, the mark of the tool on which may still be seen. No. 105, of sandstone, the smallest specimen of this variety of tool, being only $1\frac{3}{4}$ inches in the long, and $1\frac{1}{8}$ in the short diameter; it is indented on one side only, and so resembles a miniature urn or drinking vessel in process of formation. No. 106, a piece of earthy limestone, formed into a circular cup-like implement, $1\frac{3}{4}$ inches in diameter, and, like the two foregoing, hollowed upon one side only. No. 107, a disc of red sandstone, $2\frac{5}{8}$ inches in diameter, and 1 thick, having a small indentation on the upper surface, and slight, smooth marks on the circumference at opposite sides, as if it had been compressed in a machine. No. 108, a hammer-like implement of fine grit, with an indentation around it, similar to that on some of the punches, as if for a gad or holder; it also has been excavated to a certain depth, as if for a handle; but, from the oblique direction which the aperture took, it may have been rejected; it is 3 inches long, and $2\frac{1}{8}$ wide. These eleven articles upon the two first rows show the varieties of this implement, as well as the process by which the aperture was formed.

The third and fourth rows present us with twelve articles, in which the indentation has become an aperture, in some cases so large as to render the implement a mere ring. No. 109 is an egg-shaped stone, similar to those upon the first row; composed of quartz rock, smoothed on the surface; $3\frac{5}{8}$ inches long, and $2\frac{1}{2}$ wide, deeply indented on both sides, the hollows meeting by an aperture the size of a goose-quill. No. 110 approaches the circular form, is 3 inches in the long, and $2\frac{1}{2}$ in the short diameter; the side hollows meet by an aperture in which the fore-finger may be inserted; it is of sandstone. No. 111, a flat, oval piece of ferruginous sandstone, $3\frac{1}{4}$ inches long, by $2\frac{1}{4}$ broad, the side indentations opening by a hole the size of a quill barrel. No. 112, of gray sandstone, is nearly circular, and $2\frac{3}{8}$ inches across the hollows, which are so deeply splayed as to meet the edge; they open by an aperture $\frac{3}{8}$ths of an inch wide. No. 113, a ring of quartz rock, $2\frac{1}{8}$ inches in the long diameter. No. 114, of fine-grained iron-sandstone, is an oval-shaped implement,

2½ inches in the long diameter, with the sides of its small aperture more nearly parallel than in any of the foregoing. It was found at Moss-side, near Ballycastle, county of Antrim. All the specimens on the fourth row are rings. No. 115, a piece of conglomerate sandstone, in shape resembling the egg-shaped implements in the top row, is 3¼ inches long, and 2 wide; the splay of the aperture in the long direction is 1⅝ inches, and the hole, in the clear, sufficient to admit the finger-top. No. 116, an oval ring, of limestone, containing fossil Syringopora; it is 3 inches long, and 1⅝ broad, the hole being nearly 1¼ inches in diameter (see Fig. 76). No. 117, a sandstone ring, 2 inches in the long diameter, and ⅝ths of an inch in the clear of the bore, was found at Ballinderry, King's County, and—*Presented by F. W. Burton, Esq.* No. 118, another ring, of about the same size, composed of coarse iron-sandstone. No. 119, of grit, a bead-like ring, 1¾ inches in the long diameter, with a small aperture. No. 120, one-half of a sandstone ring or bead, 3¼ inches long, and 1¾ thick; the hole is scarcely ¾ths of an inch in diameter. This article was turned in a lathe, as may be seen by the circular lines upon its surface.

The three articles upon the fifth row were either weights, plummets, or sink-stones. No. 121 is a unique article of its class, being a nearly cubical piece of dark coarse grit, about 2¼ inches on each side; it is deeply indented at top and bottom,—the excavations opening into one another by a small aperture; it would form an admirable net-weight. It was—*Presented by Lord Farnham.* No. 122, a plummet-shaped stone, 3¼ inches in the longest diameter of the globe at top; it is provided with a projection through which an aperture has been drilled. This beautifully shaped article, which is formed out of a heavy limestone-and-ironstone nodule, is extremely ponderous for its size. It is rather heavy for a plummet, and too carefully formed for a net-weight, but would have made a good sinkstone for a deep-sea fishing-line; or it might have formed the weight of an ouncel or steelyard. No. 123, the plummet or sink-stone represented by Fig. 78; it is 3¼ inches long, and 2⅜ across the widest portion; it is composed of sandstone, and was found near the church of Innisboheen, county of Wicklow.

Upon the last row are placed four flat stone discs, the three first

circular, the last oval. No. 124, of very fine sandstone, is 4¼ inches in diameter, and §ths thick. No. 125, of very fine grit, beautifully smoothed and regular, is 3⅞ inches in diameter, and ⅓ an inch thick; it was found at Portaferry, and was—*Presented by Arthur R. Nugent, Esq.* No. 126, of sandstone, is 3⅓ inches in diameter, and about ¼th of an inch thick. No. 127, the oval specimen alluded to, also of sandstone, and bevilled towards the edge, is 4 inches in the long, and 3 in the short diameter.

As already stated in the introduction, man, in his primitive condition, is a nomadic hunter and fisher, directing his migrations according to the amount and procurability of food. For sustenance and clothing he trusts to the chances of the chase; and for tools and weapons, to the timber of the forest, and the flint and stone placed by nature within his reach. Yet even in this state he is essentially a cooking animal, and requires certain appliances consequent thereon. As he advances in civilization, the hunter generally becomes a shepherd, but, to a certain extent, continues a nomad, wandering with his flocks wherever pasture or security invite. Finally, when he has acquired a knowledge of cereal food, he becomes stationary, and not only cultivates the ground, but of necessity encloses it;—yet he lives only in part by the sweat of his brow, combining his present with his previous occupation, and occasionally resorting to the chase for amusement as well as sustenance.

So late as the sixteenth century the native Irish retained their wandering habits, tilling a piece of fertile land in the spring, then retiring with their herds to the *Booleys*, or dairy habitations (generally in mountain districts) in the summer, and moving about where the herbage afforded sustenance to their cattle.* They lived, as Spenser described them in the reign of Elizabeth, "on their milk and white meats" (curds,

* In the summer of 1835 I visited one of these *booleys* in the island of Achill. See my description of these summer residences in the "Dublin University Magazine" for March, 1854.—W. R. W.

cheese, with meal, and probably calves' flesh, &c.), and returning in autumn to secure their crops, they remained in community in their Forts or entrenched villages during the winter. The remains of thousands of these Forts or Raths still stud the lowlands of every county in Ireland, notwithstanding the thousands which have been obliterated.* They are earthen enclosures, generally circular, and varying in extent from a few perches to an acre or more,—and afforded protection to the inhabitants and their flocks against the ravages of beasts of prey, with which the country then abounded; or against the predatory incursions of hostile tribes, either in war or during a cattle raid. A breastwork of earth, from 4 to 8 feet high, surrounded the enclosure, being the material ready at hand and most easily worked, and was probably surmounted by a stake fence. In some a ditch surrounded the earthwork. Upon some of the plains, as well as the hill-sides, stone fortresses were occasionally erected, where such material abounded loose on the surface, or could be procured in the neighbourhood without quarrying. These Duns or stone forts were always put together without cement; but they are more of a military than a domestic nature. In the circle of these forts, both stone and earthen, there existed chambers and galleries, which probably served as granaries or places of security for the preservation of valuables, and to which the young and weak might resort in case of invasion, or any sudden attack. They were formed by large upright stones, covered with flags laid across the top, and in them have been found many relics of past times, and quantities of bones, particularly those of goats and deer. Several of these caves and passages are now open, and they, as well as the forts themselves, are regarded with great veneration by the peasantry,—a fact which has tended in no small degree to their preservation. The population of Ireland

* Thanks to the care taken by the officers of the Ordnance Survey of Ireland, under the direction of Lieutenant (now Colonel) Larcom, every Rath which then existed has been marked on the Government Maps.

when these raths and duns were made, must have been comparatively small; and, owing to the rivalry of petty chieftains, and possibly the incursions of foreigners, men were obliged to herd in small communities for defence against their enemies; yet it may be asserted that in no other country in Europe are the primeval traces of its inhabitants more numerous or better marked than in Ireland.

There were other habitations called Cashels and Cahirs, always of stone, whereas raths or lisses were invariably composed of earth, as they exist chiefly on the plains. Duns or hill-fortresses are generally of stone, but occasionally of earth. In some instances we find a tumulus or a cromlech within the circle of the rath, the chieftain or hero having been, in all probability, buried within the fort where he resided, or which he had died in defending, as in the great rath of Dun-Aillinne, near Old Kilcullen, and in the Giant's Ring, in the vicinity of Belfast.

Other stone buildings, generally circular, and closed at top by a hive-shaped dome, are not unusual, and are of two kinds, single or aggregated, and either connected by passages or opening into a central chamber similarly constructed. The former are generally oratories; the latter often subterranean, and are to be met with in the county of Kerry in particular.

To each of these forts, called raths, lisses, duns, cahirs, or cashels, were attached names which, with some modifications, have descended to modern times, such as Dun-Ængus, Dun-Dermott, Dun-more, Dun-Gannon, Dun-Boyne, Dun-Lavin, and Dun-Dealgan (now Dundalk); Lis-more and Lis-Towel; Rath-Cormac, Rath-Core, Rath-Croghan, Rath-Owen; Cashel; Cahir-aulin, Cahir-Conlish, &c. Many of these forts give names to townlands, which, with other topographical appellations, have been transmitted to us for, at least, two thousand years. In the ordinary domestic raths resided single families, or chieftains and their clans; and in the more extensive

ones, petty kings, chieftains, and their retainers and soldiers. To this latter class belonged the royal raths of Tara, Emania, Croghan, Uisneach, Tailtin, the Grianan of Aileach, Tlachtgha, and the acropolis of Cashel, &c.*

The people resided in wooden houses, or huts constructed of wattles and tempered clay, within these enclosures; or in small stone habitations where such material abounded. Within and around the great fort of Duv-caher, "the black caher," in the large island of Aran, may be seen the whole arrangement of the cabins or stone houses, called *Cloghauns*, in which the people lived, and some of which have still their roofs perfect. Around these raths must, in process of time, have been cultivated corn and other kinds of vegetable food, which usually succeed in the order of civilization, to hunting and cattle-feeding; and thus, in process of time, by necessity, native ingenuity, or the imitation of foreigners, were introduced various arts which constituted these raths centres of civilization; and around them we still find some of the finest pasture land in Ireland.

With our Celtic ancestors' condition as shepherds, and the nature of their flocks and domestic animals, as well as the beasts of prey by which they were surrounded, we shall have to treat when we come to consider the animal remains in Section IV. We have now to observe upon man's state, as an agriculturist, in arranging and illustrating those antiquities which remain to us, of the species employed in preparing food, particularly meal, among the implements in the Stone Collection.

* For an account of the military architecture of the early Celtic Irish, see the description of Staigue Fort, a model of which stands in the first Compartment, and is given in Species IV., under the head of Household Economy, p. 120.

Besides the various forts, as they are termed, enumerated above, there were other strongholds, denominated Crannoges, or stockaded islands, to which reference has been frequently made in the foregoing text, and a full account of which will be found in the description of Class III., Vegetable Materials.

SPECIES III.—FOOD IMPLEMENTS.

AGRICULTURAL IMPLEMENTS of stone could never have been very numerous in Ireland, yet other countries, even in the present day, supply examples of portions of both the plough and harrow composed of stone. A large, long-handled, stone celt would form a sufficiently useful mattock to disturb the surface of the ground, and prepare it for the reception of a corn crop. The two accompanying illustrations, Figs. 80 and 81, bear so great a resemblance to rude primitive ploughshares, that one is constrained to look upon them in that light; while the great slate celt, No. 323, page 43, may be likened more to a plough-coulter than a hatchet. The first of these implements, composed of yellow sandstone, is 7⅜ inches long, and 2⅜ across the widest part; it is very smooth, and has an even, sharp edge. The second, composed of crystalline greenstone, Fig. 81, is 13½ inches in length, and 4 broad; it has a hole, which is decorated round the margin on both sides, cut obliquely through one extremity. A thong passed through this aperture would help to secure it in a wooden socket. But whatever might have been the means employed in cultivation, it has been well established that grain food, particularly wheat, both white and red, and probably oats and rye also, were grown in Ireland long before the Christian era; and corn crops, according to our annals, suffered in like manner as in modern times from atmospheric vicissitudes or pestilential epiphytics. Thus we read that during the ten years' reign of Eochy, last King of the Firbolgs, from

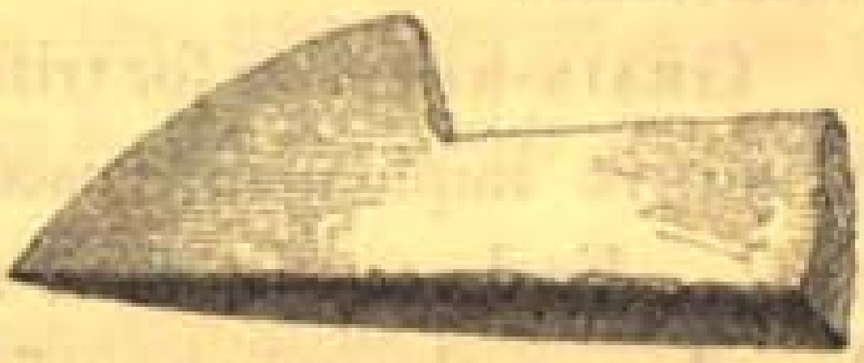

Fig. 80. No. 1.

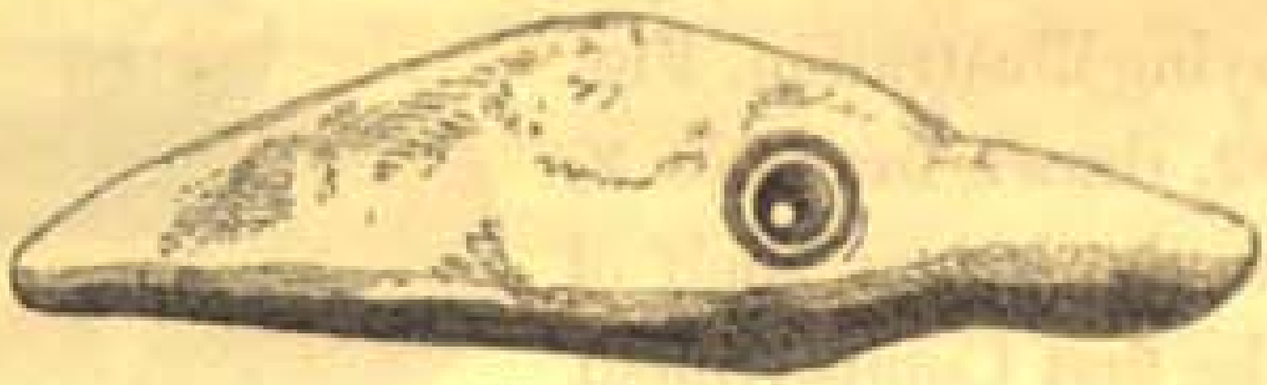

Fig. 81. No. 2.

A. M. 3294 to 3303, a great drought occurred, "notwithstanding there was abundance of grain and fruit" (Annals of Clonmacnoise); and again, in 3972, according to the chronology adopted by the Four Masters, the earth was so fruitful in the reign of Fiacha-Finnailches, "that it was difficult for the stalk to sustain its corn." Traces of tillage and land bearing the track of the plough have been discovered on hill-tops and other localities that have long since fallen out of cultivation.*

GRAIN-RUBBERS for triturating corn are, perhaps, the most primitive implements used in the manufacture of cereal food. Each consisted of a flag or flat stone, slightly hollowed upon the upper surface, so as to hold the parched grain, and a convex rubber or mullet, which was passed backwards and forwards with the hand, and thus bruised the corn into meal. The accompanying illustration, Fig. 82 drawn from No. 2 in the lowest shelf of the first Compartment of the Northern Gallery, affords a good example of the grain-rubber; and when we consider the immense length of time that all nations acquainted with the use of corn have known how to work the rotary quern, this must be indeed an implement of extreme antiquity. It is 1 foot 4½ inches long, 11 inches broad, and averages 4 inches in thickness; it is formed out of a piece of sandstone, and is remarkable for having a hole worked into the side, through which a string might have been passed, either for hanging it up or carrying it. Its rubber, No. 2A, also shown in the foregoing illustra-

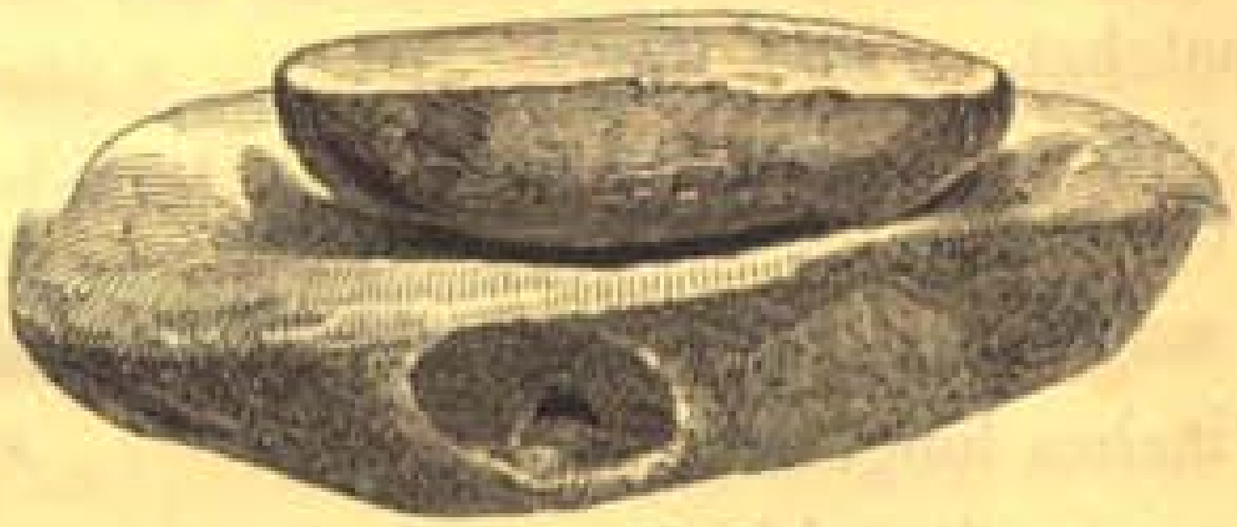

Fig. 82. No. 2.

* See Dr. O'Donovan's original "Essay on the Antiquity of Corn in Ireland," in the "Dublin Penny Journal" for September, 1832, vol. i. p. 108. See also the Author's "Report on Table of Deaths," in the "Irish Census" of 1851, vol. i. part 5, for all the references concerning corn.

tion, is 11 inches long, and formed out of the same material.

We possess four concave and five convex stones of this variety in the Collection; the latter being more likely to be preserved, and less liable to injury than the former. Of these convex stones, No. 5 is nearly a hemisphere, and must have worked in a small oval indentation. Early as these implements were employed, those who used them evidently sought for the material most likely to make an efficient millstone. These rubbers give us the first idea of a mortar, of which examples may be seen in the Second Cross-case, especially Nos. 27 to 31.

QUERNS are evidently the next step in food-making machinery, and the Academy possesses a fine collection of them, thirty-five in number, some perfect, others wanting the upper or the lower stone. Although there are several varieties, as may be seen by an examination of these articles in detail, the most simple and natural division of them is twofold. The first is that in which the upper and lower stone are simply circular discs from 12 to 20 inches across; the upper rotating upon the lower by means of a wooden handle, or sometimes two, inserted into the top,—and "fed" or supplied with corn by an aperture in the centre, analogous to the hopper, and which may be termed the "grain-hole" or eye. The meal, in this case, passed out between the margins of the stones to a cloth spread on the floor to receive it. The upper stones are usually concave, and the lower convex, so as to prevent their sliding off, and also to give a fall to the meal.

The second variety is usually called a Pot-quern, and has a lip or margin in the lower stone, which encircles or overlaps the upper, the meal passing down through a hole in the side of the former. Most of this variety are of smaller size than the foregoing, which is evidently the more ancient and the simpler form, as well as that which presents us with the greatest diversity.

The upper stone was turned either by a wooden handle—

sometimes by two—or, in some of the larger specimens, by a lever placed nearly horizontal, and of which an example may be seen in No. 23; or it was occasionally worked by means of a wooden lid or cover, with projecting arms, to which ropes were attached, or a small animal might be harnessed, and of which a very curious specimen will be found among the wooden materials, No. 12. Generally speaking, however, "two women sat grinding at the mill," which was placed upon the ground between them; with one hand they turned the top stone by means of the handle, either held by both together, or passed from one to the other; and with the other hand they poured the grain into the eye or hopper.

The lower stone is generally perforated for a pivot, or spud, usually of wood, but sometimes of iron, which passed into the aperture of the upper stone, where it was supported upon a cross stick or piece of iron; and by the application of leathern washers between the pivot and the socket in which it worked, the distance between the stones could be increased, and so the meal ground coarse or fine as required.

The old English name for the upper stone was the "rider" or "runner," and for the lower the "lier" or "ass." In Irish the quern was called *Bro*, from the verb *bro*, frangere, to break, to grind. The lower was called the *Bro iochtair*, and the upper the *Bro uachcair*. In material, querns do not offer great variety, being chiefly composed of different descriptions of sandstone, sometimes of quartz rocks, occasionally of gneiss, and in some instances of granite; but in all the perfect specimens in the Academy the upper and lower stones are of the same material.

The accompanying illustrations show the various forms of querns in the Collection. The convex top-stone, No. 17, Fig. 83, figured on the opposite page, exhibits the first attempt at decoration, having a deep hollow, with a raised edge round the central aperture, so as to constitute a very perfect hopper; and an oval indentation surrounding the handle-hole. It is 16 inches in diameter. Another form of decoration is

that shown on No. 19, Fig. 84, the top stone of a quern, 18 inches in diameter, and decorated with the ancient Irish cross, carved in relief, the arms of which are enclosed within a circle. It was probably a church quern. The handle-hole, as in the first illustration, passes through, and is placed in one of the arms of the cross. There were occasionally two handle-holes, and in some specimens are to be found the remains of a third, an examination of which will show that the original hole had been worked out (see No. 29A). This form of decoration, although rare, finds three representatives in this Collection, Nos. 19, 20, and 21, and an examination of these quern-tops will show that it was part of the original design. Dr. Petrie has described and figured the top-stone of a decorated quern, which had been used as a tombstone in the cemetery of Clonmacnoise; it also may have been decorated originally, although afterwards used as a tombstone; and the name (which is its chief characteristic) subsequently carved upon it.*

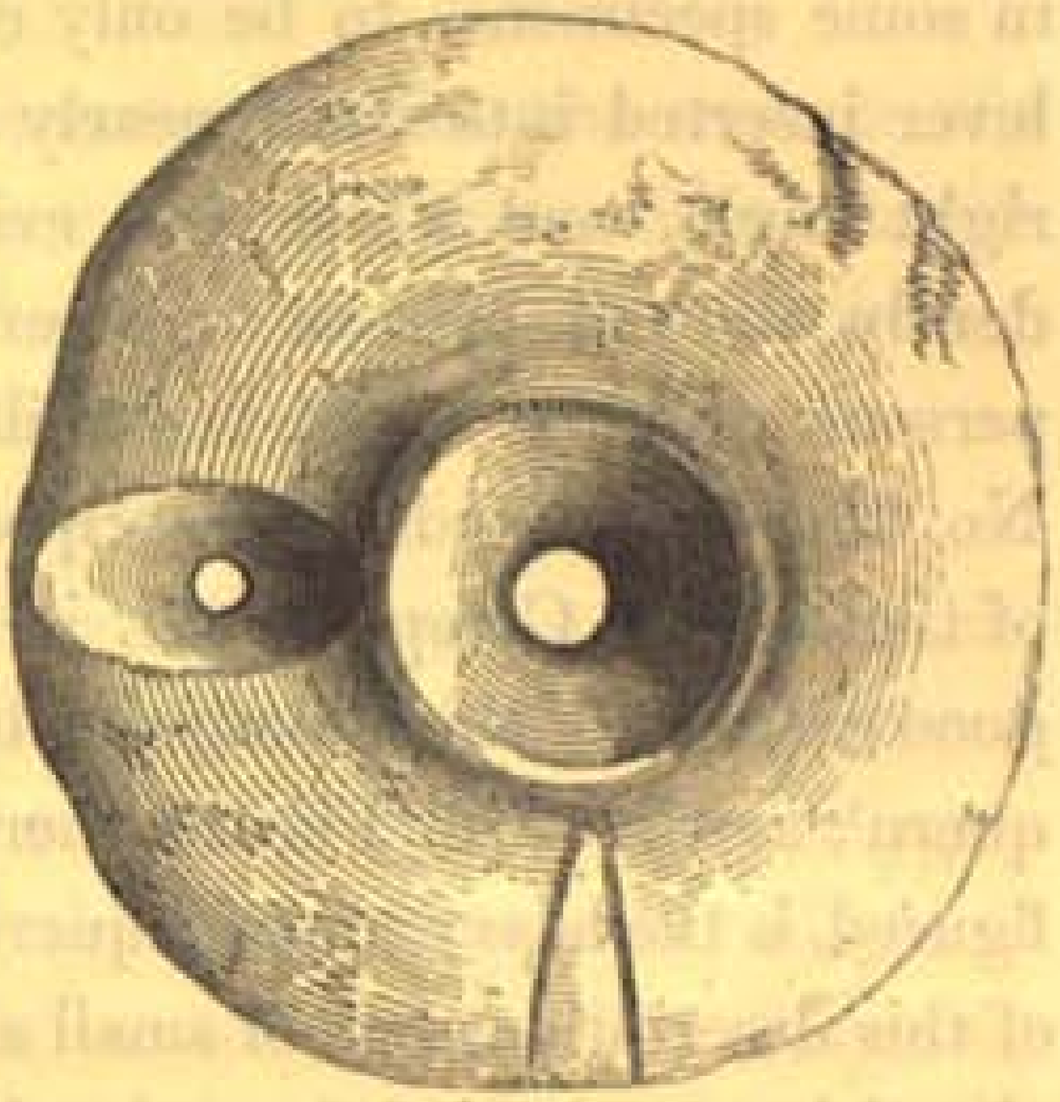

Fig. 83. No. 17.

Fig. 84. No. 19.

* See Petrie's "Ecclesiastical Architecture of Ireland," p. 349.

Another variety of the simple quern is that in which the top-stone, in particular, is very massive and heavy, so as, in some specimens, to be only capable of being turned by a lever inserted into it, at nearly a right angle, and which was evidently rotated by one or more persons walking round the mill. No. 25, which stands in the tripod of the Second Compartment, is a good example of this description of quern; and No. 22, Fig. 85, here figured, is the heavy top of a quern of this description, but of small size, and the hole in which is placed in a projection from the side.

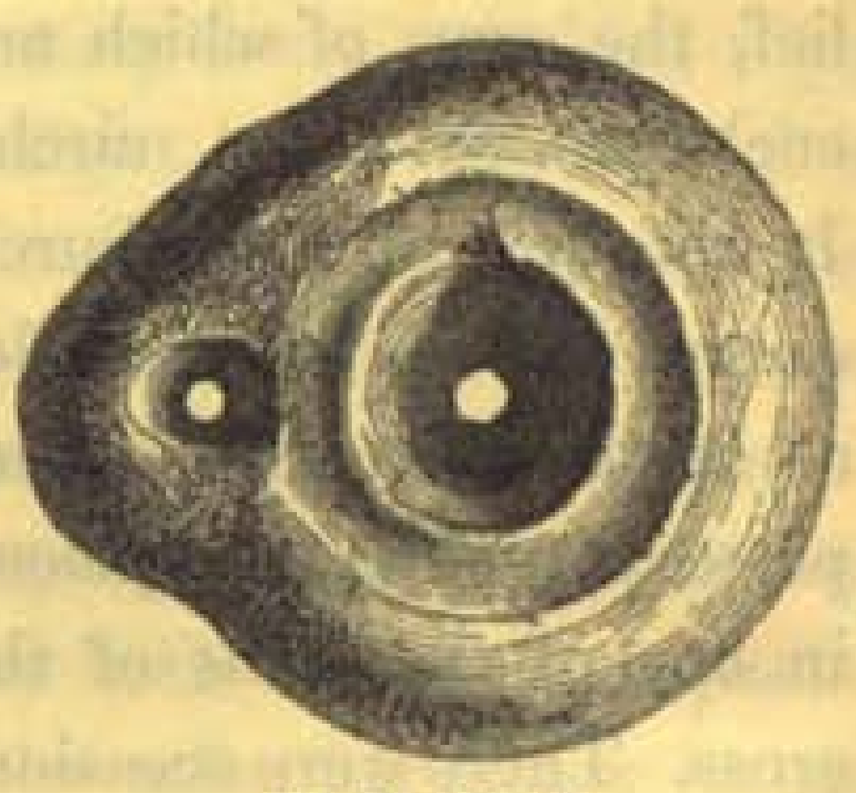

Fig. 85. No. 22.

Of the second kind of hand-mill, denominated a pot-quern, the accompanying illustration (Fig. 86) affords us a good idea. It is 9 inches in diameter and 4 high; it stands on three feet, and had evidently been long in use. The top stone, with two handle-holes, is represented in this figure, as also the meal-hole, which is cut obliquely through the lower margin. This form of mill need not, of necessity, have been provided with a pivot, as the lip of the lower stone retained the upper *in situ*.

Fig. 86. No. 31.

The antiquity of Querns or hand-mills, *Iamh-bro*, in Ireland is very great, yet they continue in use to the present day.* One of the causes assigned for their discontinuance is that of certain prohibitions against them in some localities in Ireland, as well as in Scotland, in which latter country laws

* During the famine period, many of the hand-mills, which had long been given up, were again employed, particularly in hilly districts, or where the ordinary water-mills were not accessible. So late as the summer of 1853, I purchased a quern at work in the neighbourhood of Clifden, Connemara.—W. R. W.

to the same effect have been long in force; the object being to make the peasantry grind the corn at the proprietor's water-mill.*

The principle of the stone quern remains the same to the present day, the propelling force or power being alone altered. One of our oldest legends relates a romantic story respecting the origin of the first water-mill in Ireland, which is said to have been erected by King Cormac, at Tara, in the third century, and the site of which can still be recognised, as also that of many other very ancient mills, such as the mill of St. Fechin at Fore, and that of St. Maelruan at Tallaght, at which Ængus the Culdee worked. The Brehon Laws frequently allude to ancient mills of both hand and water-power. The following description of the extensive collection of these objects in the Museum will sufficiently illustrate this subject:—

Grain-rubbers and Querns, according to their several varieties, amount to as many as thirty-five, and are arranged on the lower shelves of the three first Compartments, and the second Cross-case. No. 1 is a grain-rubber, composed of fine granite, 21 inches long, by 12 broad, well finished, having a raised ridge crossing the under side, probably to strengthen it. No. 1A, the rubber of ditto, of the same material, 1 foot long, by 5½ inches broad. No. 2, a grain-rubber, 16½ inches in length, and 11 broad in the widest part. See Fig. 82. It is more dished than the former, and is composed of coarse sandstone. No. 2A is the rubber of the foregoing, 11 inches long, by 5½ broad, and composed of the same material. They were found in a bog near Clogher, county of Tyrone, and were—*Presented by J. Huband Smith, Esq.* No. 3, a grain-rubber 18 inches long, by 10 broad, of sandstone, very shallow; found in Faughanvale, county of Derry.

* Upon the subject of Irish Querns, see Mr. J. Huband Smith's Paper in the Proceedings for February 24, 1840, vol. i. p. 390; also the Rev. Dr. Hume's "Remarks on Querns," London, 1851; and the "Dublin Penny Journal," vol. iv. p. 295. See likewise the "Ordnance Survey Memoir of Londonderry," p. 215; and Dr. Petrie's "Essay upon the History of Tara Hill," in the "Transactions of the Academy," vol. xviii.

No. 3A, the rubber of same, 8 inches long, by 6 broad, very convex. No. 4, an imperfect grain-rubber of coarse micaceous sandstone, slightly dished, 11 inches every way. No. 5, a rubber of granite, nearly circular, 5 inches across. No. 6, another rubber of the same material, but of a pinkish colour, 6 inches long, by 5 broad.

QUERNS.—No. 7, of sandstone, the top-stone of a quern, rude and unfinished on the upper surface, upon which are two handle-holes, each sunk about $\frac{3}{4}$ths of an inch; it measures little more than 1 foot across. It was found in the parish of Balteagh, county of Derry. No. 8, the thin top stone of a quern, 16 inches across, of micaceous quartzite, smooth upon the grinding surface, but left quite rude and unfinished above; the handle-hole passes through, and the grain-hole is $2\frac{1}{2}$ inches in diameter, but not quite central. It was found in a crannoge in Drumaleague Lough, county of Leitrim, and was—*Presented by the Board of Works.* No. 9, of red sandstone, the under portion of a quern, the bottom surface left unfinished; it is $15\frac{1}{2}$ inches in diameter, and 2 inches thick. The margin of the central aperture for the pivot is slightly raised, so as to give a grip to the upper stone. It was found in a rath in Ballybowler, county of Kerry, and was—*Presented by Mr. R. Hitchcock.* No. 10, the upper stone of a large quern, of gneiss, slightly dished; it has a rounded edge, and is about 18 inches across; the handle-hole runs through obliquely. Nos. 11 and 11A, both stones of a quern, similar in material to the last, 17 inches across, measuring together only 3 inches in depth; the pivot or spud-stick remains in the lower stone. They were found in a crannoge, and—*Presented by the Board of Works.* No. 12, the massive under stone of a quern, 15 inches in diameter, $2\frac{1}{2}$ in thickness, and composed of red sandstone; it slopes from the spud hole, which is unusually large. No. 13, the small upper stone of a quern, $11\frac{1}{2}$ inches across, dished, has a large grain aperture and three handle-holes placed at nearly equal distances; it is of gray sandstone. No. 14, a fragment of the upper stone of a quern, $17\frac{1}{2}$ inches across, and $3\frac{1}{2}$ thick, of granite. A ridge or bar surrounds the aperture, which is 4 inches wide. It was found at Milverton, near Dublin, and was—*Presented by George Woods, Esq.* Nos. 15 and 16, both stones of the largest quern in the Collection, of quartzy sandstone, the under (No. 16) is $20\frac{3}{4}$ inches long, by $3\frac{3}{4}$ thick; the aperture for the pivot is $1\frac{3}{4}$ inches deep, and the same across,

and is surrounded by a raised lip, which served to keep in its place the upper stone. No. 16 is 19½ inches in diameter, by 2¾ in thickness; the grain aperture is 3½ inches wide, and bears upon the under surface the mark of the cross-bar of the pivot; its upper surface has been left in a rude state; it has one handle-hole. They were found in a crannoge in Lough Scur, county of Leitrim, and were—*Presented by the Board of Works.* (See Proceedings, vol. v. Append., page 60.) No. 17, the top stone of a large quern, dished on the inside, decorated above, having a projecting lip encircling the grain aperture, and an oval indentation round that for the handle (see Fig. 83). It fines off from the central aperture towards the edges, and is composed of fine-grained granite or elvine. It was found in the river Dee, townland of Ballygowen, parish of Richardstown, and county of Louth, during the drainage operation in 1845, and was—*Presented by the Board of Works.* No. 18, the largest top stone of a quern in the Collection, of sandstone, measuring 20 inches in diameter, and 3 in thickness, of a variety similar to the foregoing, being ornamented on the upper surface by an elevation round the grain-hole, and which is prolonged to the handle-hole. It is dished upon the inside, and convex upon the upper surface; it was, with No. 21—*Presented by the Rev. Thomas H. Porter.* No. 19, the upper stone of a quern, decorated with the old Irish cross contained within a circle (see Fig. 84). It is 18 inches in diameter, and 2½ in thickness; the handle was placed in one of the arms of the cross. It is composed of sandstone, and the ornamentation is in high relief. This beautiful specimen was found in a crannoge in Roughan Lake, near Dungannon, county of Tyrone, and was—*Presented by W. Pike, Esq.* No. 20 is a fractured ornamented top-stone of a quern of sandstone, 18 inches across, and having 3 handle-holes. It differs from the former in the lines of the circle and three-armed cross being sunken instead of raised; it was—*Presented by the Dean of Kilmacduagh* in 1840. No. 21, a fragment of the decorated top stone of a quern, of sandstone, found in the outer ditch of the rath called "O'Neill's Fort," midway between Stewartstown and Cookstown, county of Tyrone. No. 22 is the small, heavy top of a quern (Fig. 85), 12 inches in the longest diameter, where the handle-hole is in a portion projecting beyond its general circumference; it is 5 inches high. The handle-hole goes through, and the grain-hole

is deeply excavated, as shown in the cut. No. 23, together with the two following, is placed in the tripod standing on the floor of the second Compartment. It is the rude top stone of a heavy grinding quern, and is formed out of a piece of Galway syenitic granite, 1 foot in diameter, and 7 inches in height. The grain aperture is very peculiar, forming a double cone meeting in the centre like an hour-glass, the openings being 3½ inches wide both above and below, while the small oblique aperture by which they are united scarcely admits the point of the finger. Upon the outside curvature we find a square-edged aperture, evidently for the insertion of a metal bar, by means of which this heavy millstone was rotated. It was—*Presented by J. P. O'Malley, Esq., of St. Oran's.* Nos. 24 and 24A, both stones of a perfect quern, of sandstone; together they stand 6½ inches high, and 15 across; they are remarkably well finished, the grinding surfaces being slightly concave and convex; the grain-hole is much dished, and a projecting ridge rises round the handle-hole. This quern was found in a rath, near Navan, county of Meath, and was —*Presented by W. F. Wakeman, Esq.* (See Proc. for June 22, 1857). Nos. 25 and 25A is a very heavy quern, like Nos. 22 and 23, and remarkable for the upper stone being larger and heavier than the lower. It is 14 inches across, and 12½ high; the grain aperture is surrounded by a fillet; the upper stone has an indentation upon the side for the insertion of an iron bar, and it was probably moved by a person walking round it. These two stones are highly finished all over, and rest on a flat stone disc, which is 20 inches across, and 2½ thick, with a small oval aperture in the centre. It does not appear to be a quern, but might have been used in early times as an anchor.

Pot Querns.—No. 26, of hard sandstone, the under stone of the largest specimen of this variety, 13½ inches wide, by 8¼ deep. The lip or projecting ledge is 1¾ inches thick, and 2¼ thick, leaving the inner circle 10 inches in diameter; the central wooden spud or pivot still remains; the meal-hole is a four-sided aperture cut down obliquely to the lower edge. It stands on three short feet. Nos. 27 and 27A are the upper and lower stones of a pot-quern, 12 inches in diameter, and 6 high. The meal aperture in the lower stone is a notch; the upper stone is 7½ inches across, and has a single handle-hole. No. 28, the pot or lower stone of a quern, 5½ inches high, and

9½ in diameter, is supported upon three feet; the stud-hole is thorough and the meal-hole opens on the side. It was found in the county of Fermanagh, and was—*Presented by Arthur Haffield, Esq.* Nos. 29 and 29A, the upper and lower stones of a small but very perfect pot quern, 9½ inches high, by 4 broad; supported by three feet; the meal-hole very small; two handle-holes in the upper stone, the one apparently formed when the other failed. Nos. 30 and 30A, a small pot quern, 9½ inches wide and 5½ high; the lower stone imperfect, the spud aperture thorough, and the meal-hole oblique. The top stone is 6½ inches across, and has two finger-holes upon it; the second apparently formed when the first was worn out. Nos. 31 and 31A, a very perfect specimen of the pot quern, much worn by use, stands on three supporters; has a very small meal-hole; the top stone is 6½ inches broad, and 1¼ thick, and has two handle-holes. No. 32 and 32A, a small pot quern without feet, much worn, as shown in the meal-hole, which has been cut out by constant friction. The top stone is probably not a part of the original machine; it has no grain-hole, but possesses an indentation for working upon the spud; the grain was very likely put in at the side. No. 33, the rude, much worn top stone of a pot quern, having three handle-holes formed apparently in succession as each became defective. No. 34, the lower stone of the smallest quern in the collection, being not quite 6 inches in diameter, and only 4 across the clear; it has no spud or grain-hole, but instead thereof is a raised nipple-like projection; the mark of the meal-hole remains. No. 35, on the ground-floor at the foot of the southern staircase, is the imperfect top stone of a large rude quern. —*Presented by Mr. R. Hitchcock.*

MORTARS, like mill-stones, have passed down from very ancient to modern times, in fact, to the present day, of which examples, both of the earliest and of comparatively modern descriptions, may be seen in the Second Cross-case, Shelves II. and III., Nos. 27 to 30. See p. 146.

DRINKING-CUPS and drinking-horns, of various materials, some beautifully decorated, and of the most costly substances and workmanship, were in use in very early times in the British Isles, of which examples are afforded in the Dunvegan Cup

of the Mac Donalds of Skye,* and also in the Kavanagh Horn, preserved in the Museum of Trinity College, Dublin. Cups or goblets were placed beside most of the public or roadside wells of Ireland, even in Pagan times; and it is related that, in the reign of Conn of the Hundred Battles, and of his grandson, Cormac Mac Art, who flourished between the years 123 and 266 of the general Christian era,—so great was the wealth of this kingdom, and such the virtue of its people, as well as the administration of the ancient Brehon Laws, that silver cups were placed at each roadside well for travellers to drink with. Brian Boroimhe, about the year 1000, revived this ancient custom, and put in force the law which sustained it; and it is to this golden age that Moore's lines of "Rich and rare were the gems she wore" refer.

This ancient custom, which still exists in the East, is alluded to in Cormac's Glossary, under the term *Ana*, the ancient name of this description of vessel, and a very old poem is there quoted in illustration of its having been in force at the Court of Knock-Raffan (one of the ancient palaces of the kings of Munster), in the county of Tipperary, in the reign of Fiacha Muilleathan, who reigned over that province in the third century. Very few stone drinking-cups have come down to this period; but we are fortunate enough to possess one beautiful specimen of a bowl-shape, formed out of a piece of impure potstone, and represented by the accompanying illustration Fig. 87. It is $4\frac{3}{8}$ inches across the bowl, $5\frac{1}{4}$ measured over the side which includes the handle, and is $1\frac{1}{4}$ deep in the cup (No. 3, Rail-case B). This great rarity was found in the Shannon excavations, and was—*Presented by the Shan-*

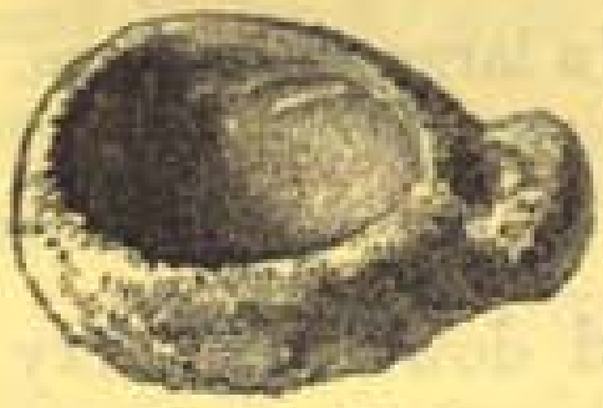

Fig. 87. No. 3.

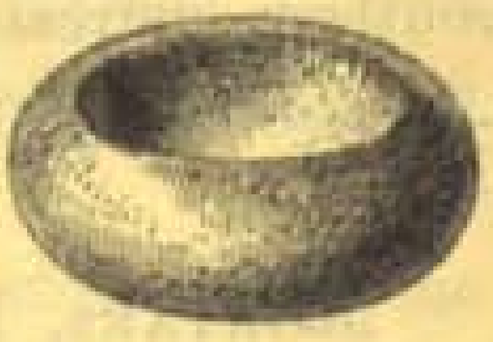

Fig. 88. No. 31.

* It has been shown by Mr. E. Curry, who examined the inscription upon this cup, when exhibited at the Dublin Exhibition, in 1853, that it was of Irish manufacture. See "Archæological Journal," vol. xii. p. 81.

non Commissioners. In the tributes paid to the Irish kings, and which are described at length in the *Leabhar na g-Ceart*, or Book of Rights, drinking-horns are enumerated; and the Annals of the Four Masters state, that, in the reign of Tighernach, long before the Christian era, "goblets and brooches were first covered with gold and silver in Ireland:" these vessels refer, however, to the Metal period, and are to be taken into consideration in the description of objects formed of that material.

In addition to the foregoing, the Academy possesses a few other stone implements connected with the preparation or use of food,—for instance, the stone bowls (Nos. 29, 30, and also 31, Fig. 88), in the second Cross-case, and likewise the small limestone salt-cellar, No. 4, in Rail-case B.*

SPECIES IV.—ARTICLES OF HOUSEHOLD ECONOMY, FURNITURE, ETC.

With the exception of the grain-rubbers, querns, cups, and other articles employed in the preparation or use of food, described in the foregoing section, stone articles connected with household economy never could have been very numerous, even among the most primitive people. There are, therefore, but few articles in the Collection that come under this head.

Upon Tray **OO** have been arranged seventy flat, circular discs, perforated in the centre, chiefly of sandstone, and from $2\frac{1}{2}$ to $1\frac{1}{8}$ inches in diameter. Some approach the bead-like form in thickness, and others are not more than $\frac{1}{8}$th of an inch thick. A few, to all appearance more modern than the rest, have been tooled with some sharp metal instrument, or flat point. They have been usually found wherever traces of

* Mr. Wakeman says, in his "Hand-Book of Irish Antiquities," p. 161—"Stone cups appear not to have been uncommon among the Irish. An ancient stone vessel of a triangular form remains, or very lately remained, by the side of a holy well in Columbkill's Glen, in the county of Clare, and another was found in the county of Meath, near the ruins of Ardmulchan Church."

household articles, or those connected with dress and personal decoration, have been discovered, as in crannoges, street-cuttings, &c.; but a few have been found in connexion with sepulchral remains. They are usually denominated whorls, and are generally believed to have been used as weights attached to the end of the distaff; and many, composed of bone as well as stone, have been discovered in all localities throughout the country. The accompanying illustrations, drawn from Nos. 49 and 50, afford us a clear idea of the shape and decoration of these objects. Some of these are nicked round the central aperture, as if for holding threads. These little discs are popularly called "fairy mill-stones." Articles of this description may, with all other perforated objects which might gratify the eye of a rude people, have been strung on a necklace, yet such does not appear to have been their original use.

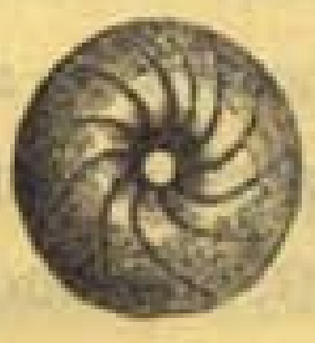

Fig. 89. No. 49.

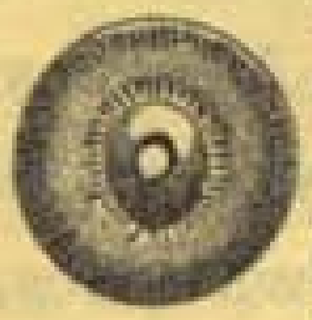

Fig. 90. No. 50.

SHELF I., *Tray* **OO**, contains seventy flat circular discs, perforated in the centre, and numbered from 1 to 70. They are believed to have been distaff whorls, and are of various descriptions of stone; but most of the rude ones are of sandstone. In size they vary from $1\frac{1}{8}$ inches to $2\frac{1}{2}$ in diameter, and from $\frac{1}{8}$th to $\frac{7}{8}$ths of an inch in thickness. The series commences with the rudest and simplest forms, having an angular edge, and without any trace of ornamentation on the surface. From Nos. 39 to 46, a slight form of decoration may be observed in the concentric circles, which are shown particularly on those of the sixth row. The next form of decoration consists in a number of dotted points. A third form, sometimes decorated, but in other examples plain, is that in which the edge is rounded, as shown by Nos. 3, 16, 27, and 50, &c. Among these specimens, that numbered 49—*Presented by J. Huband Smith, Esq.*—and showing upon its surface a number of eccentric lines radiating from the aperture, is the most remarkable. At the bottom of this Tray, Nos. 66 and 67, are two very remarkable whorls of the plummet shape, the for-

mer of which is adorned with a number of concentric rings, and the latter has the aperture notched all round at the under surface, as if to fix, with greater security, the wooden spindle which was inserted into it.

Of the same character as those in the foregoing series, but more elegantly decorated, and apparently more recently made, may be seen in Class IV. a number of similar objects of bone, most of which have been found in crannoges.

The Academy does not possess any record of the localities, or the circumstances under which the majority of these articles were discovered. Many belonged to the Collection of Dean Dawson, in the Catalogue of which they are denominated "amulets." No. 5 was found "at the bottom of a heap of stones, called a Danish fire-place, or lime-kiln," in the townland of Muckruss, in the county of Fermanagh, and was—*Presented by Folliott Barton, Esq.* Nos. 8, 24, and 26, were found in large tumuli near Portaferry, in the county of Down, and were—*Presented by A. W. Nugent, Esq.* See Mr. Wilde's communication in the Proceedings, vol. iii. p. 260. Nos. 19 and 23 were found in the wall of the church of Ballinderry, county of Antrim. Nos. 20 and 36 came from Downpatrick; No. 22 was received from Kells Abbey, county of Kilkenny; and No. 32 from the county of Wicklow. No. 35 was taken out of a rath at Ennisnag, county of Kilkenny; No. 38 came from Youghal. No. 46 was found in a rath at Lisnafunshin, barony of Fassadinin, county of Kilkenny; and No. 67 came from the county of Antrim.

Lithologically examined, these stone specimens afford the following varieties:—No. 1 is chiastolite slate, such as may be seen at Killiney and Lugduff, &c. Nos. 2 and 7 are arenaceous clay-slate. Nos. 18, 32, 33, 35, 50, 61, 67, and 68, are clay-slates of different varieties. Nos. 3, 6, and 49, are mica slate. No. 16 is fine-grained grit. Nos. 28 and 65 are rottenstone slate. Nos. 41, 42, 46, and 58, are shale. Nos. 44 and 45 are siliceous slate. No. 48 is a limestone concretion. No. 51 is steatitic mica slate, approaching potstone. No. 60 is brown limestone. No. 66 is fine-grained soft limestone; and all the rest are sandstones of various descriptions.

Stone Weights were very common in shops, and at public cranes, and weighing-places, particularly in the western dis-

tricts of Ireland, until the late stringent enactments were passed concerning the standard weights of the kingdom; and up to a very recent period the ouncel or steel-yard was in common use. No. 122, on Tray **NN**, may, as already stated, have been used as the weight for such an implement.

INKSTANDS of stone are not unusual, even at the present day. The Academy possesses six specimens of such, all of limestone, and arranged on the—

SECOND CROSS-CASE, SHELF I.—No. 1 is 8¼ inches long, 3½ high, and 4¼ broad. There are three cup-like indentations at top, also a long cavity for pens; it is decorated on one side, and bears the date 1686, with the representations of birds between the figures. No. 2 is 8 inches long, 5 broad, and 4 high, with inkpans and a pen-case the same as the foregoing; it stands on four feet, and bears the inscription—"Anno Domini 1687 I. C." No. 3, the largest in the Collection, is supported by four feet, and is decorated upon one side and an end with triple concentric circles; it is 9¼ inches long, 6¼ high, and 5 broad; it has two inkpans, and bears the date 1729, very rudely figured. No. 4 resembles in shape the latter, but is only 6½ inches long, 4 high, and 4 broad; it has two inkpans and also cavities for wafers and pens; one of the inkpans is covered at the top, except a small aperture, by a piece of lead neatly inserted. It bears the date—MB 1742. No. 5, is a small circular inkstand, open at the bottom, which was probably filled with lead; it has four masks carved on it, and is 3 inches in diameter, 1¾ high, and has five apertures on the top. No. 6 is a square pedestal-shaped piece of light-blue limestone, neatly carved and hollowed at top, as if for holding ink; it is 4 inches high, and 3½ broad.

Among the objects "ministering to house accommodation," may be classed those edifices, either military or judicial, of which there are models in the Collection. Upon the subject of the dwellings of the early Irish, some observations have already been made at pages 99 to 102,—illustrative of the earthen rath; the hive-roofed stone dwelling; the cell and the cashel; the cave, either subterranean, or in-

cluded in the rampart of the fort; and the cloghaun, or primitive stone house, such as those scattered over the islands of the west, and in the Celtic city of Fahan, in Kerry. These are nearly all that now remain of stone habitations, except such as were used for religious purposes, or were inhabited by ecclesiastics; but as we do not at present possess models of any, they do not require description.*

Military Architecture appears to have received a great deal of attention from the Pagan inhabitants of this country, and exhibits an amount of skill, both in structure and engineering, which is only to be equalled by the earliest Pelasgian monuments in Greece, which those in Ireland resemble in so many particulars that one is led, from similarity in structure, to suppose an identity of people. They consist of enclosures, generally circular, formed of massive dry walls from 6 to 16 feet thick, of cyclopean architecture, and entered through a narrow gateway with sloping sides. Some have several surrounding ramparts or outworks, and a few have the inner surface of the wall formed into flights of stairs, leading to terraces at top. The most remarkable, as well as the most extensive collection of monuments of this description in Europe is to be found in the Isles of Aran, on the west coast of Galway, in particular Dun-Ængus—without exception the greatest barbaric monument of its kind extant—Dun-Oghill, Duv-Caher, and Dun-Connor; also the Grianan of Aileach, in the county of Donegal; Culcashel, in Mayo, on the borders of Roscommon; Fahan and likewise Staigue Fort, in the county of Kerry, of which latter, a very beautiful and accurate model made of the actual stone of which the fort is composed, stands in the centre of the first Compartment of this Gallery; and of which the ac-

* To persons anxious to promote the antiquarian interests of the Academy, we cannot propose a more laudable object than the construction and presentation to the Museum of models of ancient structures, such as cromlechs, duns, &c; if accurately made to a scale, they would be most acceptable.

companying illustration is a faithful representation. It was—*Presented to the Academy by James F. Bland, Esq.*, of Derryquin, whose father published a description of this ancient stronghold in the Academy's Transactions, vol. xiv. This model is 2 feet 5 inches from out to out, and 5½ inches high. The origi-

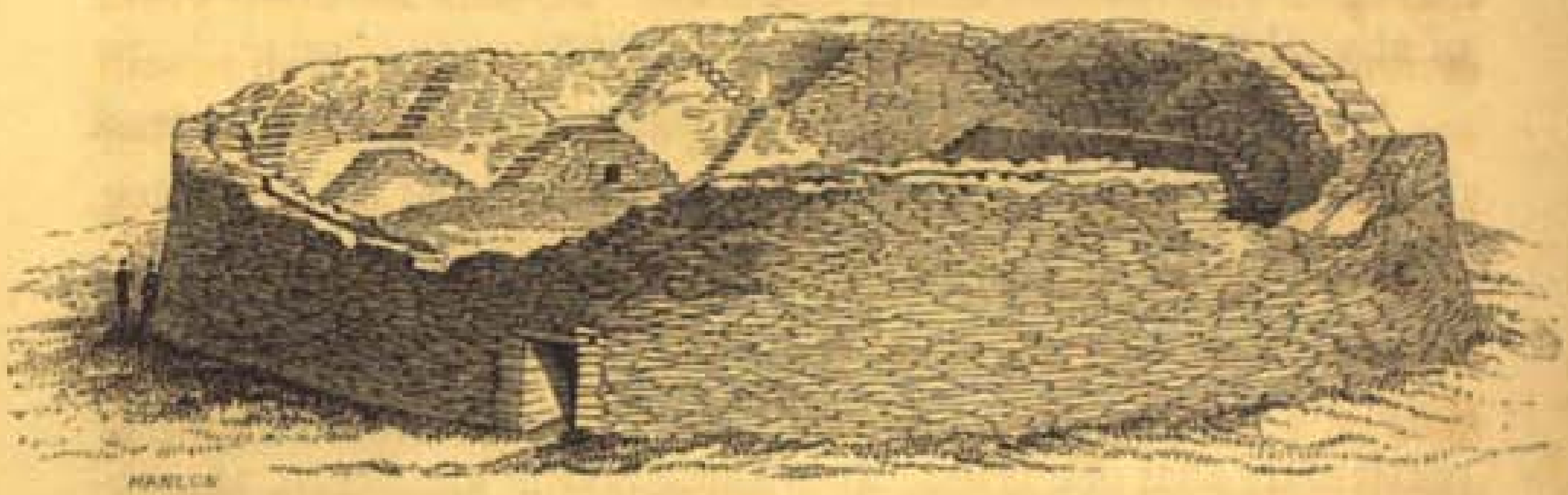

Fig. 91.

nal is an enclosure, nearly circular, 114 feet in diameter from out to out, and in the clear 88 feet from east to west, and 87 from north to south. The stones are put together without any description of mortar or cement; the wall is 13 feet thick at the bottom, and 5 feet 2 inches broad at top at the highest part, where some of the old coping-stones still remain, and which is there 17 feet 6 inches high upon the inside. It has one square doorway in the S.S.W. side, 5 feet 9 inches high, with sloping sides, 4 feet 2 inches wide at top, and 5 feet at bottom. In the substance of this massive wall, and opening inwards, are two small chambers; the one on the west side is 12 feet long, 4 feet 7 inches wide, and 6 feet 6 inches high; the northern chamber is 7 feet 4 inches long, 4 feet 9 inches wide, and 7 feet high. They formed a part of the original plan, and were not, like other apertures in some similar structures, filled-up gateways. Around the interior of the wall are arranged ten sets of stairs, as shown in the cut, the highest reaching very nearly to the full height of the wall, and the secondary flights being about half that much; each step is 2 feet wide; and the lower flights project within the circle of the higher. They lead to narrow platforms, from

8 to 43 feet in length, on which its wardens or defenders stood.

Although larger forts of this kind are known in Ireland, nothing so perfect in the construction of the staircases encircling the interior is to be found—with the exception of Dunmohr, in the middle island of Aran. A date of 2000 years cannot be considered too old for this monument, which is still in a state of great preservation, and only to be equalled by those in Aran, already alluded to, but which, although they exceed Staigue in magnitude, do not evince so much care in their design and construction. What may have been the original Irish name of "Staigue Fort"—which is quite a modern appellation,—has not yet been determined. It is not unreasonable to suppose that in and around a fortress such as this resided some tribe or people, who only knew the use of flint weapons and tools identical with those described in the foregoing section.

The remains of stone structures, generally on elevated positions, and bearing unmistakable evidences of the action of fire, are common in Scotland, and not altogether unknown in Ireland. Specimens from some of these Vitrified Forts will be found in the angles of the third Compartment, between Trays **EE** and **OO**, **CC** and **DD**, and **LL** and **FF**. See p. 147.

SPECIES V.—DRESS AND PERSONAL DECORATION.

Stone articles of personal decoration must have been comparatively rare during the early occupation of the British Isles, although in more modern times the gem and the precious stone have been eagerly sought after for such purposes. Stone beads are, however, of frequent occurrence in collections of Celtic Antiquities; but whether they preceded the flat whorl, and formed the intermediate link between it and the ring, which is likely, is but conjectural. Upon Tray **PP** is arranged a collection of these stone beads, of divers forms,

and varying in size from $\frac{1}{8}$ an inch to $3\frac{3}{8}$ inches. Strung together, they formed necklaces, which, in all probability, also contained, like those of other nations in a state of early simplicity, pendants of the teeth of animals, amulets, and glittering objects of various descriptions. Necklace beads of glass, bone, jet, and particularly amber, were in use among the primitive inhabitants of this country, and will be found in other portions of the Collection. The first object on Tray **PP**, is a star-shaped bead or button, perforated on the under side so as to admit a string, and here figured half the size: both sides of this very beautiful ornament being shown. It might have been either strung on a necklace, or used as a fastener. It was found

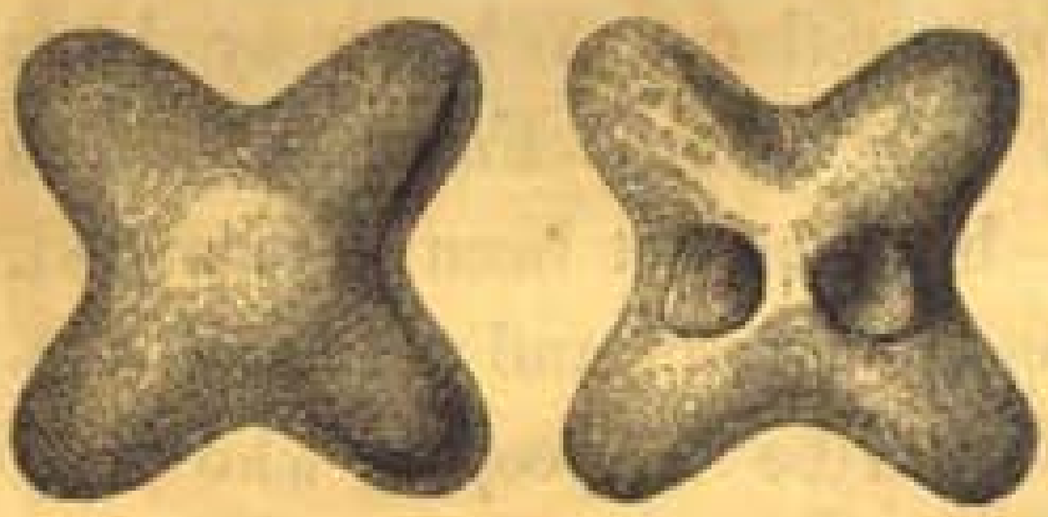

Fig. 92. No. 1.

in the sepulchral caverns discovered during the excavations made some years ago at the tumulus of Dowth, on the left bank of the river Boyne, in the county of Meath. No. 2, Fig. 93, figured one-fourth the natural size, is formed out of a piece of whitish flint of an impure description, but originally polished; it has three apertures which meet in the centre for the attachment of a string.

Fig. 93. No. 2.

Fig. 94. No. 6.

Fig. 95. No. 10.

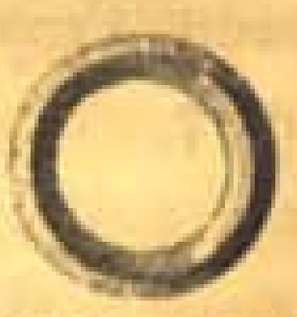

Fig. 96. No. 53.

In the second row, from No. 4 to No. 16, will be found thirteen beads derived from various localities, and selected from the collection generally, but here arranged in the form of a necklace. From No. 10, the centre-piece of that necklace, from the two articles placed at the top of this Tray, and from Nos. 6 and 53, have been drawn the accompanying illustrations, Figs. 92 to 96. Fig. 94, from No. 6, is an ordinary globular bead. No. 53, Fig. 96, is a flat, oval ring of clay-slate, figured one-fourth the natural size.

Rings of stone, numbered from 47 to 60, and varying in diameter from $\frac{7}{8}$ths of an inch to $3\frac{7}{8}$ inches, and of which Fig. 96 affords an example of the small variety, may have been worn on the thumb or finger, or were attached by ligatures to the ear, or appended with other ornaments to necklaces.

Not only was stone formed into beads, and also finger and necklace rings, but it was also converted into such large rings as were probably used as bracelets or armlets, and of which there are several examples arranged upon Tray **PP**. Of these, No. 49, Fig. 97, here figured one-third the natural size, is $2\frac{1}{4}$ inches in the clear, and No. 59, Fig. 98, the largest in the Collection, is $2\frac{3}{4}$ inches in the clear, and $\frac{1}{2}$ an inch thick. Similarly shaped objects in jet are frequent.

Fig. 97. No. 49.

Fig. 98. No. 59.

COMPARTMENT III.—SHELF I., *End-Case*, *Tray* **PP**, contains sixty objects of personal decoration. No. 1, a star-shaped bead or button, composed of iron sandstone; $2\frac{1}{8}$ inches across the points, smooth and convex on one surface, and perforated on the other, as shown in Fig. 92. No. 2, Fig. 93, a nodule of flint, with three apertures meeting in the centre; it is $1\frac{1}{2}$ inches in height, and somewhat more than $1\frac{3}{8}$ across. No. 3, a shield-shaped pendant, probably an amulet, of whitish limestone, $2\frac{1}{2}$ inches high, and $2\frac{1}{4}$ broad. Beneath these three objects are arranged, in necklace fashion, thirteen beads, the central one of which, composed of shale, No. 10, Fig. 95, is of a flat, oval shape, similar to those formed of jet; it is nearly 3 inches long, by $1\frac{3}{4}$ across the middle, and tapers to $\frac{3}{4}$ths of an inch at each end; the aperture, which traverses the long direction, is of a large size. The beads on either side of this are either globular or resemble whorls; in size they vary, from No. 11, a round bead, $1\frac{5}{8}$ inches across, to No. 16, a flat, perforated disc, which is only $\frac{7}{8}$ths of

an inch in diameter. Nos. 4, 6, 10, 15, and 16, are composed of shale; Nos. 5 and 7, of sandstone; Nos. 8 and 9 are limestone nodules; No. 12, chlorite schist; and Nos. 11, 13, and 14, limestone. No. 6 is given as Fig. 94.

On the first straight row are six beads, of the ring character, numbered from 17 to 22, varying from $1\frac{3}{8}$ inches to $\frac{7}{8}$ths of an inch in diameter. No. 17 is shale; No. 18 is red slate; the remainder are of sandstone. The second cross-row contains five articles, of which No. 23 is a mica slate ring; No. 24, is a shale nodule; No. 25, a limestone amulet, $1\frac{1}{4}$ inches high, and about the same broad, perforated at top, with a cross figured upon it, as shown by Fig. 100, p. 127. No. 26, is a rotten-stone ring, indented at the side; No. 27, is a limestone ring. On the third row are five well-formed bead rings, of a medium size, of which Nos. 28, 29, and 30, are of shale; No. 31 is limestone; and No. 32, clay-slate. On the fourth row are arranged seven rings, all, with the exception of the first, of a small size. No. 33 is shale; No. 34, clay-slate, and only $\frac{7}{8}$ths of an inch across. No. 35, the most beautiful specimen in the Collection, is a ring-like bead, of quartz, nearly transparent, and 1 inch in diameter, with a very small string-hole. Nos. 36, 37, and 39, are of limestone; No. 38 is a curious bead of chlorite slate, smaller on one side than the other. Upon the fifth row are seven small beads, some of them flat discs. Nos. 40, 43, and 45, are of limestone; No. 41, clay-slate; No. 42, sandstone; No. 44, crystalline limestone; No. 46, of limestone, is the smallest specimen in the Collection. The sixth row consists of five rings, four of them small necklace or bead rings; and the fifth, No. 49, Fig. 97, is a very remarkable bracelet, formed out of shale; its diameter within the circle is $2\frac{1}{4}$ inches, and from out to out $3\frac{1}{4}$; it is flat on the inner face of the ring, is nearly $\frac{3}{4}$ths of an inch thick, and polished all over; No. 47 is shale; No. 48, granite; Nos. 50 and 51, sandstone. The seventh row contains six stone rings, varying in size from $1\frac{7}{8}$ inches to little more than 1 inch, and are more slender than the rest. No. 52 is a light ring of clay-slate; No. 53, Fig. 96, is clay-slate, $1\frac{1}{4}$ inches in the clear of the bore; No. 54 is also of clay-slate; No. 55, limestone; No. 56 is a limestone ring, 1 inch in the clear; and No. 57 is a clay-slate ring.

Nos. 58, 59, and 60, are portions of bracelets or anklets. No. 58 is half of a ring, 2 inches in the clear, and 1 inch broad, of earthy

limestone; it was procured from Ardakillan, and was—*Presented by the Board of Works.* No. 59, the largest ring in the Collection (see Fig. 98, p. 123), is $3\frac{7}{8}$ inches in diameter, $2\frac{3}{4}$ in the clear, and about $\frac{1}{2}$ an inch thick; it is composed of shale, and was procured from Cruttenclough, parish of Castlecomer, county of Kilkenny. No. 60 is the fragment of a large thin ring, $3\frac{3}{4}$ inches in diameter, and $3\frac{7}{8}$ in the clear. It was found at Keelogue Ford, and was—*Presented by the Shannon Commissioners.*

No. 15 came from Ballinderry Church, county of Antrim; No. 16 from Kells Abbey, county of Kilkenny; No. 48 was found in a cromlech at Ladysbridge, county of Down; No. 50, at Dunganstown, county of Wicklow; and No. 55 was procured from Aughagallon, county of Antrim.

At the bottom of this Tray will be found a series of Touch-stones, numbered from 74 to 82. They belong to the class of Tools, although there can be little doubt of their having been worn either as pendants on a necklace, or attached by a string to the person. See pp. 89 and 90.

SPECIES VI.—AMUSEMENTS.

At the end of Rail-case B, numbered from 1 to 14, may be seen fourteen pieces of fine-grained honestone or sand-stone, carved and decorated with punch-marks, rings, and circles, not unlike dominoes; but of a variety of figures, mostly, however, either oblong, angular, or circular. One of the most remarkable is that resembling the gable of a house, as represented by the accompanying cut, Fig. 99, from No. 2, and which is 3 inches in its greatest length, and 2 broad. They were found in the mud thrown up in excavating the Brosna, during the recent drainage operations connected with that river. These small stones, together with several similarly shaped pieces of bone, also found in the same locality, appear to have been used in some description of game.

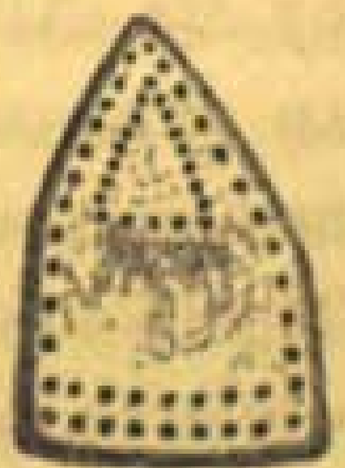

Fig. 99. No. 2.

Of Species VII. and VIII.,—articles illustrative of music or the means of barter,—there are no stone representatives in the Academy's Collection.

SPECIES IX.—MEDICINE.

UNDER this head may be classed all those objects either used directly for medical or surgical purposes, such as instruments and medicine stamps, or indirectly, as prophylactics, in the shape of amulets and bullæ, &c., against the supposed influence of fairies, or the "evil eye," or disease in man or the lower animals,—a custom still in use over a large portion of the inhabited globe. The latter variety of these objects occupies a middle rank between medicine and religion.*

MEDICINE STAMPS, of Roman origin, have recently attracted the attention of the learned both in Great Britain and on the Continent, where several have of late years been brought to light. They are small stone tablets, engraved with letters, and were used either for impressing wax or marking some substitute for paper. They are generally oculists' stamps. One of these was found at Golden Bridge, county of Tipperary, on a plot of ground called the Spittle Fields, containing some ruins traditionally known as "The Hospital," and is now in the possession of Dr. Dowsley, of Clonmel, who has kindly placed a model of it in the Museum (see Rail-case C, No. 28). The inscription on it has been thus deciphered by Mr. Albert Way:—"MARCI JUVENTII TUTIANI DIAMYSUS AD VETERES CICATRICES. A little mark at the close of the first line, resembling a minuscule c, is somewhat indistinct." This is one of the few relics of Roman art (except some coins) which have as yet been discovered in Ireland.†

* The lucky horse-shoe fastened on the threshold or the door-post, and "the seven blessed irons" formerly hung round children's necks, are familiar examples of such objects in Ireland; while the coral hand with the pointed fingers, so much worn by all classes in southern Europe, is too well known to require description.

† "The Archæological Journal," vol. vii. p. 354: see also Gough's Treatise in "The Archæologia," vol. ix. p. 327; Dr. Sichel's Paper, published in Paris in 1845; and that of Professor Simpson, in the Edinburgh "Monthly Medical Journal," &c.

AMULETS.—Not unlike the modern amulet, usually denominated a 'gospel,' is the accompanying illustration, drawn the natural size from No. 25, on Tray **PP**, which bears upon its surface the rude representation of a cross, bearing a "remonstrance." It is 1¼ inches high, and something more broad. It is of limestone, and appears to have been much worn. Somewhat of the same class is the shield-shaped stone, No. 3, in that series of ornaments.

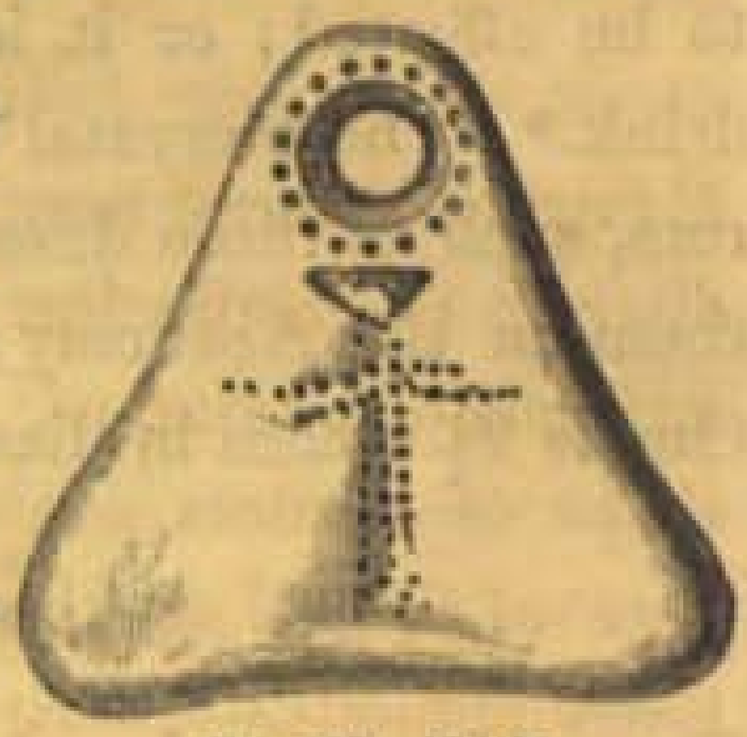

Fig. 100. No. 25.

CRYSTAL BALLS and ovals, varying from the size of a marble to that of a small orange, are to be found in many collections of antiquities in the British Isles. Such objects formed part of the decoration of ecclesiastical shrines, of which several may be seen in the Museum; for example, in the Cross of Cong, the Cathach of the O'Donnells, and the Domnach Airgid; and globes of rock-crystal are set in most sceptres, as may be seen among those in the regalia of Scotland, preserved in Edinburgh Castle. The smaller kind, and those not of a globular form, manifestly belonged to shrines, from which, perhaps, their peculiar sanative efficacy was supposed to be derived. Globular masses of rock-crystal, unconnected with either shrines or sceptres, have been preserved in Irish families for centuries past, and have always been regarded with peculiar veneration, not only for their great antiquity, but on account of the virtue assigned to them by the people, as amulets or charms, to be used in the prevention or cure of cattle distempers. One of the most celebrated of these crystal globes is that in the possession of the Marquis of Waterford, concerning which there is a tradition in the family that it was brought from the Holy Land by one of his Le Poer ancestors at the time of the Crusades. This is eagerly sought after, even in remote districts, in order to be placed in a running stream, through which the diseased

cattle are driven backwards and forwards, when a cure is said to be effected; or it is placed in the water given them to drink.* These crystal balls were also regarded as magic mirrors, such as those described by Spenser. We possess two of them in the Academy;—see Nos. 1 and 2, in Rail-case C. One is $2\frac{1}{4}$ inches in diameter, and the other $2\frac{1}{8}$. See p. 148.

SPECIES X.—RELIGION.

From the foregoing description of the weapons, some idea may be formed of the warfare, the hunting, and the fishing;—from that of the tools, of the industrial arts and probable mode of life;—from the notices of houses and forts, and the food implements and household furniture, we learn somewhat of the agriculture and the domestic habits;—and from the beads and rings, of the amount of personal decoration of the primeval people of this island. Of the objects used in their games or amusements a few specimens remain, but of their musical instruments *no relics* have come to light; and if they possessed money or a means of barter, we are ignorant as to what it was. That of which we have the most distinct evidence is the last office of man for his fellow—Sepulture. Of the precise nature of the religion of the people in this earliest period we possess no information, but such references as have been made to the pre-Christian religion show that it was a form of Druidism, in which its votaries chiefly worshipped the elements and heavenly bodies; and we know that when St. Patrick commenced his mission in the fifth century, his principal opponents were the Druid priests. If, therefore, we would know what the religion of the Pagan Irish was, we must learn it from the history of Druidism in other countries.

* For the foregoing account of the Le Poer crystal the writer is indebted to the Marchioness of Waterford. These amulets are described by Dalyell, in his "Darker Superstitions of Scotland," p. 155, who gives an account of the most remarkable one north of the Tweed. See also Sir E. L. Bulwer's novel of "The Caxtons," vol. ii. p. 343, and Sir Walter Scott's novels of "The Talisman" and "My Aunt Margaret's Mirror."

Scattered over the plains of central and north-western Europe, extending as far as the rigours of the northern climate permitted the Celtic race to spread, and all over the British Isles, may be seen circular, oblong, square, and irregular-shaped enclosures, which have remained from the pre-historic period in their respective countries to the present time. Of these, Carnac in Brittany, Rutzlingen in Hanover, several in Denmark, Stonehenge and Aubry in England, the "Stones of Stennis" at Orkney, and Classerniss at Lewis, in Scotland, may be specified as examples; and some such exist in Ireland. Many of these are undoubtedly sepulchral enclosures, surrounding tumuli or uncovered cromlechs, and several mark the confines of what are termed "Giants' graves"—usually oblong enclosures, only a few of which have yet been examined further than the surface. One of the most notable stone circles in Ireland, from the size of the blocks which form it, and the extent of space which they enclose, is that surrounding the great mound at New Grange, on the banks of the Boyne, in the county of Meath. But besides these circles connected with sepulchral monuments, there are others apparently intended for a different purpose; and it is not without reason that many learned persons conjecture that these stone enclosures were subservient to religious uses, and that within them were enacted some of the mysteries of Druidism. Possibly they were also employed for holding solemn assemblies or courts of justice, and for the inauguration of chieftains.

These remarks have been elicited by finding in the Museum the model of a stone enclosure which exists in the deerpark of Hazlewood, townland of Magheraghanrush, parish of Calry, and county of Sligo—*Presented to the Academy by the President, Dr. Todd* (see Proceedings, vol. vi. p. 123), and of which the perspective view given on the next page affords a good representation. It is called *Leacht Con Mic Ruis*, the stone of Con, the son of Rush, and also "The Giant's Grave." The large central space is 50 feet long, by

25 wide. The avenue between the two small enclosures is 22 feet long, and 3½ feet wide, and each of the side spaces is 20 feet long, by 8 wide. The terminal space is an oval enclosure, 23 feet long, by 10½ wide at the broadest part. Mr. Wynne, on whose property this interesting remain stands, states that "several of the stones were, it is manifest, placed across the others, like those in Stonehenge, but the monument was much damaged some years ago, by persons seeking for treasure, supposed to be hid beneath the surface. The entrance to this enclosure faces the east. There is a second stone enclosure of the same character about half a mile distant, but only a fourth of the size, although the stones of which it is composed are larger."* A glance at the Ordnance Map (sheet 15, Sligo) will show that this must once have been a very populous district, as many as thirty large raths still remaining within a circuit of about three miles round this structure; and not far distant, in the townland of Carrowmore, there still exist sixty circles and cromlechs, "the largest collection," says Dr. Petrie, "of monuments of this kind in the British islands, and probably, with the exception of Carnac, the most remarkable in the world." See Proceedings, vol. i. p. 140.

Fig. 101.

* The foregoing illustration is taken, not from the actual monument, but from the model, placed upon the ground-floor of the Museum. The Author is indebted to the Right Hon. John Wynne for much information respecting this very curious but hitherto neglected relic of Druidism.

In the arrangement observed in the Museum, and in the construction of this catalogue, the Ecclesiastical Antiquities—chiefly composed of metal—form an excepted class, not placed together according to material; but stone articles appertaining to religious usages are again excepted from that class.

ALTAR-STONES.—Upon the *Uladhs*, or penitential altars, and on those of the small missionary churches, particularly in the West of Ireland and the adjoining islands, or sometimes placed upon the pedestals of ancient stone crosses, or beside holy wells, there were usually found, some years ago, one or more oval stones, either natural water-washed pebbles, or artificially shaped, and very smooth; some were plain, and others decorated and engraved. "They were," says Dr. Petrie, "held in the highest veneration by the peasantry as having belonged to the founders of the churches, and were used for a variety of superstitious purposes, as the curing of diseases, taking oaths upon them, &c." (see Proceedings, vol. iv. p. 273). In the Life of St. Deglan, a MS. preserved in the Academy, we read, "that being on his way from Rome, he stopped in a certain church to say mass, and while there, a small black stone was sent from heaven through a window, and rested on the altar before him, and he gave it to Loonan, son of the King of Rome, who was with him; and the name it has in Ireland is *Dubh-Deglain*, from its black colour; and it still remains in Deglan's church,"* at Ardmore, county of Waterford. Six such stones will be found in Rail-case C, numbered from 3 to 9, and of which the three illustrations on next page present the most remarkable forms.

No. 3, Fig. 102, of sandstone, is 4½ inches long, and about 1⅞ thick. On one side it has four indentations, like finger-marks, and upon the other the figure of a cross cut into

* Translation afforded by Eugene Curry, Esq., to whom the Author is much indebted for information respecting this and other matters connected with the MS. illustration of the articles in the Museum of the Academy.

the stone. No. 6, Fig. 103, a shale nodule, 4 inches long, has a peculiar form of cross marked on one side, and is plain

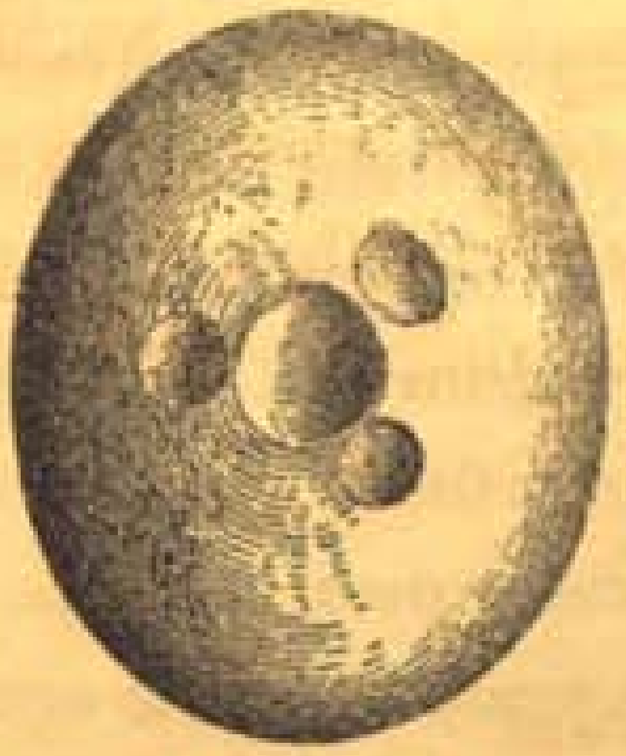

Fig. 102. No. 3.

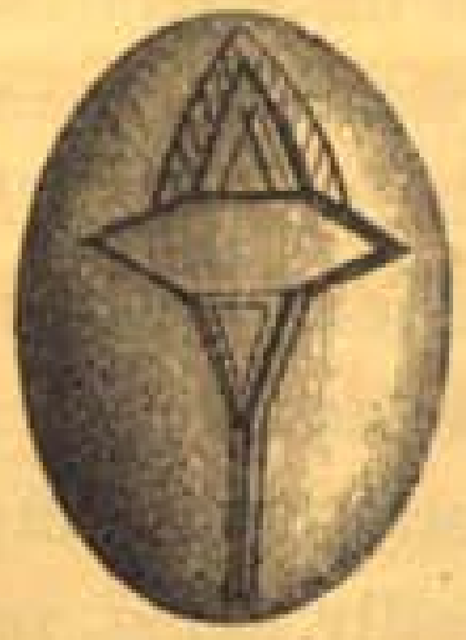

Fig. 103. No. 6.

Fig. 104. No. 7.

on the other. No. 7, Fig. 104, is also apparently a shale nodule; it is $2\frac{3}{4}$ inches in diameter, and in figure resembles a sling-stone, such as that on p. 75, Fig. 55. Upon the face shown in the cut may be seen a number of raised lines, forming an irregular, but by no means unornamental figure. On the obverse is a cross carved in relief, the arms of equal length, and extending to the edge of the stone. See details of these altar-stones on p. 148.*

Fig. 105. No. 34.

Among the stone ecclesiastical antiquities may be classed a vessel, supposed to be a chalice, No. 34, placed in the Second Cross-case, and here figured. It is of sandstone, $7\frac{1}{4}$ inches high, and $4\frac{3}{4}$ across the top of the cup; it stands on a base $3\frac{3}{4}$ inches across, and has a rope-like ornament carved upon the stem.

At the foot of the right-hand staircase, leading to the

* In some localities a number of white round stones are placed on the altars, concerning which there is a popular belief that they cannot be counted.

Southern Gallery, are a number of sculptured and inscribed stones, for the most part connected with either religion or sepulture. As examples of the former may be specified No. 18, the greater portion of a highly decorated cross; No. 19, a sculptured stone, bearing the figure of an ecclesiastic in relief; No. 20, a small flag-stone, marked with a cross; and No. 21, a small mitre-shaped stone, bearing the figure of an ecclesiastic. See page 142.

SPECIES XI.—SEPULTURE.

The small square stone grave, or kistvaen, containing a single cinerary urn, placed beneath the surface of the soil, and so frequently exposed by the plough or the spade; the collection of urns, apparently marking the site of an ancient cemetery, possibly that of a battle-field; the grassy mound and the massive cromlech breaking the level outline of the landscape; the large stone circle, or the oblong enclosure, popularly termed a "giant's grave;" the huge temple-like barrow, with its enveloping mound of stones or earth (the western type of the true Oriental pyramid); the simple, rude pillar-stone, the Ogham-inscribed monolith, or the sculptured cross; the wayside monument; the horizontal gravestone; the stone coffin; the modern vault, or stately mausoleum; and the carved recumbent figure in the decorated abbey, as well as the marble tablet in the modern church;—all afford abundant examples of the use of stone material in sepulchral and funereal rites, and evince the piety and reverence with which the dead were regarded in Ireland from the very earliest time. Examples of all such sepulchral monuments it would not be possible, except by models, to present in a Museum such as that of the Royal Irish Academy. But we have in the Stone Collection three forms of burial illustrated, viz., by the early stone urn of Pagan times; by the Ogham stones of very early Christian; and the fragments of

sculptured crosses of later Christian eras. Of the former we have a very rare and beautiful example in the large decorated stone urn upon the fourth shelf of the Second Cross-case, as shown by the accompanying representation (Fig. 106). It came into the possession of the Academy with the Dawson collection, but from whence obtained is unknown. Its dimensions are 8¾ inches high, about 10½ broad, 1 inch thick, 7½ wide in the mouth, and about 5½ deep; it is composed of limestone, and decorated with two bands of those zig-zag lines characteristic of very early Irish art, and has also on each side a circle, one raised, the other flat and grooved, supposed by some to represent the sun and moon. It has evidently been worked out with metal tools, and is probably of a much later date than the early fictile urns. Sir T. Molyneux described and figured a stone urn, said to have been found at the mound of Knowth, on the banks of the Boyne, county of Meath.

Fig. 106. No. 35.

Ogham Stones.—Under this heading has been classed a large collection of pillar-stones, marked with Ogham characters, (with two exceptions placed in the centre of the third Compartment) arranged on the ground-floor, at the foot of the staircase leading to the Northern Gallery. The cuts upon each side of the opposite page, Figs. 107 and 108, from No. 11, give views of one of the most interesting Ogham stones in the collection; it is about 4½ feet high, and averages 11 inches across. It was found, with three other similarly inscribed stones, built into the walls of a dwelling-house in the county of Kerry, to which it is believed they had been removed from the souterrain of a neighbouring rath. There were originally two very rudely executed crosses on opposite

sides of it, but a portion, bearing the upper member of one cross and some Ogham strokes, has been broken off. The lines are cut in for about one-eighth of an inch in depth, and run from an inch to 3½ inches in length. Most of these Ogham lines appear to have been cut in by punching or rubbing with a metal tool. The Rev. Charles Graves, who has specially studied this form of writing, and made many communications on the subject to the Academy (see Proceedings, vols. iv. pp. 70, 173, 183, 254; vol. v. p. 234, 401; and vol. vi. pp. 71, 209, and 248), has thus deciphered the inscription upon this stone:—

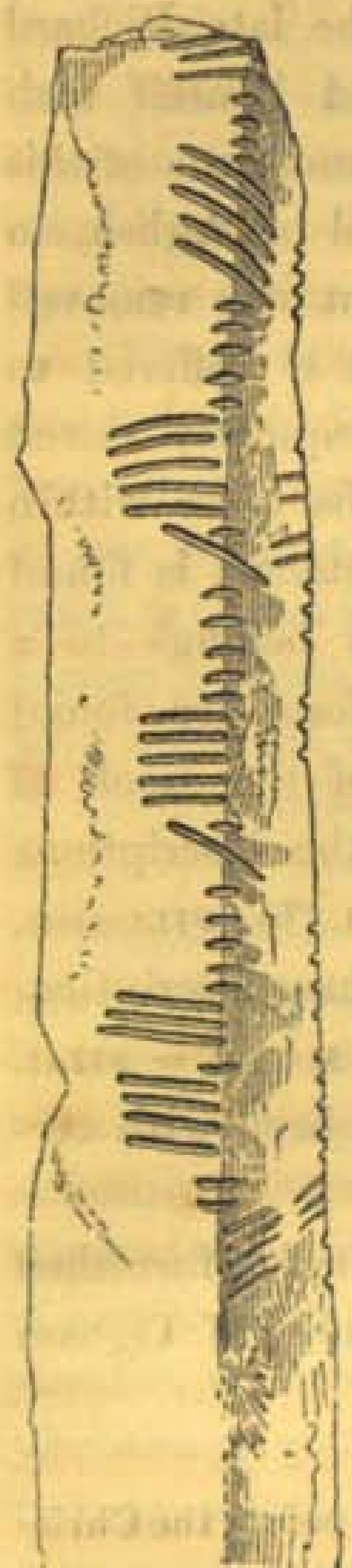

Fig. 107. No. 11.

"Fig. 107, NOCATI MAQI MAQI RET[TI], i. e. [The stone] of Nocat, the son of Mac Reithe. Fig. 108, MAQI MUCOI UDDAMI, i. e. [The stone] of Uddam, son of Mogh. The names Mac Retti and Mac Mucoi appear on several Ogham monuments in the county of Kerry; the former is supposed to be the same as Mac Reithi, which occurs in an ancient southern pedigree in the Book of Lecan. It is to be observed that Ogham inscriptions, like the most ancient monumental inscriptions in Wales and Cornwall, very generally present proper names in the genitive case. The crosses on this monument appear to have been executed by a hammer or punch, and not by a cutting tool,—a style of workmanship characteristic of the earliest inscribed stones in this country."

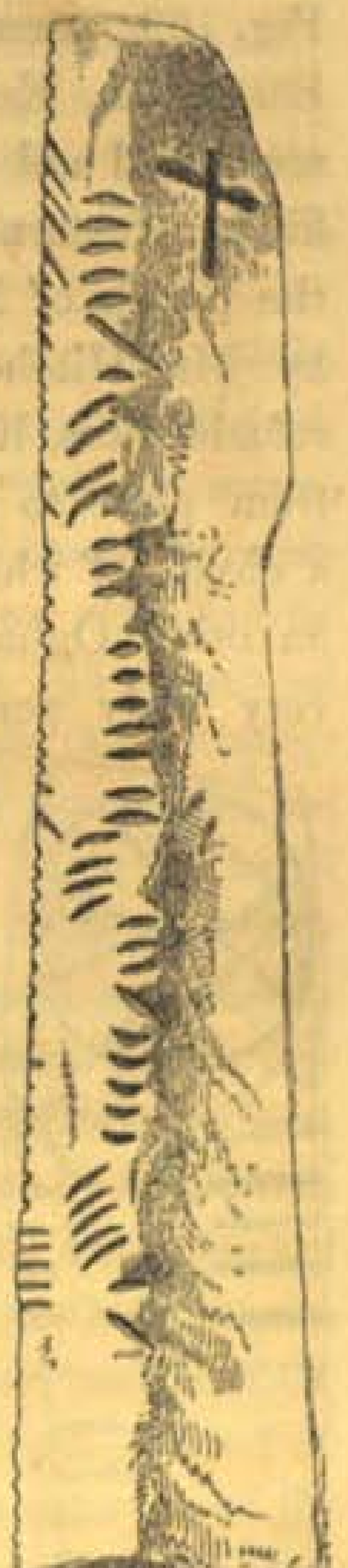

Fig. 108. No. 11.

No. 1, in the centre of the third Compartment of the Northern Gallery, is an Ogham stone, shown below, Fig. 109, presented to the Academy by the late Richard Hitchcock, Esq., a gentleman who devoted himself with much zeal and success to the search after monuments of this kind. It formerly stood in the churchyard of Aglish, in the parish of Minard, county of Kerry; but was removed by Mr. Hitchcock, who apprehended that if suffered to remain there, it might be destroyed, being frequently moved from place to place in the churchyard. The cross within a circle, of which this stone presents an instance, is found on other Ogham monuments, and certainly belongs to a very early period. Crosses of the same form are found amongst the illuminations of the Book of Kells. Dr. Graves reads the inscriptions as follows :—(*a*) MAQI MAQI (*b*) APILOGDO. Here, as in almost every Ogham inscription, we meet the word MAQI = MAICC = FILII. The proper names have not been with certainty identified.

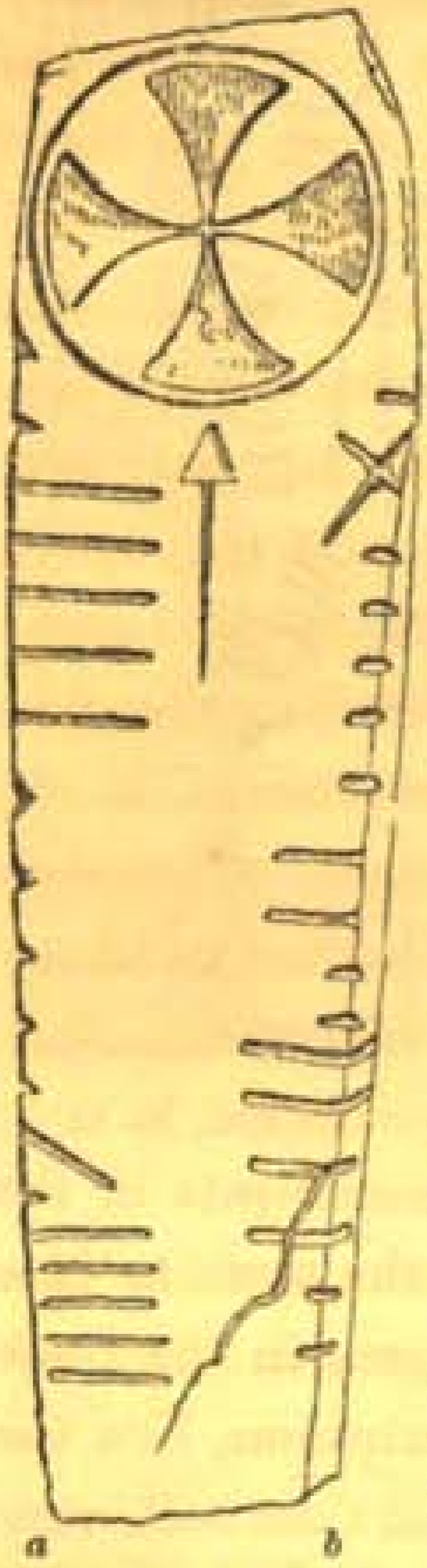

Fig. 109. No. 1.

The same eminent authority has furnished us with the following account of Ogham writing :—

"Whether the ancient Irish, before the Christian era, possessed a primitive alphabet, differing essentially from that in use in other parts of Europe, is a question which has been debated by scholars with great earnestness. Those who maintain the affirmative appeal to the concurrent authority of the most ancient Irish manuscript histories, according to which an alphabet, called Ogham, was invented by the Scythian progenitors of the Gaelic race, and was introduced into Ireland by the Tuatha De Dannaan, about thirteen centuries before the birth of Christ. They also refer to the oldest Irish romances, which

contain frequent allusions to the use of Ogham, either for the purpose of conveying intelligence, or in sepulchral inscriptions on pillar-stones erected in honour of distinguished persons. Finally, they point to existing monuments of this very kind, presenting inscriptions in the Ogham character; and argue from their rudeness, and other circumstances, that they must be ascribed to a remote and Pagan period.

"Those, on the other hand, who dissent from this hypothesis, allege that the legendary accounts of the invention of the Ogham bear all the marks of fiction; and they contend that the nature of this alphabet, in which the vowels and consonants are separated, furnishes internal evidence of its having been contrived by persons possessing some grammatical knowledge, and acquainted with alphabets of the ordinary kind. As regards the testimony of romantic tales, they impugn its authority by questioning the antiquity of these compositions, which, at most, prove the belief prevailing at the time when they were written as to the use of letters in a much earlier age. Lastly, they assert that a considerable number of the existing Ogham monuments are proved by the emblems and inscriptions which they bear to belong to Christian times. A decisive instance has been noticed in the case of a monument standing in the churchyard of Minard, near Dingle, in the county of Kerry. This stone, inscribed with crosses, and bearing the name MARIANI, must have been erected long after the introduction of the Christian religion and the Latin language into Ireland. This controversy cannot be brought to a satisfactory termination until the manuscript authorities bearing upon the subject have been discussed, and the inscriptions on the monuments carefully deciphered."

To aid the visitor in examining the specimens of Ogham preserved in the Museum, we subjoin a brief explanation, by Dr. Graves, of this curious mode of writing :—

"The Ogham alphabet consists of lines, or groups of lines, variously arranged with reference to a single stem-line, or to an edge of the substance on which they are traced. The spectator, looking at an upright Ogham monument, will in general observe groups of incised strokes of *four* different kinds:—(1) groups of lines to the left;

(2) others to the right of the edge; (3) other longer strokes crossing it obliquely; and (4) small notches upon the edge itself. The characters comprised in class (1) stand respectively for the letters B, L, F, S, N, according as they number 1, 2, 3, 4, or 5 strokes; those in (2) for H, D, T, C, Q, or CU; those in (3) for M, G, NG, ST, or Z, R; and those in (4) for the vowels, A, O, U, E, I. Besides these twenty characters, there are five others occurring less frequently, and used to denote diphthongs and the letters P, X, and Y. In some instances the Ogham strokes are cut upon a face of the stone, instead of being arranged along an edge. In such cases an incised stem-line, or an imaginary line passing through the shortest, or vowel strokes, takes the place of the edge.

"Ogham inscriptions, in general, begin from the bottom, and are read upwards, from left to right. Almost all those which have been deciphered present merely a proper name with its patronymic, both in the genitive case. The monuments appear, for the most part, to have been sepulchral in the first instance. But there is reason to suppose that they were used to indicate the proprietorship of land, either standing as boundary stones, or buried in crypts, as evidences to be referred to in case of disputes arising.

"By far the greater number of the Ogham inscriptions discovered in Ireland have been found in the counties of Kerry and Cork. A few have been noticed in Wales and Scotland, and one in Shetland. Though several of the proper names occurring in the Irish Ogham monuments are to be met with in our annals and pedigrees, we doubt whether any of them have been yet so positively identified as to fix the time of the individuals whose memory it was intended thus to preserve."

OGHAM STONES.—Nos. 1 and 2 stand in the centre of the third compartment of the Northern Gallery; the former, Fig. 109, is 3 feet high, 10 inches broad, and 2¼ thick, and inscribed on both front edges; besides the Ogham inscription, it is decorated at top with a cross within a circle, beneath which is an arrow. It was procured from the churchyard of Aglish, barony of Corkaguiny, in the county of Kerry, and was, with Nos. 5, 6, 7, and 8—*Presented by Mr. Richard Hitchcock* (see Proceedings, vol. iv. p. 271; vol. v. p. 401). No. 2, on which the former stands, is a fragment, 22 inches long, 5½ thick, and 9 broad, containing an Ogham inscription along

three of its edges. It was—*Presented by F. M. Jennings, Esq.* (see Proceedings, vol. iii. p. 231).

The remaining stones of this class, amounting to ten in number, will be found at the foot of the staircase leading to the Northern Gallery. No. 3 is a cubical stone, about 10 inches in the longest diameter, having one side evidently smoothed artificially, and inscribed with lines, believed to be Runic characters; it is said to have been found under a cromlech. No. 4, attached to the horizontal iron bar, where all the other stones of this class are arranged, is a small flat Ogham-inscribed stone, 2 feet 8 inches long, and averaging 9 inches broad; it is only marked upon the right-hand edge. No. 5 is 3 feet 9 inches high, 9 inches broad, and 2 thick; it is inscribed with Ogham characters on the upper portion of the front, and on both side-edges; upon the lower portion of the reverse side is a small square cross, cut in. This stone was found in a bog at Ballineanig, county of Kerry, about seven feet beneath the surface (see Proceedings, vol. iv. p. 272). No. 6, one of the most perfect stones of this description in the Collection, is 4 feet 5 inches in height, averages 1 foot in width, and about 4 inches in thickness. It has an Ogham inscription upon both side-edges, the strokes being sharper and more defined than on any of the foregoing specimens. They also appear to have been cut with a punch or chisel. On both the front and back we find an indented square cross; it formed the lintel over the doorway of a small circular building, within the circle of a rath at Gortnagullanagh, county of Kerry. The proper name decipherable from these Ogham strokes is "DECEDDA," and also that of "CATUFI," or Cathubius, perhaps the abbot whose death is recorded in the Annals of the Four Masters, under A.D. 554 (see Proceedings, vol. v. p. 403). No. 7 is 4 feet 2 inches high, and tapers to the top. It averages 9 inches broad, and 7 thick, and has an Ogham inscription on the left-hand edge, extending over the left side. It formed a portion of a fire-place in an old house at Martramane, county of Kerry (see Proceedings, vol. iv. p. 272). No. 8 is 4 feet 8½ inches high, averages 1 foot broad, and is 4 inches thick. It bears an Ogham inscription on the right-hand side, which (as deciphered by Dr. Graves) commences with the word "CURCI," the genitive case of the proper name

"Corc." It also bears a name beginning with "Mucoi," which appears on a great number of these monuments, and which he takes to be the name of a tribe (see Proceedings, vol. v. p. 402). No. 9 is 4 feet 6 inches high, averages 11 inches broad, and is about 5½ thick; it has a deeply-cut Ogham inscription, with very broad strokes on the right-hand edge, extending over the face, and passing round the edge on which it stands. This stone was, with Nos. 10, 11, and 12—*Presented by Mac Gillicuddy of the Reeks* (see Proceedings, vol. vi. p. 71). No. 10 is 5 feet 5 inches high, 11 inches wide, and 6 thick; an Ogham inscription extends over the right-hand side and face. No. 11, Figs. 107 and 108, is 4 feet 9 inches high, nearly square, but tapering to the top. This monolith has evidently been a pillar-stone, and is deeply cut with Ogham strokes on three of its angles and two of its faces. A rude cross is indented on the top face. See page 135. No. 12, placed horizontally along the first line of stones, is 4 feet 2 inches in length, 10½ inches at the widest part, and bears an Ogham inscription on the upper edge, which is remarkable for traversing a natural groove of the stone; thus showing that the people who carved these Ogham strokes did not, in all probability, possess the means of squaring the stone.

All these Ogham inscribed monuments are either grit or sandstone. In addition to the foregoing references, see also the "Transactions of the Kilkenny Archæological Society," vol. ii. p. 283.

Nos. 13, 14, and 15, three grotesque female figures, of a class frequently found built into the walls of some of our oldest churches, may also be seen behind the Ogham stones in this locality. A few have been found in old castles; and all are of great antiquity.

No. 13 is a rudely carved female figure, of sandstone, 15 inches high, and 9 across the shoulders. No. 14 is a similar description of monument, and, like the foregoing, carved in relief. It was procured from the old graveyard of Lavey, county of Cavan, and—*Presented by Charles Halpin, M. D.* No. 15 is another stone, more massive than either of the foregoing, and having a small female figure carved upon it, but not raised above the level of the block of stone. It was found in the walls of a church in the county

of Cavan. The reader is referred to Mr. Clibborn's account of these ancient sculptures in the Proceedings, vol. ii. p. 565.

Besides these curious relics, now preserved in the Academy, the following list will point out some others still *in situ*:—In the gable of the old church at Rochestown, county of Tipperary; in the side of the old church at Dowth, facing the Boyne, county of Meath; in the church of Kells; over the door of Ballynahinch Castle, near Cashel, county of Tipperary; in the south front of Moycarkey Castle; and in the wall of the tower of Kiltinan Castle, the figure in which holds a horseshoe in one hand, and a dagger in the other, also in the county of Tipperary; in the wall of the old church on White Island, Lough Erne; and in the tower of the church at Abbey-larah, county of Longford. No doubt many similar ones exist in other localities. Although occasionally found built into the walls of castles, they are evidently not coeval with such edifices, nor even with the date of some of the churches, but were in all probability removed thereto from some of the neighbouring and earlier buildings.

The remaining sculptured or inscribed stones are arranged at the foot of the opposite staircase leading to the Southern Gallery.

No. 16 is a small sculptured flag, 16 inches long, and 10 broad, having engraved upon it a recumbent figure, holding what appears to be a book, and with a sort of fringe hanging down from the body, which appears to be enveloped in a kilt. Beneath the figure a portion of this nearly effaced Irish inscription may be discerned:—

[OR. DO] MUIR[CHERTACH, or EDACH] M . . . . . .
A prayer for Muirchertach, [or Muiredhach] Mac . . . . .

No. 17 is a rude flag tombstone, 3 feet long, about 2 broad, and 2½ inches thick, having the following Irish inscription:—

OR. DO BRAN . . . . . A prayer for Bran . . . . .

This tombstone, which is evidently very ancient, was—*Presented by — Birch, Esq.* No. 18 is about three-fourths of an ancient sculptured and evidently very small cross, the arms enclosed within a circle. It is now 2 feet 1 inch high, and was probably about 18

inches across the arms originally; it is sculptured on both sides with zig-zag, bead, and rope ornaments. It was dug up some years ago in making a grave in the old churchyard of Donaughmore, near Navan, county of Meath, and was—*Presented by W. F. Wakeman, Esq.*

No. 19 is a sculptured tablet stone, originally square, bearing the figure of an ecclesiastic, apparently St. Patrick, holding a crozier in the right hand, and a lamb in the left. It was found in the Shannon, and is much water-worn; the figure is 2 feet 3 inches high. There is an illegible inscription on top. No. 20 is an ornamented flag-stone, 1 foot 10 inches high, and 9 inches wide, having a floral embellishment below, and an indented cross above. It was found in the village of Kilvickadownig, county of Kerry, and was—*Presented by Mr. R. Hitchcock.* No. 21, a small stone, of a mitre-shape, bearing in relief the figure of an ecclesiastic in his robes; it is 9½ inches high, and originally stood in St. Patrick's Cathedral, Dublin. No. 22 is a monumental stone, 2 feet 3 inches long, and 14 inches in height, bearing in the Irish character this inscription:—

OR. DO DUNCHAD PRESPITER HIC.

A prayer for Dunchad the Presbyter, here.

It was procured from the wall of a churchyard near Brookborough, county of Fermanagh, and was—*Presented by the Rev. J. Calwell* (see Proceedings, vol. vi. p. 512).

No. 23 is a piece of the shaft of the market-cross of Navan, county of Meath—*Presented by W. F. Wakeman, Esq.* (see Proceedings for 15th of June, 1857). It is 23 inches high, and 8½ on each square, and stands on the Quern-stone, No. 35 (see p. 113). Sir William Betham read a Paper upon this relic in 1849, and says it served to commemorate certain members of the family of Nangle, and was erected about the middle of the sixteenth century by Martin Nangle, son to Patrick, Baron of Navan. Of the four faces, the first contains a shield bearing the arms of Nangle; the second, an English inscription; the third represents a lady in the costume of the time of Elizabeth, with a Latin inscription underneath; and the fourth face has carved upon it a head with wings, three globes or roundlets, and over all a naked human figure with the right hand held to the head, and the left extended, holding an hour-glass (see

Proceedings, vol. iv. p. 407). The remainder of this cross is, we understand, in the possession of some persons at Navan. Wayside and monumental crosses, it may be remarked, are very common in the county of Meath.

No. 24 is a piece of sculptured limestone, 14½ inches long and 12 high, presenting on the front face the armorial bearings of the Cheevers family. It was procured from the ruined church of Cheeverstown, county of Meath, and, with No. 26, was—*Presented by J. Huband Smith, Esq.* (see Proceedings, vol. vi. p. 131). No. 25 is a piece of Caen stone, representing a curiously sculptured head. No. 26 is a triangular monumental stone, emblazoned with three harps, the Arms of Ireland, and bearing the following inscription:—"John Noel Josse, 6th Jan.; John Noel Josse, His Majesties Kettledrummer, died Nov. 11, 1678." It is 2 feet long, and 1 foot wide in the centre. It was found in St. Andrew's churchyard, Dublin. No. 27 is a corbel of steatite, 30 inches long, and 9½ high, from the church of St. Columbkille, at Kilmacrenan, county of Donegal, bearing, beside the sculptured bracket, a lion rampant (see "Dublin Penny Journal," vol i. p. 388). No. 28, "An ancient stone, on which is carved a rude bas-relief, supposed to be the representation of a dog killing a wolf, taken from the Castle of Ardnaglass, in the barony of Tireragh, and county of Sligo, and said to commemorate the destruction of the last wolf in Ireland. The current tradition in the place from whence it came was—that some years after it was supposed the race of wolves was extinct, the flocks in the county of Leitrim were attacked by a wild animal, which turned out to be a wolf—that thereupon the chieftains of Leitrim applied to O'Dowd, the chieftain of Tireragh, who possessed a celebrated wolf-dog, to come and hunt the wolf—that there ensued a chase, which forms the subject of an Irish legend, detailing the districts through which it was pursued, until it was killed in a pine-wood in Tireragh." The land on which the beast was killed is still called Carrow-na-Madhoo, "the dog's quarter." In commemoration of the event, O'Dowd had this stone carved, and placed in the wall of his baronial residence. It was—*Presented to the Academy by C. T. Webber, Esq.*, in 1841; and is figured and described in the Proceedings, vol. ii. pp. 65, 66. No. 29 is a grotesque head, 9 inches long in the face, like those figured on gurgoyles. It came from Cloghphillip Castle,

county of Cork (see Proceedings, vol. iv. p. 442). No. 30, a grotesque head, crowned, formerly in St. Patrick's Cathedral, Dublin.

First Cross-case, between the first and second Compartments of the Northern Gallery, contains, upon Shelf I., Trays GG and HH, sixty-six of the Shannon celts, described on page 69.

Shelves II. and III. contain eighty-one rude shale celts, likewise from the Shannon, described as above, and numbered from 391 to 471, and also nine other ill-formed or fragmentary celts and chisels, numbered from 472 to 480, referred to on page 69.

Shelf IV. contains seventeen moulds and dies, described and figured on pages 91 to 93.

Stone Shot.—Upon the bottom Shelf are placed twenty-five globular stones; some are natural nodules, and others artificially-shaped stone-shot, described at page 36. They are either limestone, ironstone, or sandstone. No. 1 is a very perfect stone shot, 5 inches in diameter,—from Londonderry. No. 2 is $4\frac{1}{2}$ inches in diameter. No. 3, of limestone, is $4\frac{1}{4}$ inches in diameter. Nos. 4, 5, 6, and 7, average 3 inches in diameter, and came from the Lough Gur crannoge; the three first are limestone. No. 8, a very perfect specimen, $3\frac{1}{8}$ inches in diameter, is limestone. No. 9, of limestone, is $3\frac{1}{4}$ inches in diameter, but is not quite circular; it was found in the Lower Castle-yard, Dublin, and was—*Presented by Captain R. W. Williams.* Nos. 10, 11, and 12, are cubical masses of quartz rock, averaging $2\frac{1}{2}$ inches in diameter, and apparently in process of formation into balls. No. 13 is granite. No. 14, a half-shot, $3\frac{1}{4}$ inches across, of dark conglomerate. No. 15, a stone grape-shot, $1\frac{3}{4}$ inches in diameter, is formed of limestone; it was procured in the river at Galway, and —*Presented by the Board of Works.* No. 16 is $1\frac{1}{2}$ inches in diameter. No. 17, a stone nodule, $2\frac{1}{2}$ inches in diameter, was found at Castleknock, near Dublin. No. 18, an oval ironstone nodule, 6 inches in the long diameter, was found in the bed of the river Shannon, at Gross's Island, near Carrick-on-Shannon, and was—*Presented by the Shannon Commissioners.* Nos. 19 and 20 are sandstone nodules, the former is $5\frac{1}{4}$ inches, and the latter 4 inches in the long diameter. No. 21 is a limestone shot, not quite spherical, $3\frac{5}{8}$ inches in diameter. No. 22 is a remarkable globular piece of sandstone, 3 inches in the long diameter, and apparently turned in a lathe. Nos. 23 and

24 are dark shale nodules, each about 3½ inches in the long diameter; the latter was found in the Shannon, at Athlone, and was—*Presented by the Shannon Commissioners.* No. 25 is an oval sandstone nodule, 3 inches in the longest diameter.

SECOND CROSS-CASE.—The articles upon SHELF I.—six stone ink-stands—have been already enumerated and described upon page 118, &c.

SHELF II.—No. 7 is a circular stone anvil, indented round the side like some of the punches, and appearing to be much worn and hollowed at top; it is of sandstone, 4¾ inches high, and 5½ in diameter at the bottom; it came from Dunganstown, county of Wicklow. No. 8, of red sandstone, is a small stone of somewhat the same character as No. 7, grooved at the side, and indented at top and bottom; it stands 2½ inches high, and is 3¼ in diameter. No. 9, of fine white sandstone, artificially shaped, somewhat like a hammer, but without a perforation; is 3⅞ inches long, and 2⅞ broad. It was "found on the lands of Moir, county of Down, and is there commonly called a sling-stone; several have been found in the neighbourhood." No. 10, a large ring-stone, figured on page 95, of coarse, white sandstone, 4¾ inches wide, and 2¾ thick; the opening in the clear is about ½ an inch, but splays to the width of 2½ inches. No. 11, of white sandstone, is an implement similar to the last, but not so well formed, and undecorated; it is 4⅛ inches long, and 2⅛ thick; the bore is somewhat larger than the foregoing, and the splay not so wide. No. 12 is a small stone ring of reddish sandstone, and was probably, like the former, used as a net-weight. No. 13, a flat circular stone, notched at the edge, and perforated in the centre; it is 6½ inches long, and composed of sandstone. No. 14 is a rude, flat net-weight of sandstone, 5½ inches long, perforated in the centre. No. 15, a flat stone, 6 inches long, oval in shape, and partially indented on both sides, as if for perforation, being evidently intended as a net-weight; it is interesting, as showing upon the upper surface of the hollow the circular mark of the drill. No. 16 is the fragment of a net-weight. No. 17, a portion of a shale ring, probably a net-weight, 3½ inches in diameter, and ¼th thick. No. 18 is a portion of a camstone ring, 3 inches in diameter. The Nos. from 19 to 25, both inclusive, are circular discs, resembling those at the bottom of Tray **NN**, but not

so well finished. No. 19 is 3 inches in diameter, and 1½ thick; rough at the edges, but smooth at top and bottom; composed of coarse white sandstone. No. 20, a muller or flat disc, similar to the foregoing, rough at the edges, but smooth above and below, as if it had been used for trituration or polishing; it is 3⅜ inches in diameter, and ⅝ths thick. No. 21, a circular sandstone disc, smooth on both sides and edges, 3½ inches in diameter, and ¾ths thick. No. 22, the largest and rudest of the set, of sandstone, 4 inches in diameter, and ⅝ths thick. Stones of this class are usually found in crannoges, and were probably used in food manufacture. Nos. 23, 24, and 25, are sandstones similarly shaped to the foregoing, but in a very rude state; the former 3 inches in diameter, and ¾ths thick. No. 24 is much thinner, but 3¼ broad, and the last measures 4 inches in the longest diameter. No. 26 is a long piece of schist, 8 inches by 3, and at one end indented on both surfaces, evidently with the intention of perforation. No. 27 is a rude stone mortar, or grain-rubber, of the smallest description, 8 inches in length, and 4⅓ in width. No. 28, a rude piece of sandstone, hollowed at top, so as to form a small mortar; it is one of the most primitive implements in the Collection, and is 4⅜ inches in diameter. No. 29, a basalt mortar, very well formed, 5 inches across, and 2⅝ high; it is hollowed on both sides, and partakes somewhat of the urn shape; it was found at Gorey, and was—*Presented by J. Huband Smith, Esq.* No. 30, a bowl-shaped mortar, of coarse white sandstone, very massive, 3¼ inches high, and 4¾ wide; the aperture is 3¼ in the open, and 1 inch deep. This curious relic was found in the mound of Dowth. No. 31 (see Fig. 88) apparently a water-worn stone of an oval shape, 3½ inches in the long, and 3¼ in the short diameter; it is hollowed at top into a bowl or cup-shaped cavity, nearly an inch deep, and 2¼ inches in the long direction. It was found in a cromlech near The Naul, county of Dublin, and was, with No. 30—*Presented by W. Wynne, Esq.*

Shelf III.—No. 32 is a massive anvil-shaped stone, 5½ inches high, and 7 wide, very smooth at top and bottom, composed of limestone; found at Portaferry, and—*Presented by A. R. Nugent, Esq.* See Proceedings, vol. ii. page 614. No. 33, a squarish piece of rotten sandstone, 11½ inches by 9, and not quite 3 in thickness, hollowed on the upper surface into a dish-like shape; it was found on the lands of Paughanstown, near Ardee, county of Louth, in one

of a series of subterranean chambers, and was—*Presented by John T. Rowland, Esq.* See Proceedings, vol. iv., page 404, in which will be found an account of the *souterrain* in which this and several other interesting remains were discovered. No. 34 is a stone chalice, found at Humphrystown, barony of Talbotstown, county of Wicklow, and described at p. 132; see Fig. 105. No. 35 is the sepulchral urn, of limestone, described and figured at p. 134; the lower portion is decorated with circular lines; upon the upper may be seen two sets of zig-zag ornaments, interrupted upon each side by circles, one of which presents a protuberance, the other is hollowed into a ring. No. 36 is the fragment of a small vessel, of whitish limestone, in shape like a mug, with a projection below, probably part of the handle; it is about 5 inches high, and 4 wide; the hollow extends to about half the depth of the article in its present state. No. 37, the fragment of a rough limestone vessel, either a mortar or a drinking-cup, decorated on one side with a female head carved in relief; it is $3\frac{1}{4}$ inches high, and $3\frac{3}{4}$ broad. No. 38, a very peculiarly shaped piece of stone work, *resembling in external figure an urn, but with handles proceeding* from the bottom, and which probably met over the top, where there was a slight hollow in the body of the vessel. It is 8 inches across, and 4 in height; the arms, however, spread to about $13\frac{1}{2}$ inches. It is said to have been found by a farmer in a cairn at Dunadry, county of Antrim, see Proceedings, vol. v. p. 299; and was—*Presented by J. Huband Smith, Esq.* No. 39 is a flat piece of felspathic-ash porphyritic, vitrified upon the surface, and taken from a small tumulus on the western side of New Grange, in which was "discovered a vast collection of the remains of domestic animals, as well as several human bones, some perfect, and others in a half burned state. What gave particular interest to this excavation was the fact of the stones which lined the floor having been vitrified on the external face, which would lead to the conclusion that the cremation had taken place in the grave." See Proceedings, vol. iii. p. 262. This stone was procured and—*Presented by W. R. Wilde, Esq.* No. 40 is a portion of vitrified stone, procured from a kist in the neighbourhood of New Grange, and—*Presented by J. Huband Smith, Esq.* No. 41, a limestone vessel, resembling a mortar, having the remains of a handle on one side, and a ridge on the other. It is $6\frac{1}{4}$ inches high, $7\frac{1}{4}$ wide, 5 deep in

the hollow, and 5½ across the clear of the mouth. It may have been a stoup or holy-water pot. It was found in 1823, fourteen feet beneath the surface, in excavations made in Fishamble-street, near the foundations of Christ Church, city of Dublin.

The two lower shelves in this Case are occupied by the pot-querns described at pp. 108 and 112.

In the corner of the third Compartment may be seen some specimens of vitrified forts, the largest of which, No. 1, procured from that at Shantamon, in the county of Cavan, was—*Presented by Rev. P. Moore* (see Proceedings, vol. v. p. 69). Nos. 2, 3, and 4, are several specimens of vitrified stones, taken from forts. No. 5, upon the third shelf, was procured from the vitrified fort near Banagher, county of Derry, and was—*Presented by J. Huband Smith, Esq.*

Rail-case A, opposite the second Compartment, contains the Flints alluded to at pages 29 and 30, from Nos. 1005 to 1275 (the latter was found in the urn No. 31); the specimens of obsidian from the coast of Mexico, showing the process of weapon-making from that material; three American arrow-heads from the neighbourhood of Lake Ontario: and twenty-four celts, numbered from 480 to 504 (see pages 69 and 70).

Rail-case B contains eight celts, numbered from 505 to 512, described in the foregoing account of the weapon-tools; also the beautiful Jamaica celt alluded to at page 72, which is 5¾ inches long, and 3¾ broad; three punches and cutters, Nos. 35, 36, and 37, described at pages 86 and 87; five burnishers, Nos. 69, 70, 71, 72, and 73, described at page 89; the three latter are natural stones. No. 74 is a small, perforated sharpening-stone, described at page 30, and found in a tumulus. This case likewise contains twelve round or oval stones, of which Nos. 1, 3, and 5, are figured on page 75, where nine of them are described. Nos. 10, 11, and 12, are of the same class. No. 13 is the sink-stone described and figured on page 95.

Nos. 1 and 2 are stones believed to be ploughshares, and described at page 103. No. 3 is the stone cup described on page 114. No. 4, a salt-cellar of limestone, of an oval shape, 2 inches high, and 2⅝ broad at the base.

Nos. 1 to 14 are fourteen small pieces of flat soft sandstone, deco-

rated, and probably used in some description of game; they are alluded to at page 125.

RAIL-CASE C contains the two crystal globes referred to at page 127. No. 1 is $2\frac{1}{8}$ inches in diameter, and is reputed to have belonged to the regalia of Scotland. No. 2 is $1\frac{1}{8}$ inches in diameter, and was found at Uppercourt, county of Kilkenny.

Altar-stones, described at page 130.—No. 3 is a flatted oval stone, $4\frac{1}{2}$ inches in the long, $3\frac{3}{4}$ in the short diameter, and $1\frac{7}{8}$ thick, figured, with Nos. 6 and 7, on page 131. On one side of it is sculptured a cross, and upon the other four indentations, as in the cut. It was dug up near the ruins of Trummery church, county of Antrim. No. 4 is a similar object,—a natural nodule, nearly circular, undecorated, round at the edge, 4 inches across, and 2 thick in the middle. No. 5, a sling-stone-shaped altar-stone, thick in the centre, and fining off to the edge, nearly circular, 3 inches in diameter, and $1\frac{5}{8}$ thick; it has a cross carved on the upper, but is plain on the under, side. It was found in the ruined church of St. Matthias, at Inishnee, off the coast of Connemara. No. 6 is an ovoid altar-stone (see Fig. 104), 4 inches in the long, 3 in the short diameter, and $1\frac{3}{4}$ thick; it is decorated on the upper side, first by a ring which encircles the edge, and then by a cross, as seen in the cut. No. 7 is highly decorated on the upper surface (see Fig. 105) with raised lines, forming a lozenge space in the centre; it is $2\frac{3}{4}$ inches in the longest direction, and $1\frac{1}{4}$ thick. This and No. 5 were—*Presented by T. F. Bergin, Esq.* No. 8, a polished stone nodule, shaped like a sling-stone, is 3 inches across, and $1\frac{3}{4}$ thick in the middle, fining towards the edge.

No. 9 is a very smooth water-worn pebble, of a circular shape, $3\frac{1}{4}$ inches in diameter, and $1\frac{3}{8}$ thick; it was found in the mound of Dowth, on the Boyne, and was, with Nos. 10 and 11—*Presented by William Wynne, Esq.* No. 10 is a small water-worn pebble, of conglomerate, oval in shape, and 2 inches long. No. 11 is a limestone pebble, egg-shaped, and $1\frac{7}{8}$ inches long.

No. 12 is a circular disc, of white limestone, shaped at the edge like the cover of a box; it is not quite 2 inches broad, and is about $\frac{1}{2}$ an inch thick. No. 13 is a circular sandstone disc, $1\frac{5}{8}$ inches broad, and about $\frac{1}{2}$ an inch thick; it looks like a half-formed whorl, but is not perforated; it, with No. 12, was—*Presented*

by the Shannon Commissioners. No. 14 (Fig. 110), a pipe-clay crucible, 2 inches broad, and 1 high, found in the crannoge at Dunshaughlin. No. 15, a globular mass of sandstone, worked with great care, having an indented ring all round, as if for attaching it to a line; it was probably used as a fishing-weight, and is $\frac{7}{8}$ths of an inch in diameter. No. 16, an earthy, limestone concretion, broader and flatter than the foregoing, and indented for a string or line on the edge; it is $1\frac{1}{8}$ inches in diameter. No. 17, a natural limestone concretion, artificially carved, and about an inch in diameter. No. 18, ditto. Nos. 19 to 25, a collection of objects found in the large urn, No. 31, viz., No. 19, a small whetstone, $2\frac{3}{4}$ inches long, showing the remains of an aperture at top, and composed of sandstone. No. 20, a chisel-shaped whetstone, of slate, $2\frac{1}{4}$ inches long, and much worn; Nos. 21, 22, and 23, small fragments of stone, averaging $1\frac{1}{2}$ inches long; No. 24, a thin scale of copper, bent, and also showing the mark of a perforation at one extremity. No. 25, a small bone bodkin, $2\frac{1}{2}$ inches long, and perforated at one end. All these, as well as the flint, No. 1275, found along with them, seem to have been subjected to the action of fire. No. 26 is a piece of jasper slate, with the letter J upon it. No. 27 is a cast of the medicine stamp described at page 126. No. 28 is a dark-coloured piece of shale and sandstone, 3 inches across, marked on the surface like the Game-stones, but also bearing the letters A and B. It was found in the Ballinderry crannoge, and—*Presented by Mr. Hayes, of Moate.*

Fig. 110. No. 14.

At the end of the Stone Articles in this case may be seen a very beautiful hammer, of the battle-axe form, such as that represented by Fig. 66, p. 80, and which has been deposited in the Academy, together with several other antiquities—*by Sir Benjamin L. Chapman, Bart.* See Proceedings, vol. vi., for 15th June, 1857.

The second half of Rail-case C is occupied with the stone articles deposited in the Museum by the Royal Dublin Society.

The following is a list of the Scandinavian Antiquities of Flint and Stone to which reference has been so frequently made in the foregoing pages, and which are particularly described at page 8.

FLINT.—No. 1, a rough-hewn, yellow, chisel-edged celt, 11 inches long, and 3 broad,—*Flintkile eller öxe uden Bane.*

*No. 2, a small specimen of the same implement, 5 inches long, polished, particularly towards the edge, which is very sharp.

Nos. 3, 4, and 5, specimens of the same description of weapon-tool, averaging 5 inches in length,—*Flintöxer med Bane slebne paa de to Sider.*

Nos. 6, 7, and 8, specimens of the same,—*Flade Flintöxe slebne paa alle Sider;* thinner and sharper than the foregoing.

No. 9, the model of a chisel-edged celt, with an aperture at top,—*Afstöbning af en Saenkesteen gjennemboret foroven.*

No. 10, a rough-hewn gouge, or hollow chisel of flint, 5 inches long, with curved edge,—*En raa Huulmeisel.*

No. 11, a smoothed and polished specimen of ditto, 6½ inches long and 2 broad at the edge.

Nos. 12, 13, *14, and 15 are long narrow flint chisels, quadrangular in form, and brought to a remarkably sharp edge,—*En raa Smalmeisel.* No. 12 is in the rough-hewn state; it is 6 inches long, and $\frac{5}{8}$ths of an inch broad. The three last are smoothed and polished, particularly No. 15, which is 8 inches in length, and so sharp at the edge that it might be used in working timber at the present day.

We do not possess anything like these long chisel-celts and gouges in the Academy's Collection. They lend confirmation to the opinion expressed by the author of this Catalogue, that celts were used more as tools than weapons.

Nos. 16 and 17, models of flint masses, similar to that described and figured on p. 8,—*Tvende aftobninger af stykker hvoraf Flaekker ere udhuggede.*

Nos. 18 to 23, six large flint-flakes,—*Flintspaaner*,—showing the first process in weapon-making; but much finer than anything found in Ireland. No. 23 is 5 inches long.

No. 24, a beautiful flint dagger,—*En Knif*,—tooled all over, 8 inches long, and 1¼ wide.

No. 25, ditto, with a quadrilateral handle, 7⅓ inches long.

*No. 26, a similar weapon, still more perfect, and formed with the greatest accuracy in all its proportions; it is 9 inches long.

No. 27, another flint knife, or dagger, 8$\frac{5}{8}$th inches in length,

with a leaf-shaped blade, and the quadrilateral haft peculiarly tooled at the edges by a number of delicate indentations, which serve the double purpose of ornamentation and to increase the grip.

No. 28, a spear or lance-head, 5 inches long,—*Landsespidse.*

Nos. 29, *30, 31, and 32, four half-moon-shaped flint knives,—*Halvmaaneformede Knive*,—tooled all over, and varying from the first, which is $4\frac{1}{4}$ inches long, to No. 31, which is $8\frac{1}{4}$ in length, and $1\frac{3}{4}$ broad in the middle. No. 32 is serrated on the edge.

No. 33, a cast of a harpoon-head,—*Harpunspids;* shaped like an indented arrow.

Nos. 34, 35, and 36 are three flint arrow-heads. The first—*En Pilspids forfärdiget af en Spaan*—differs from any of those in our collection, in having a tang to affix it to the shaft. No. 35 also differs from those in the Academy's collection in being trilateral. The last is an ordinary heart-shaped arrow, of which so many fine specimens are in the Museum.

No. 37, a flint rasp, or saw,—*Fragment af en Rasp*,—imperfect, $6\frac{1}{2}$ inches long.

No. 38, the model of a saw, perfect at the top, and $6\frac{1}{4}$ inches in length.

No. 39, the model of a whetstone for polishing axes and gouges,—*Afstöbning af en Slibsteen til Huulmeisler.* It resembles in shape the femur of a large animal, and is 13 inches long.

No. 40, a stone-hammer, with a cutting-edge,—*To öxer me rund Bane og Skafthul*,—8 inches long, and having the handle-hole very near the back.

No. 41, ditto, but rougher and smaller, 5 inches long, and nearly 3 across the edge.

No. 42, a stone-hammer, with a prolonged back. In these four tools the apertures are cylindrical, and in this specimen in particular the hole bears the mark of a metal drill.

No. 43 is a small hammer, 4 inches long.

No. 44, a small hammer, $3\frac{1}{4}$ inches in length, with a prolonged back.

No. 45, a specimen of the same variety, but much more elegant in shape, 5 inches in length, with the back much prolonged.

No. 46, a pick-shaped hammer-axe,—*En Öxhammer med bred Bane*,—$7\frac{1}{2}$ inches long, the hole nearly in the centre.

No. 47, a hatchet-shaped stone hammer, 6½ inches long.

No. 48, a boat-shaped stone hammer, 5½ inches long, with an elevation round the lower edge of the aperture,—*En baadformet Steenhammer.*

No. 49, the model of another boat-shaped hammer, similar in character to the foregoing, and 7¾ inches in length.

No. 50, an axe-shaped hammer, 6 inches long.

No. 51, a hatchet-edged hammer-axe, 6½ inches long.

No. 52, an axe-hammer, with a very broad edge, 8¼ inches long, and 4½ broad in the blade.

No. 53 is the model of a decorated hammer-axe.

No. 54, a model of a very beautifully-formed hammer-axe, 7 inches long, with a knobbed back,—*Afstöbning af en pragtig Öxhammer med knapformed Bane.*

No. 55, the cast of a stone chisel, highly formed, and with a knob or hammer top, 6½ inches long,—*En meisel med haandtag.*

No. 56, the cast of a stone-punch, or cutter, 5 inches long,—*Afstöbning af en öxe med afsats uden Skafthul.*

No. 57, the cast of a curved punch, or cutter, hammer-backed and grooved in the middle, as if for the application of a flexible handle.

Nos. 58 and 59, casts of shuttle-shaped stones, with two marks on their sides; the former is 3¾ inches long, the latter 2¾, and more like those in the Irish Collection (see page 75).

No. 60, the cast of a sink-stone grooved in the middle; 2¾ inches in the long diameter—styled in the Danish Catalogue, *Afstöbning af en Saenkesteen med Fure paa Midten.*

Those marked thus * belong to the Donation of 1816.

The bronze and iron articles in this collection will be enumerated under their respective heads.

CLASS II.—EARTHEN MATERIALS.

Eastern Gallery.—Case I.

THE rudest states of society afford evidence of a knowledge of pottery, in connexion with the existence of the most primitive weapons and tools of flint, stone, or bone, whether among extinct races, or existing savage tribes; and wherever we trace the footprints of the Celtic people, there we are certain of discovering some remnant of this art. The chief and, perhaps, earliest use to which this knowledge was turned was the formation of urns for sepulchral purposes. Such relics alone of earthen materials, of the very earliest time, have remained to the present day; and as they usually contain fragments of incinerated human bones, or those of the lower animals, they open up a wide field for speculation upon the subject of the funereal rites of our Celtic ancestors, and lead us to believe that, at one period, the people of Ireland, in some instances at least, followed the Oriental custom of cremation, or burning the dead, and also of sacrificing to the manes of the departed. This latter idea is strengthened by the fact of our discovering among these human cinders fragments of the bones of some of the lower animals, birds and small mammals in particular. Whether the use of the wheel is coeval with the potter's art of the simplest description is undecided; there can be little doubt that it was used in the formation of some, although not all, of those cinerary urns; it is not, however, so clear that they were burned in a kiln or oven, so as partially to vitrify the material, some of them appearing to have been merely sun-baked. Some were, perhaps, con-

structed at the grave, and burned in the funeral pyre. Of the various forms of urns, their ornamentation, uses, and the circumstances under which they were discovered, we shall have to remark when describing them in detail; but, although they are undoubtedly the most ancient remains of articles formed of clay or earthen material, yet, following out the principle of arrangement adopted in the Museum and in this Catalogue, they come last in the category, according to the secondary division, or that by use;—Sepulture being the final species in the classification.

The history of the fictile art in Ireland, in ages subsequent to those of urn-burial, has not yet been written; nor, with the exception of that descriptive of glass and enamel, is there much to observe concerning it; for although our people may not have been wanting in ingenuity, dexterity, or aptitude for design, the materials for the finer sorts of porcelain do not occur in sufficient quantity to enable them to cope in this respect with other countries on the Continent or elsewhere. Moreover, unless preserved in tumuli, the remains of the pottery of early times must, from the fragility of the material, be rare in any country.

All the articles belonging to this class are arranged in the first Glass-case of the Eastern Gallery, and in the adjoining Rail-case D.

As there are no weapons of earthen material in the Museum, we pass over the first to the next three species, viz., Tools, Food Implements, and articles of Household Economy and domestic use, &c., the two latter of which may here be considered together.

CLASS I.—ORDER I.—CLAY.

SPECIES II.—TOOLS.

The only porcelain articles of the Tool species in the Academy's Collection are the four small crucibles, Nos. 1, 2, 3, and 4, in Rail-case D. The former is circular in shape,

2¾ inches broad, and 1⅝ high, and lined with a white enamel. It was found at Inis Clothrann, or the "Seven Churches Island," on the Shannon, in Lough Ree. No. 2 is a triangular crucible, of the ordinary shape, very thin, 2½ inches high, and 2 wide in the mouth; it is evidently much more modern than the foregoing. No. 3 is a still smaller and much-used specimen. No. 4 is a purse-shaped vessel of hard-burned pottery, 3 inches high. No. 9, on Shelf II., although apparently a food vessel, may have been used in smelting, see page 158.

SPECIES III. AND IV.—FOOD IMPLEMENTS, AND ARTICLES OF DOMESTIC ECONOMY.

VESSELS of pottery of sufficient antiquity to deserve a place in this collection are, for the reasons already stated, very rare. In the examination of crannoges, made in recent years, which have brought to light such a vast collection of antique articles of domestic economy or personal decoration, it is remarkable how few specimens of earthenware were found;—yet it is possible that many may have been destroyed.

Upon the top shelf of the case containing the earthen materials may be seen seven jars of glazed pottery, each capable of holding about a quart, and which are usually denominated "Graybeards," or "Bellarmines." The accompanying illustration, Fig. 111, is drawn from No. 1, which stands 9 inches high, and is 5 in diameter at the widest part; it is of a mottled yellow-gray colour: upon the neck there is in relief the grotesque figure of a man's head, with a long beard, and below it a star-shaped device. It, together with Nos. 2 and 3, was—*Presented by Lord Farnham.* Upon the front of this, and all the other vessels of this shape, is a dark-gray coloured stripe. The handle upon this specimen has been cemented to the body by some remarkably hard substance.

Fig. 111. No. 1.

No. 2, a graybeard, 8½ inches high, with a coat of arms beneath the mask. No. 3, a similar vessel, of smaller size. No. 4, an earthenware pitcher, without the bottle-neck, but of antique shape; it is 8½ inches high, and 5 in diameter; it was found in a deep well in the county of Cavan. No. 5, a graybeard, 9½ inches high, with a star device beneath the mask, similar to No. 1; the gray stripe down the centre is very well marked. No. 6, a small graybeard, with a star device beneath the face. No. 7, a short graybeard, very much glazed, having as a device a coat of arms, with two griffins rampant reversed; it is 8 inches high, 5¾ broad, and was "found at a great depth in a bog at Ballinacurra, county of Sligo."

Although belonging to the second order of Class II., viz., Glass and Enamel,—bottles of the former material are here enumerated. Four of these have been selected from a much larger collection of decanter-shaped, dark-green vessels belonging to the Academy, and have been placed after the graybeards upon the first shelf of this case.

No. 1 is a wide-bottomed glass bottle, bearing upon a raised stamp the inscription, "J. Swift, Dean, 1727," commemorative of the time of Swift's greatest popularity. It is 8½ inches high, and 6 across the widest part. Many bottles of the same period bear the Dean's name. No. 2 is a short, antique-shaped bottle, of a lighter-coloured glass than the former, 7 inches high, and 4⅜ across the globular part. It was found in sinking the bed of the Woodford River, at Drummeltagh Shoal, county of Fermanagh, four feet beneath the bed of the river. It, with No. 4, was—*Presented by the Board of Works.* No. 3, a similarly shaped bottle, but longer in the neck, 8¼ inches high, and 3¼ wide. No. 4, a small bottle, similar to No. 2, of light green glass, stands 7 inches high, and is 5½ wide. Upon a raised circle on the side may be seen the letters K. T. B. It was found in a gravel-bank at Carrigahorig, Lower Ormond, county of Tipperary.

Besides the foregoing articles of the Food-implement species, the Academy possesses the following specimens of pottery:—Nos. 8 and 9 on Shelf II., and Nos. 10, 11, 12, and 13, in the lower compartment of this Case. The first of these ar-

ticles, represented by the accompanying cut (Fig. 112), is an unglazed earthen vessel, apparently much burned, and in shape something between the urn and the bowl. It is undecorated, except by a slight indentation encircling the edge, and is 4 inches high, and 5½ across the mouth. No. 9 is the lower portion of an earthen vessel of burned pottery, unglazed,

Fig. 112. No. 8.

Fig. 113. No. 12.

Fig. 114. No. 10.

4 inches high, and 6¾ wide. It stands on a broader base than the former, and contains a quantity of broken-up bronze, probably about to be smelted, viz., two socketed celts, a piece of a gouge, and several broken rings, to be described in Class V.; and also a quantity of fine dry sand. It was found in the townland of Ballyvadden, parish of Kilmuckridge, county of Wexford, "three feet below the surface, with a flag placed over it; it contained no remains of bone." It was—*Presented by the Rev. Mr. Armstrong*. See Proceedings, vol. iv. p. 369; see also Transactions R. I. A., vol. xxii. p. 333.

Lower Case.—No. 10 (Fig. 114) is an ancient pitcher, 13 inches high, and 32 in girth, very thin, and of so light a description of pottery as only to weigh 5 lbs. 10 oz. It is stained of a dark colour on the outside, and partially glazed, and is so globular at the bottom that it cannot stand upright. It is tastefully decorated round the neck, and also for some distance down the sides; and the handle forms a different curvature from any vessel of the kind of a modern description. This pitcher was found in a crannoge at Lough Faughan, barony

of Lecale, county of Down. No. 11, in the same Case, is a thin, globular vessel of a calabash-shape, unglazed, and in material resembling the foregoing. It has no handle, and is but very slightly decorated round the lip; it measures 8½ inches high, 27½ in circumference, and 4½ in the clear of the mouth. No. 12 (Fig. 113) is a vessel of rude unglazed pottery, of a reddish colour, and, except that it wants a handle, greatly resembles the amphora or wine-vase of the ancients. It is 11 inches high, and 5 wide at the broadest part. This unique specimen was dug up in 1851 at Cartron, near Castle Kelly, county of Galway, and was—*Presented by D. H. Kelly, Esq.* No. 13 is the top of a two-handled vessel of rude pottery, found in the Deel river, county of Louth, and —*Presented by the Board of Works.*

Rail-case C.—Among the articles of Household Economy and domestic use, and those subservient to Dress and Personal Decoration (Species iv. and v.), we find examples of smoking pipes, and curling-pins of clay, and some beads and rings of glass, porcelain, and enamel; and among the ecclesiastical antiquities we find both coloured glass and many beautiful specimens of enamel, which will be described along with that class.

Smoking-Pipes, of a very primitive fashion, small in the bowl, and thick in the shank, have been found in great numbers in Ireland, but are of far less antiquity than is usually assigned to them.

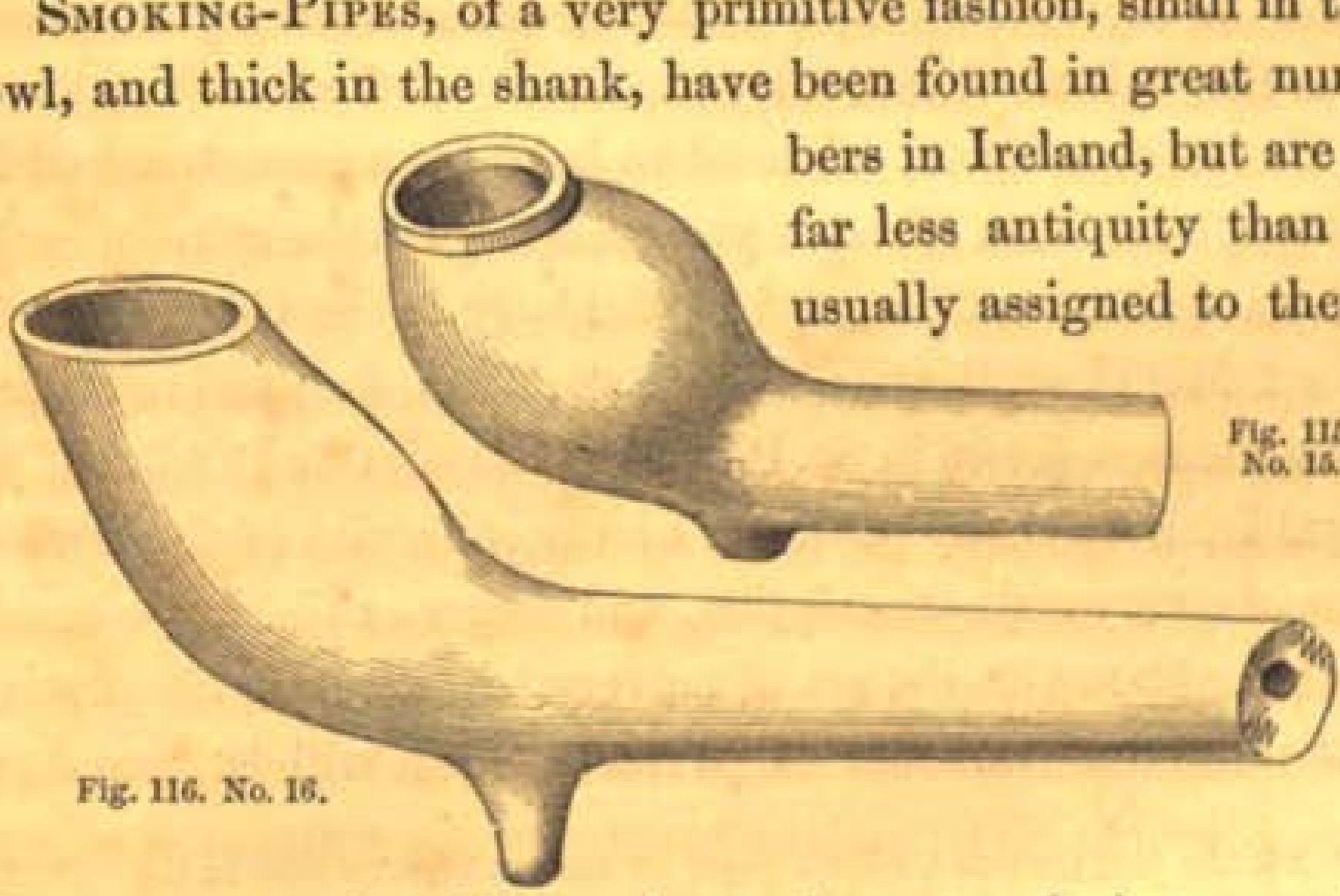

Fig. 115. No. 15.

Fig. 116. No. 16.

The accompanying illustrations, the natural size, may be taken as types of the two most frequent forms,—those with

short globular bowls contracted at the open end of the head, Fig. 115, No. 15, and those with long narrow bowls, Fig. 116, No. 16, both generally set on to the shank at a more obtuse angle than the modern tobacco pipe, than which they are also much thicker in the stem. The bowls of these pipes vary from 1 to 2 inches in length.* Metal smoking pipes, much resembling in form the larger of the foregoing, may also be found in the Academy's collection.

Whether tobacco, believed to be introduced by Sir Walter Raleigh about the end of the sixteenth century, was the only substance smoked in these pipes, or whether any narcotizing indigenous plant was employed, we have now no means of determining, but there is no warrant for asserting that they are older than the introduction of tobacco into the British Isles. From the fact of many of them having been found in caves and subterranean passages, ignorantly supposed to be the work of our Scandinavian visitors in former times, they have improperly been denominated "Danish pipes." The sixty-five specimens of ancient clay pipes in the collection will be found in Rail-case C. Of these, many were found in street-cuttings for the Dublin sewerage, some were found in the Shannon, and others came from various localities throughout the country.

Pavement Tiles, assumed to have been manufactured in Ireland, have been found in great numbers in the ruins of early ecclesiastical structures, and particularly in the Cistercian abbeys of Mellifont, Bective, Newtown, Trim, &c.; and many are still to be seen *in situ* in St. Patrick's Cathedral in Dublin. The Royal Irish Academy possesses a large collection of these tiles, some of a very rude description, and others exhibiting a considerable advance in the art of pottery. A selection illustrative of the different varieties of pavement tiles will be found at

* See the late Crofton Croker's paper on ancient tobacco-pipes in the "Dublin Penny Journal," vol. iv. p. 29. See also the "Proceedings and Transactions of the Kilkenny and South-East of Ireland Archæological Society," vol. iii. p. 303.

the bottom of the case containing the other articles of earthen material, and arranged according to the division made by Professor Oldham, in his work on "Ancient Irish Pavement Tiles existing in St. Patrick's Cathedral, and Howth, Mellifont, and Newtown Abbeys,"* to which several of these specimens serve as illustrations. They are of three kinds: first,—Impressed, in which the pattern is sunk into the tile (see Nos. 1 to 5); second,—Encaustic, with a smooth, flat surface, the pattern being produced by an inlaid coloured substance (Nos. 6 to 10); and, third,—the Raised Pattern tile, in which the figure or ornament is in relief (Nos. 11 to 15). Behind these have been arranged many other specimens, not numbered, but illustrative of the three foregoing varieties; and in the crypt of the Museum will be found a large collection of pavement tiles, from different localities in Ireland, characteristic of these typical forms, and well worthy the attention of those interested in tesselated or encaustic work. Most of these tiles resemble in size No. 1, which is a plain red tile, about $4\frac{3}{4}$ inches square, with an indented pattern, into which a yellow glaze appears to have been run. No. 2, a rude red tile, impressed with the figure of a tree, was procured from Mellifont Abbey, and was—*Presented by Lieutenant Newenham.* It is, in all probability, coeval with the foundation of that structure which was erected in the middle of the twelfth century. No. 3 is impressed with the figure of a wild boar (see No. 1 of Mr. Oldham's collection), and is probably one of the oldest representations of that animal now extant in this country. An unnumbered specimen, placed immediately behind it, represents another wild boar. Nos. 4 and 5 are specimens of the first variety, in which each tile was perfect in itself; whereas in those of the second and third varieties, particularly the latter, four tiles are required to make up the pattern. The encaustic tiles are

* Dublin: J. Robertson. See also Proceedings of the R. I. A., vol. ii. p. 352, and the Rev. James Graves' paper on this subject, in "The Transactions of the Kilkenny Archæological Society," vol. i. p. 83.

usually smaller than either of the other varieties; the ground is either dark purple or red, and the inlaid pattern white. Of the third variety, from Nos. 11 to 15, the specimens are evidently much more modern, and most of them are covered with a thick yellow glaze.

No. 16, in this case, is a piece of pottery tubing, 13 inches long, and 2 wide in the bore, with a screw at one end, apparently to attach it with greater accuracy to the adjoining portion. It was evidently an ancient water-pipe, and was found in a sewerage excavation in the city of Dublin.

ORDER II.—GLASS AND ENAMEL.

SPECIES V.—ARTICLES OF DRESS AND PERSONAL DECORATION.

With the exception of eleven curling-pins, composed of fine white pipe-clay, arranged after the pipes in Rail-case C, nearly all the articles of this species belong to the second order or subdivision of Class II. These articles vary from about 2½ to 3 inches in length, and several are stamped at the end; some with the letter M. They are now generally believed to have been used as wig-pins, for holding in curl that portion of the dress of the last and two or three previous centuries.

It is probable that one of the first uses of glass was that of personal decoration; and to this day, in the rudest states of society, from the Equator to the Arctic regions, glass beads and trinkets are objects of attraction, and eagerly sought after by both sexes. When glass was first introduced into, or when first manufactured in Ireland, are questions which we have now no means of solving; we have merely to deal with such relics of that art as have come to light in our own times, and specimens of which are to be found in the Academy's collection. In Rail-case D may be seen a number of small articles of glass, connected with personal decoration, and a few of fine porcelain and enamel serving the same purpose.

They consist of globes of impure glass, generally opaque, or nearly so; glass beads, of uniform colour, plain or decorated; rings of the same material and of the same varieties in style; and beads of vitreous paste, or porcellaneous enamel, holding a middle place in material between pottery and glass. The artist having achieved some decided colours, principally shades of blue, white, yellow, and pale-red, produced a form of ornamentation by fusing or blending them together, so as to give a variegated appearance; the perfection of which art resulted in enamelling, where the different colourings were given definite and determined shapes, so as to represent exact figures, and of which many examples will be found in these ornaments, as well as those of the ecclesiastical antiquities. Blue and white were the colours generally used in producing the desired effects of this art. Another form of art was that in which a coloured ornament, generally white, was laid upon a dark-coloured ground, from which it stood out in high relief. The accompanying illustrations afford, as far as it is possible to do by uncoloured

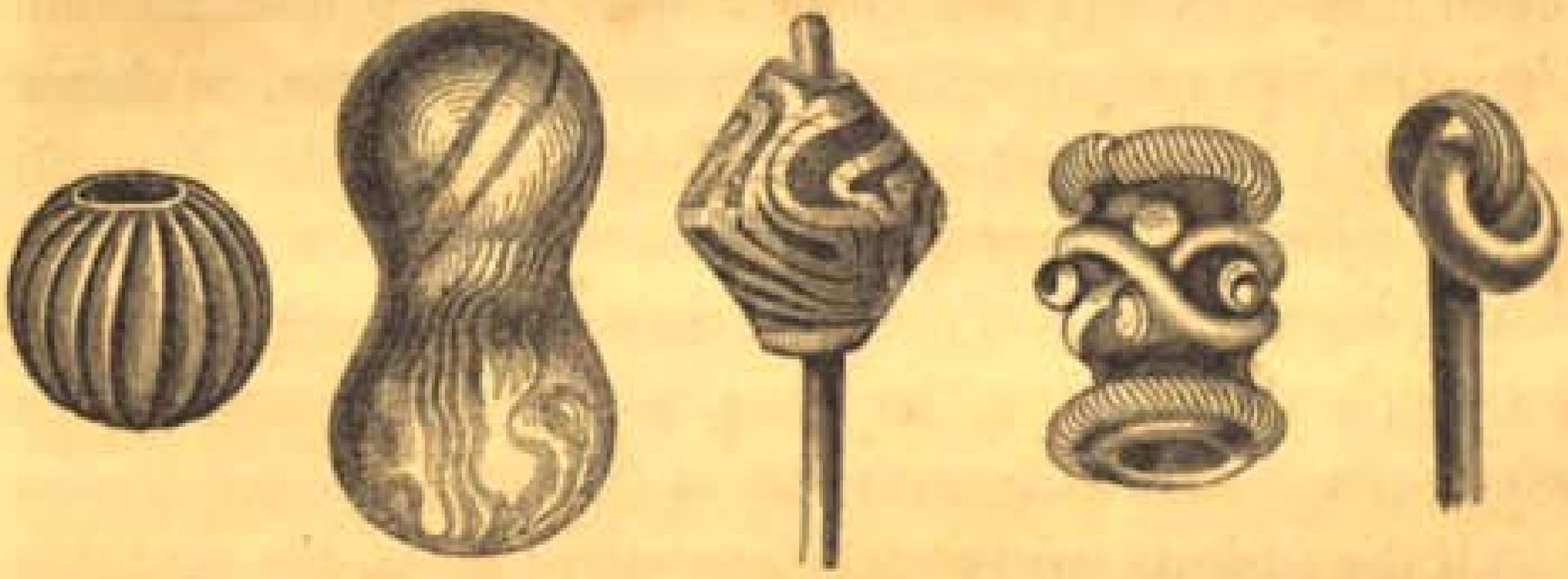

Fig. 117. No. 27. Fig. 118. No. 42. Fig. 119. No 39. Fig. 120. No. 41. Fig. 121. No. 40.

figures, types of the various forms of art, as well as of the varieties of such personal ornamentation in use among the inhabitants of this country during what may be termed medieval times. No. 27, Fig. 117, is an opaque glass bead, light-green in colour, and grooved in melon-shape; the aperture is rather large, so that it may have been used on a necklace or as a pin-bead. No. 42, Fig. 118, is a double bead, 1¼

inches in length, in which three colours were evidently worked together, the ground being a light blue-green, with some whitish and a few yellow stripes; it is a good representative, in material, of the second form of art in glass-working, although it appears to be in advance, as a personal ornament, upon those preceding it. The metal stem to which it formed the head was probably twisted or welded round the central or narrow portion. Our Collection contains as many as thirteen such double beads in Rail-case D, numbered from 42 to 54, and decreasing in size gradually, from that represented in the foregoing cut, which is the largest in the set, to No. 53, which is only $\frac{3}{8}$ths of an inch long. No. 39, Fig. 119, is an encaustic porcelain pin-bead, $\frac{5}{8}$ths of an inch high, and nearly the same across the widest portion; it was found with its bronze stem, which is $3\frac{1}{2}$ inches long, attached. The mass of this bead is a fine light-red porcelain, but the surface is decorated with white wavy stripes; and yellow streaks ornament the bottom, and surround the middle projection. No. 41, Fig. 120, is a cylindrical bead, 1 inch in length, with a raised ornament in white enamel upon a deep blue ground. Upon the side are two yellow spots and three bosses, as shown in the cut; an elevated band surrounds each end. No. 20, in the collection of personal ornaments, found in the Dunshaughlin crannoge, is of the same character. No. 40, Fig. 121, is a simple ring of plain blue glass, used as the decoration to a bronze pin of about the same size as No. 39.

Of the antique specimens of enamelled glass, the probable production of native ingenuity and handicraft, in which the pattern represents a definite and often delicately traced figure, may be specified Nos. 13, 19, 21, 23, 24, and 82; but the most remarkable object of fictile ware of this description in the Collection is the flatted bead or circular disc, No. 103, figured the actual size on the opposite page, and in which the colours are dark-blue and white, tastefully arranged like an open flower. It is $1\frac{3}{4}$ inches in diameter, and $\frac{1}{2}$ an inch

thick. The white enamel is only on the surface. Sometimes the secondary colour was thrown on without any regularity or attempt at pattern, as in rings Nos. 12 and 16; but in others it presents very graceful arrangements, an example of which may be cited in the yellow spiral ornament which forms the decoration on the bead of clear glass, No. 21, here figured the natural size. Similar spiral marks, it will be remembered, form some of the decorations on our earliest stone monuments. Bead, No. 109, presents two spires, the lines of which are continuous, crossing one another at acute angles. A herring-bone ornamentation, in white, on a blue ground, is not uncommon in some of these glass or enamel beads (see specimens, Nos. 19 and 23, &c.) One of the rarest forms of ornamentation in the collection is that shown on No. 104, the large ring-bead found along with the Danish weapons discovered at Kilmainham, near Dublin. It is of light-green glass, ¾ths of an inch in diameter upon the external surface, on which there are as many as forty-one small circular indentations, into which originally fitted studs of yellow enamel or vitreous paste, slightly raised above the surface; about one-half of these still remain, the others have fallen out, leaving the surface of their apertures quite rough, as if they had been drilled.

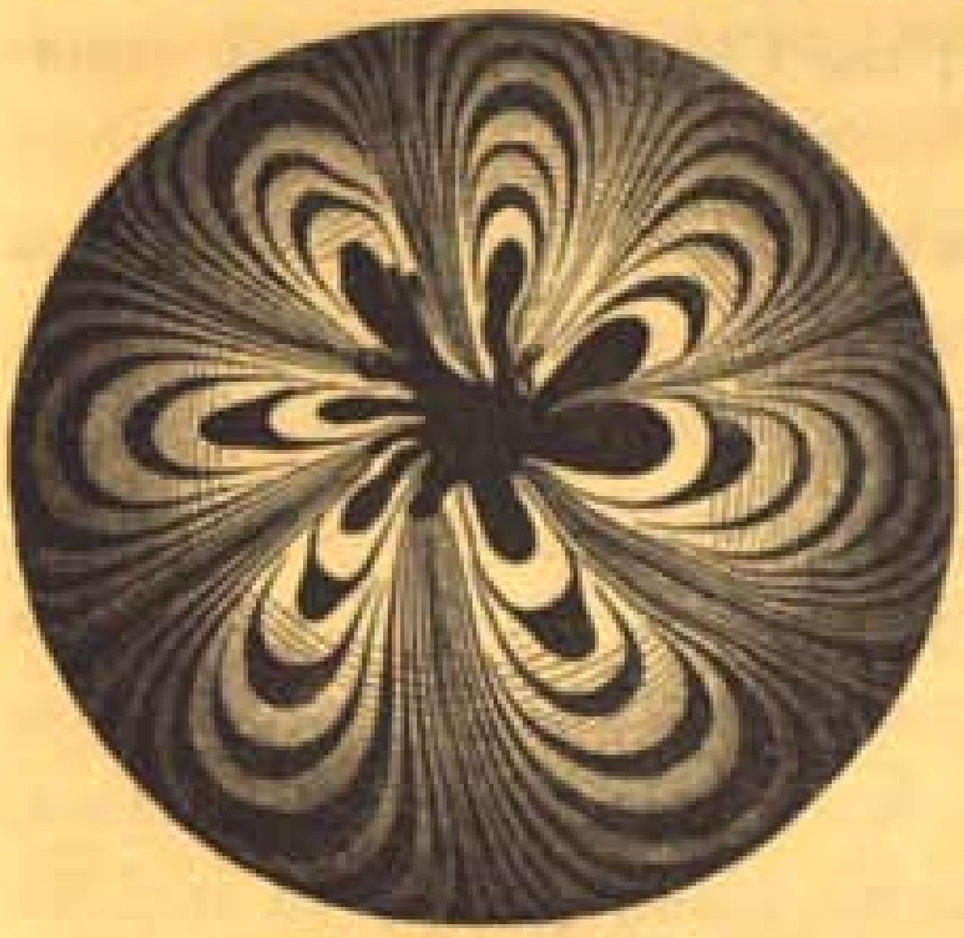

Fig. 122. No. 103.

Fig. 123. No. 21.

Besides the beads, single or double, either for pins or necklaces, and the rings apparently used for the same purpose, we find a slight ring of green-coloured glass, of a larger size than any of the foregoing (see No. 115), which, when perfect, was about 2½ inches in the clear, and may have been used as a bracelet. See page 168.

RAIL-CASE D, in the Eastern Gallery, contains all the small specimens of porcelain and glass, viz., the crucibles, pipes, wig-pins, and objects of personal decoration; the Chinese Seals; and examples of stained glass.

No. 1 is a small glass vessel, not unlike an ink-bottle, 1½ inches high, and ¾ths broad. No. 2 is a small glass globe, open at the top; "found near a mountain altar at the foot of Slieve Gullion." No. 3 is a glass ball, 1½ inches in diameter, found at Clogher, county of Tyrone; it and No. 2 were—*Presented by J. Huband Smith, Esq.* No. 4 is a globular piece of dark-coloured glass, slightly mottled with white and green, smooth on the surface, and about 1 inch in diameter. No. 5 is a globular piece of transparent glass, ¾ths of an inch in diameter. Nos. 6 and 7, two opaque blue glass beads, each about 1½ inches in diameter. No. 8, a dark-coloured glass bead, presenting several sides, as if formed by rubbing. No. 9, a glass bead, ¾ths of an inch in diameter, composed of several colours,—gray, light-blue, and brown,—tastefully arranged. No. 10 is a ring-bead of light green glass, 1⅜ inches in diameter. No. 11, a ring of impure brown-coloured glass, is ⅞ths of an inch in diameter. No. 12, a ring of dark-coloured glass, with an irregular raised ornament of white enamel; it is 1 inch in diameter. No. 13, a very beautiful bead of light blue glass, with a snake-like ornament of white enamel raised upon the side; it is ⅝ths of an inch in diameter. This and the foregoing were found on the townland of Emylay, near Emyvale, county of Monaghan. No. 14 is a glass bead, ¾ths of an inch in diameter, of a brown colour, with masses of white, red, and light green enamel mixed through it, like conglomerate. No. 15 is a similar bead, but somewhat smaller, and the colours much brighter, and containing the additional ones of yellow and light blue. No. 16 is a dark glass bead, with an irregular pattern running through it, not unlike that in No. 12; it is, however, polished on the surface, and is ⅞ths of an inch in diameter. No. 17 is a very rude glass bead of a uniform light blue colour, and grooved on the sides like No. 27. It is ⅞ths of an inch in diameter. No. 18, a plain semi-transparent glass bead, ⅝ths of an inch across. No. 19, a very beautiful glass bead, something more than ¾ths of an inch in diameter, of a light blue colour, with a white enamel line running through it, in a regular herring-bone pattern.

Nos. 20 to 38 form a collection of nineteen beads found in the Dunshaughlin crannoge. Of these, No. 20 is a long cylindrical bead, like Fig. 120, composed of blue, white, and yellow enamel; it is $\frac{3}{4}$ths of an inch long, and is decorated with a blue and white band round each extremity, and yellow spots in the centre. No. 21 is one of the most beautiful beads in the Collection; it is $\frac{1}{2}$ an inch in the longest diameter; is composed of clear glass, with bright yellow spirals of opaque enamel covering its sides (see Fig. 123). No. 22 is a plain light-green bead, $\frac{7}{8}$ths of an inch in diameter. No. 23 is a small blue bead, with white enamel, forming a herring-bone marking through it, much like No. 19. No. 24, a small fine bead of porcelain, like No. 39, with the surface enamelled in rings of white, light-blue, green, and yellow, traversed by streaks of light brown. Nos. 25, 26, 33, 34, 35, and 36, are small blue glass beads, similar to those in present use. No. 33 has a piece of silver wire twisted through it. No. 27 is that represented by Fig. 117. Nos. 28 to 31 are amber beads, of an irregular form, and averaging about $\frac{5}{8}$ths of an inch in diameter. No. 32 is a figured bead of transparent glass; and No. 38 is a small white enamel ring-bead, $\frac{3}{8}$ths of an inch in diameter.

No. 39 is the pin-bead of porcelain represented by Fig. 119. No. 40 is the cylindrical bead given as Fig. 120. No. 41 is the ring-bead fastened to its bronze stem (see Fig. 121). No. 42 is the double bead illustrated by Fig. 118. Nos. 42 to 54 are a series of the same description of ornament, gradually decreasing in size from the first, which is above an inch long, to the last, which is only $\frac{3}{8}$ths in its greatest diameter. They are either light-green or blue, except No. 47, which is yellowish. Nos. 54 and 57 are two beads, the former a small specimen of the double kind, and of a green colour, and the latter a long or barrel-shaped bead of amber; they were found together with a piece of jet bracelet, a bronze pin, and a bit of metal ore, in the Dowth excavations. Nos. 55 and 56 are double beads, but of a different variety to the foregoing. Nos. 57, 58, and 59, are barrel-shaped, each about $\frac{3}{4}$ths of an inch long. Nos. 60 to 73 are alternate large white and small dark-coloured beads, forming a necklace, which was found at Templepatrick, county of Antrim. Nos. 74 to 92 are nineteen glass beads, small in size, and of a variety of colours, but mostly white, blue, or amber. No. 91 is

an amber-coloured bead-ring, of impure glass, $\frac{7}{8}$ths of an inch in diameter; and No. 92 is the same description of ornament, but something smaller. Nos. 93 to 102 are a collection of ten beads, found in the Strokestown crannoges. Of these, Nos. 93 and 94 are small wooden beads; 95 is a beautiful porcelain bead of reddish-brown, with raised enamel marks of a lozenge shape, in yellow; in the centre of each lozenge is a raised stud of light-green enamel, with a milk-white border; it resembles No. 39, but is even a more beautiful specimen, both in design and execution, than it. No. 96 is a dark-blue glass bead, of a melon shape, like No. 27. Nos. 97 to 104 are amber beads, some of a very impure description, and rudely formed, 98 being an irregularly-shaped piece of that material. No. 99 is an interesting specimen, from its containing a portion of the copper-wire chain which connected these articles. No. 102 is a well-formed flat amber bead, found in the crannoge at Clonfree Lake, in the county of Roscommon, and—*Presented by Lorenzo Lawder, Esq.*

No. 103 is the large flattened disc of enamelled glass, represented and described as Fig. 122, on page 165.

Nos. 104 to 114 are eleven beads, supposed to have formed a portion of a necklace. They were found at Kilmainham, near Dublin, along with some iron swords believed to be of Danish origin. No. 104 has already been described on page 165. Nos. 105 and 106 are very rough ring-beads, of coarse green glass. Nos. 107 and 108, two beads of dark-blue glass, ornamented with a light-blue stripe, the former chequered, the latter spiral. No. 109 is a small blue and white ring-bead. No. 110 is of clear, bright-green glass. Nos. 111 to 114 are opaque glass beads, the three first white, and the last orange-colour. All these were—*Presented by Mr. G. Young.*

Nos. 115 and 116 are fragments of two ancient rings, the former of glass, and the latter of jet, said to have been discovered entire in a mound at Dunadry, county of Antrim; together with the peculiarly shaped stone vessel, No. 38, in the second Cross-case of the Stone Compartment (see p. 141). They were—*Presented by J. Huband Smith, Esq.* No. 117 is an oval piece of glass, $1\frac{1}{8}$ inches long, probably an amulet, with a cross indented upon it.

No. 118 is a ring-bead of glass and porcellaneous enamel, blue, red, and white, the latter colour arranged in two wavy lines round the edge. No. 119, a pair of shirt-studs of copper, with blue glass

settings. No. 120, a large coat-button of copper, with blue and yellow figured enamel on the surface—the true *revetment*. No. 121, a copper coat-button, with a glass front. This and No. 119 were, probably, plated originally. No. 122, a large boss of dark glass, 3 inches across, and $1\frac{3}{8}$ high; it was found, with the ancient Danish weapons, at Kilmainham. Nos. 123 to 180, a necklace of amber-coloured glass beads.

An analysis of some of the coloured glass beads in the Academy's collection was made by Mr. J. W. Mallet in 1853. See his Report in the Transactions, vol. xxii. p. 338.

No. 58 is a beautiful bowl-shaped bead of white enamel, decorated with three light blue lines passing round it spirally, was found at Trim, along with one gold and three silver brooches. It—together with some specimens of ancient stained glass from Newtown Abbey, near Trim, and some lead fittings—was—*Presented by the Very Rev. R. Butler, Dean of Clonmacnoise.*

This stained glass is of three kinds, viz.: No. 1, specimens of pot glass, in which the colour of the metal is thorough; No. 2, flake glass, in which a layer of coloured glass was rubbed on; No. 3, several specimens of true stained or painted glass; No. 4, a piece of glass in its surrounding lead-work.

For a description of the Chinese seals, which follow next in this case, see page 195.

ORDER I.—CASE I.

SPECIES IX.—SEPULTURE.

Sepulchral Urns.—The number of urns, containing incinerated bones of men or the lower animals, which have, from time to time, been discovered in Ireland, either as the result of accident, treasure-seeking, or to gratify idle curiosity, is very great; but, unhappily, the majority of them have been destroyed. They have been found singly in small kists, or stone chambers, beneath the surface of the ground, or aggregated, generally in earthen mounds, sometimes to the

amount of above one hundred, as in the Hill of Rath, near Drogheda,* and at Ballon Hill, county of Carlow,† or within the mound of a cairn or tumulus, of which the one discovered in the Phœnix Park, near Dublin, some years ago, afforded a remarkable example.

It is difficult to form an unexceptionable classification of mortuary urns, according to size, shape, or ornamentation; and except where other objects besides bones are found therein, such as metallic weapons, &c., anything like a chronological arrangement of them would be impossible. The skill displayed in the construction of the material, or in the formation of the pattern worked upon it, is not, of itself, sufficient to warrant us in assigning to these fictile vessels comparative ages, no more than the remains of earthen materials, from the rudest pottery to the finest porcelain of the present day, could afford the inquirer, some centuries hence, a means for chronologically classifying the pottery of the nineteenth century. The varieties exhibited by these urns may be characteristic of peculiar races, tribes, or persons, or expressive of their cost and value, or of the art of the day. But the first step in inquiring into the comparative ages of these vessels should be a careful personal examination of the excavations either undertaken for their investigation, or occurring accidentally; all the circumstances attending their discovery should be accurately noted at the time and on the spot; and in no instances should workmen be sent to excavate without directions to stop the moment they arrive at a stone chamber, until competent persons are present. We also earnestly entreat those who undertake the examination of tumuli to make themselves, in the first instance, acquainted with whatever is at present known on the subject.

* See Mr. J. Huband Smith's communication in "Proceedings of the Academy," vol. ii. p. 259.

† See Rev. James Graves' Paper in the "Transactions of the Kilkenny Archæological Society," vol. ii. p. 295.

As already stated, Irish cinerary urns have been found under three circumstances:—In small kists, placed without any ostensible mark, at least at the present day, beneath the surface of the soil, each just sufficiently large to hold one or two vessels. The chamber is sometimes occupied with the urn and its contents alone; in other cases it also contains charcoal and portions of burned bone; and in some instances the flooring-stones have become vitrified upon the upper surface, thus leading us to believe that the funeral pyre was lighted over the grave after it was formed; of this, the charcoal and the vitrification of the stones afford presumptive proof. These small chambers are sometimes found near the surface, or in the periphery of the large tumuli that usually cover cromlechs or surround extensive sepulchral chambers, and appear to be of a much more recent date than the original structure of the tumulus in which they are placed. Such minor interments may have been those of the family or descendants of the persons originally interred beneath; or the place—strong in the odour of sanctity—may have been resorted to as a burial-ground long subsequent to its original formation, from that feeling of veneration which instinctively consecrates the resting-place of the dead. These urns are also found imbedded in the earth, in which case they are generally aggregated in cemeteries upon the sides of hills.

It does not, however, follow that either cremation or urn-burial was the earliest form of sepulture adopted on this island; on the contrary, there is every reason to believe that the bodies (of distinguished persons, at least) were interred entire within the chambers of cromlechs, clothed in the costume of the period, decorated with the ornaments suited to their rank, armed with the weapons belonging to their tribe or condition, and accompanied by the bodies of their favourite animals, who were probably sacrificed on the occasion to their manes. Hundreds of those cromlechs stud the face of the country, and many still remain enclosed

within their enveloping earth-mounds; the chamber, in each instance, being capable of holding one or more human bodies, either in a horizontal, sitting, or recumbent position. Urns containing calcined bones of men or animals may have been discovered within the cromlech chamber, but the authorities upon that subject are defective, and much yet remains to be cleared up in this inquiry. Subsequently we find the ashes of the dead collected into fictile vessels, and placed in small chambers upon the surface, or within the body of the earthen mound.* So early as A. M. 3959, we learn from the Books of Leinster and of Lecan, that the body of Slanoll, son of Ollamh Fodhla, was buried in the earth. But even after the Christian era, we read in one of our ancient topographical Irish MSS., when describing the raths at Tara, that "the body of Laoghaire"—one of the last Pagan kings of Ireland—"was interred, with his shield of valour, in the external rampart in the south-east of the royal Rath of Laoghaire at Tamur, with his face to the south, as if fighting with the *Lagenians*," or Leinster-men.† Laoghaire, son of Niall of the Nine Hostages, died at Cassi, in the plain of the Liffey, about the year A. D. 458. Eoghan Bel, King of Connaught, was also interred, with his red javelin in his hand, and his face turned towards Ulster.‡ According to a popular tradition, many of these cromlechs are still styled *Leaba Diarmada agus Grainne*, "the bed of Dermod and Grace," concerning whom there are many legends still afloat

* The examination of cromlechs and sepulchres made of late years in the Channel Islands, by Mr. Lukis, does not in any way militate against the foregoing facts. Moreover, there is no authority for believing that Ireland and the Channel Islands were inhabited at the same time, and by the same race. See "Archæological Journal," vol. i. pp. 142 and 221.

† "Leabhar na-h-Uidri." See also the Translation of the "Dinnseanchus," given in Petrie's "Essay on the History and Antiquities of Tara Hill," in the Transactions R. I. A., vol. xviii. p. 137. See the authorities respecting Laoghaire's death in the Author's Report upon the Tables of Deaths, in the Census of Ireland for 1851, Part V., vol. i. pp. 44, 45

‡ See O'Donovan's "Tribes and Customs of Hy-Fiachrach," p. 472.

among the Irish peasantry; and also some romantic Finnian tales, descriptive of their history.* Cromlechs are in some places called "Hags' Beds."

Urns vary in position, some being erect, and others inverted; their contents, in both instances, consist of fragments of bones, bearing unmistakable evidence of the action of fire. A sufficient quantity of these bones has been examined to prove them human, and we have a large collection of them in the Museum. The body must, therefore, have been burned, and the bones reduced to this calcined condition before they were placed in the urn; and, from the circumstance already stated, it is probable that the cremation took place upon the spot, and that the charred wood and vitrified stones were the result. Besides these human bones, those of minor animals have been found, but often much less calcined than the human remains; therefore, it may be conjectured that such animals were thrown as sacrifices on the expiring embers. In some cases two urns have been discovered, the one placed within the other; and, in one instance, a small urn was found inverted over two small bones (of the hand and foot), probably of some distinguished person, which were lost in battle. Most of these urns are hand-formed, without the assistance of a wheel, and were probably made at the grave with the materials most ready at hand, and placed, while in a soft state, within the burning embers, which, with the surrounding hot stones and clay, served as a kiln for baking them. The fact of urns having been found in a bent or crushed condition lends probability to this conjecture; but others were evidently formed with greater care, and appear to have been specially prepared for the purpose.

In some of the rudest specimens, which are always the most fragile, the material is a coarse clay, with scarcely any admixture of sand; but in those which show a higher

* See "The Pursuit after Diarmuid O'Dubihne and Greine," now publishing by the Ossianic Society, vol. iii.

degree of culture in the makers, sand and small fragments of stone, possibly broken for the purpose, were mixed through the plastic mass, and also rubbed (perhaps to assist in drying as well as in giving them stability) upon the inner surface, especially near the bottom. A micaceous clay appears here to answer the same end; but in some of the very fine specimens minute particles of quartz and felspar may be observed coating the interior, which, from the sharpness of their fracture, would appear to have been broken specially for the purpose. These fragments of sand or stone may also be seen in the fracture, but are never observed upon the outer surface. In colour our Irish urns differ considerably upon the outer and inner surfaces. The latter is almost invariably blackish, or dark brown, the result of partial torrification, and perhaps from the heated bones and charcoal placed within them, either when soft, or after they had been sun-baked. This colour generally passes through four-fifths of the mass. The outer surface is either a light-red, gray, or brown; the first is most usual, and appears to be the result of the atmosphere, which was, however, excluded from the interior by the mass of the contents of the urn. The colour of the exterior usually passes for some distance within the lip. The drab or clay-coloured urns bear but little mark of fire either within or without (see, in particular, No. 21). The brown belongs only to the thinnest and hardest description of pottery, of which Nos. 13 and 25 are examples. Assuming that the majority of the mortuary urns (except those used for very distinguished persons) were constructed at the grave, the artist was indebted to the clay at hand in the locality for the materials with which he worked, and hence the great variety in the composition of our cinerary earthenware.

In form these urns vary from what may be termed the vase-shape, in which the vessel is higher than it is broad, the base or foot being the narrowest portion, swelling

above the centre and again contracting slightly near the mouth;—to the bowl-shape, in which the breadth and height are nearly equal; the former are represented by Nos. 19, 23, 29, and 31, and the latter by Nos. 8 to 13, and also 15 and 17, in this collection, while of an intermediate class may be specified No. 14, which differs from all others in being provided with a handle. Although the collection of urns in the Museum of the Royal Irish Academy is but in its infancy, we may yet safely assert that it contains one of the largest and smallest vases discovered,—the former, No. 31, being 16 inches high, and 15 across the opening; and the latter, No. 14, being only two inches high, and standing upon a base but $\frac{1}{2}$ an inch wide.

Most of these vessels appear to have been formed by the hand; those which appear to have been formed upon a wheel, such as Nos. 13, 14, 21, and 25, being the exceptions. Their decorations present great diversity: the rudest appears to have consisted in a number of dots or oblique indentations, made with the point of a stick, without any regularity, all over the outer surface of the vessel (see fragments of Nos. 32 and 34); raised hoop-like marks or ridges, formed either by the hand or by the wheel, the latter is exhibited by No. 13, and the former by Nos. 40 and 41; circular indented lines, scratched into the soft clay, and generally dividing the vessel into an upper and lower section, as in No. 27; and, finally, upright, horizontal, chevron, or zig-zag lines between these circular indentations, are shown in some of the better-formed urns; many of these lines have a pectinated appearance, as if indented with a traverser, or the rowel-like instrument such as that used by pastry-cooks. Sometimes simple scratches with the point of a sharp tool form the entire, if not a portion of the ornamentation, as in Nos. 22 and 27. A herring-bone decoration, produced by a number of short lines passing obliquely from either side of a real or imaginary line, is not uncommon upon the lips of urns (see No. 21). Indentations, apparently made with the top

of the finger; others bearing all the appearance of having been made with the point of a flint arrow; rope-like markings, either in intaglio or relief; and embossed patterns, evidently formed by a stamp, as in Nos. 12 and 25, may be observed, and were apparently executed upon the plastic clay. In No. 21, however, the decoration appears to have been effected by some sharp cutting tool, after the vessel had been sundried to a degree of excessive hardness. It is remarkable that, although the ancient zig-zag ornament is frequently met with in the most primitive urns, no trace has been found of the spire which characterizes the decorations of some of the very oldest sepulchral monuments in Ireland; but a peculiar form of ornamentation, made by straight lines, is identical with that on some carved stone at the entrance to the most remarkable of these edifices,—that of New Grange (see urn, No. 7).

So far as trustworthy descriptions of the contents of these kists and urns discovered in Ireland afford information, the objects found therein, in addition to the bones, have been, with few exceptions, of the rudest description, and generally non-metallic, such as flint and stone weapons, tools, or ornaments, a few trifling articles of bone,—possibly pins for holding up the hair,—and some shells. In one instance a thin scale of bronze was found in a cinerary urn (see No. 31). Such articles bear unmistakable traces of the action of strong heat, and were probably worn on the body when subjected to cremation. See Nos. 19 to 25, in Rail-case C, page 150.

With the various forms of sepulture generally we do not deal in this section, which is only a brief description of urns and the circumstances under which they were found. Urn burial is always associated with Cremation, but, as this was a purely Pagan rite, superseded by the inhumation taught by Christianity, it may safely be asserted that it existed in Ireland up to the middle of the fifth century; but even long after that period, it was probably resorted to by the

half Christianized natives,—burial rites and the ceremonial of the tomb being amongst the last usages changed by a nation when passing from one religion to another.

The following specimens will illustrate this subject. Fig. 124, drawn from No. 1, represents one of the smallest and rudest urns in the Collection; it is totally unornamented, and only 2 inches high. It contains fragments of the incinerated bones originally found in it (see p. 183). The two next specimens, drawn from Nos. 21 and 25, are good examples of the high or vase-shaped urn, contracted at the neck; the former (Fig. 125), which is that alluded to at pp. 174 and 176, is 5¼ inches high, and 6 broad; it is of a light gray

Fig. 124. No. 1.

Fig. 125. No. 21.

Fig. 126. No. 25.

colour, and of stony hardness, although apparently sun-dried, and bearing, even on the inside, scarcely any marks of fire; a chevron band surrounds the middle; both it and the dotted marks and circular lines all appear to have been cut out with a punch or sharp tool after the clay had hardened, and they are, therefore, of a much lighter colour than the rest of the surface. A herring-bone ornament surrounds the lip. The latter specimen, No. 25, Fig. 126, of a very dark colour, and so smooth as to appear glazed, is one of the most beautifully decorated urns in the collection. It is 6½ inches high, and 5 in diameter at the widest part, and is embossed with three sets of leaf-like marks, evidently impressed with a stamp, while slightly elevated horizontal lines pass between each leaf,

and upright markings fill the spaces between each set of leaves. A rope-like ornament encircles the edge, and the lip is also slightly decorated with a continuous oval-shaped pattern.

The two next figures, drawn from Nos. 12 and 13, present good examples of the globular or bowl-shaped variety.

Fig. 127. No. 12.

Fig. 128. No. 13.

No. 12, Fig. 127, is 4 inches high, and $5\frac{3}{4}$ wide. It is of rude material, and stands upon a wider base than either of the foregoing.* Its decoration consists in two sets of oval or lozenge-shaped marks, impressed upon it by apparently the same tool, and having a zig-zag line, beneath a rope ornament, intervening. No. 13, Fig. 128, is the most perfect specimen of the thin, light pottery of ancient times which has yet been found in Ireland, and was evidently formed upon a wheel. It is of a light-brown colour, and almost as smooth as modern delph. It is $3\frac{3}{4}$ inches high, and 6 wide, but not more than $\frac{1}{4}$th of an inch in thickness (see p. 187). The decorations consist of upright and horizontal lines, in addition to which it presents several elegant curvatures of outline which greatly increase the effect.

Beautiful, however, as the shapes and decorations of these vessels undoubtedly are, they fall into comparative insignificance when placed beside No. 14, shown by Fig. 129, on the opposite page (drawn two-thirds its natural

* The woodcut of the urn No. 12, Fig. 127, is that used in Wakeman's "Handbook of Irish Antiquities," and the drawing is not made to the same scale as that of No. 13, Fig. 128.

size), which, so far as the published accounts afford us information, is the most beautiful specimen of the mortuary urn, both in design and execution, that has yet been discovered in the British Isles. When reversed, the bowl presents both in shape and ornamentation all the characteristics of the Echinus so strongly marked, that one is led to believe the artist took the shell of that animal for his model. It is

Fig. 129. No. 14.

composed of very fine clay, and is now of a light-brown colour, except where encrusted upon the edge and one side with carbonate of lime, which dripped upon it in a fluid state (possibly for centuries) and which largely assisted to preserve the sharpness of its decoration. It possesses the rare addition of a handle, which has been tooled over like the rest of the vessel. This beautiful little urn stands but $2\frac{1}{8}$ inches high, and is $3\frac{3}{4}$ across the outer margin of the lip, which is the widest portion. Its decoration consists of nine sets of upright marks, each containing three cross-barred elevations, narrowing towards the base, which is slightly hollowed; the intervals between these are filled with more elaborately worked and minute impressions, each alternate space being further ornamented by a different pattern, as shown in the engraving. A rope-like ornament, surmounted by an accurately cut chevron, surrounds the neck. The lip, which is nearly flat, is one of the most beautifully ornamented portions of the

whole: a number of small curved spaces such as might be made by the point of the nail of the forefinger surround the outer edge, and also form a similar decoration on the inner margin; upon the flat space between these, somewhat more than half an inch broad, radiate a number of very delicately cut lines.

It was discovered in 1847, in the cutting of a railway, in a small stone chamber at Knocknecoura, near Bagnalstown, county of Carlow; and contained portions of the burned bones of an infant or very young child. It was embedded in a much larger and ruder urn, filled with fragments of adult human bones; possibly they may have been the remains of mother and child.*

Some years ago the opinion, not merely of the public at large, but of a few professing antiquaries, was, that cromlechs were "Druid altars;" and, in lieu of any very well-established facts, vague speculations upon the subject were propagated. The following discovery went far to establish the belief that cromlechs were but uncovered tumuli, which originally contained sepulchral remains. In the Phœnix Park, near Dublin, to the west of the Hibernian Military School, a tumulus of about 120 feet in diameter at the base, and 15 high, existed upon an elevation known in the neighbourhood by the Irish appellation of *Knockmaridhe*, or "the hill of the mariners." In levelling this object, in 1838, the workmen discovered some urns, and other indications of sepulture, some of which, however, were at the moment destroyed. Lieutenant (now Colonel) Larcom fortunately happening to pass

* Having heard of the discovery of some ancient remains in the locality referred to, an excursion was made by Dr. Todd and myself to the spot the next day (Sir John M'Neill having kindly taken us down upon the then unopened line of railway). I then obtained the foregoing particulars, and also examined the remains; and shortly afterwards succeeded in procuring, through the kindness of Mrs. Newton, this unique specimen for the Academy. See Proceedings, vol. iv. p. 35, for January, 1848, where an engraving of the urn, the full size, is published. See also vol. v. p. 131, for a second notice of this vessel.—W. R. W.

at the moment, rescued the tumulus from further spoliation, and Mr. Drummond, then Secretary to the Lord Lieutenant, invited a deputation from the Royal Irish Academy to visit the spot immediately after the discovery was made, in May, 1838. Within the mound of the tumulus, but at the distance of several yards from the centre, four small sepulchral vases, containing ashes of burned bones, were found enclosed within stone kists. Three of these, Nos. 26, 27, and 28, are in the Academy's collection. The accompanying illustration,

Fig. 130.

made from the original drawing by one of the officers of the Ordnance Survey, and still preserved in the Academy, shows the state of the tomb at the time the examination was undertaken by the Committee of Antiquities, and nearly the state in which it is at present. It consists of an oblong chamber, running nearly north and south, 5½ feet in length, in the clear 20 inches high, and 3½ feet wide; surrounded by seven upright flag stones, upon five of which the massive table or covering-stone rests. This latter is 6½ feet in length, 1 foot thick, and averages 3½ feet in breadth; it exhibits the effects of long-continued water-wearing, and may possibly have been carried up from the bed of the Liffey, which the spot overlooks. Within the chamber "two perfect male human skeletons were found, and also the tops of the femora of another, and a single bone of an animal,

supposed to be that of a dog. The heads of the skeletons rested to the north, and as the inclosure is not of sufficient extent to have permitted the bodies to lie at full length, they must have been bent at the vertebræ or at the lower joints. Immediately under each skull was found collected together a considerable quantity of small shells common on our coasts, known to conchologists by the name of *Nerita littoralis*. On examination, those shells were found to have been rubbed down on the valve with a stone to make a second hole—for the purpose, as it appeared evident, of being strung to form thin necklaces; and a vegetable fibre serving this purpose was also discovered, a portion of which was through the shells. A small fibula of bone and a knife or arrow-head of flint were also found" (see Proceedings, vol. i. pp. 186-90). All these interesting remains, which considerably assisted in forming the nucleus of the present collection of antiquities belonging to the Royal Irish Academy, were—*Presented by Lord Mulgrave, then Lord Lieutenant of Ireland.* The crania and skeletons will be described in their proper place.*

Of the three urns procured from this tumulus, the only one now tolerably perfect is No. 27, Fig. 132. It is also the largest; and if rudeness in design and execution characterizes particular eras, is manifestly the earliest of the set. It is 6 inches high, and in shape occupies a place between the vase and the bowl. The decorations are of the simplest character, and such as might be formed by the rudest tool—the point of a stick or an arrow-head. Those on the lower portion are simple scratches, forming an approach to a zig-zag pattern. The other two imperfect urns, Nos. 26 and 28, placed on either side of this on the fourth shelf, are smaller, and much more highly decorated.

Above this urn, of the natural size, the bone pin is shown

* See the author's description of the skulls found in this tumulus in his "Lecture on the Ethnology of the Ancient Irish," delivered at the College of Physicians, Dublin, in 1844. See also "The Beauties of the Boyne and Blackwater," pp. 212 and 228.

in the accompanying cut, Fig. 131, found along with the shell necklaces, within the interior of the tomb; and a portion of one of the latter, Fig. 133, is also figured. The bone fibula

Fig. 131.

Fig. 132. No. 27.

Fig. 133.

was probably used for twisting the hair upon. It is remarkable that, while all the objects found in urns bear the marks of fire, the shells and fibula found with the skeletons in this tumulus do not, any more than the skeletons themselves, exhibit the slightest trace of its action.

The general subject of sepulture will be considered at length in the description of the Human Remains, Class VII.; but it may here be stated that both cromlech and urn burial in Ireland are pre-historic.

URNS.—Upon Shelves 2, 3, 4, 5, and 6, and in a portion of the lower Compartment of the first glass-case of the Eastern Gallery, the Sepulchral Urns, thirty in number, have been arranged; besides various fragments which are interesting as exhibiting ornamental characters, in most instances illustrative, if not of their comparative antiquity, at least of the style of art of the period. No. 1, Fig. 124, may be taken, both in size and shape, as one of the

simplest and rudest in the Collection. It was apparently formed by the hand, unaided by the potter's wheel, and is totally devoid of ornamentation. It swells in the middle, and is contracted above and below; is 2 inches high, by 3½ broad at the middle enlargement, and 2¼ wide at the mouth. It contains fragments of burned bones,—apparently some of the long bones of the human skeleton. It was found near the ancient city of Athenry, county of Galway, in 1848, and—*Presented by the Hon. Skeffington Daly* (see Proceedings, vol. iv. p. 165). This is the only specimen of a totally undecorated urn in the Museum. No. 2, a rude bowl-shaped urn, very rough on the surface, and slightly decorated all over with a rope-like marking, as if notched with a piece of wood or bone, is 4⅜ inches high, 5¾ wide in the largest part of the bowl, and 4¾ in the clear of the opening. The surface is of a reddish-brown colour; but the interior, as shown by the fractured portions, is almost black, and was apparently burned, although not vitrified. Upon the inner surface may be seen a quantity of gravelly matter adhering to it, and burned in. Small fragments of stone and sand may also be seen in the fractures: showing that the material of which it is composed is not what is termed potter's earth, but probably red, sandy clay, the ordinary alluvial surface of the country. This urn was found on the lands of Coolnakilly, parish of Glenealy, county of Wicklow, and was the gift of J. A. Eccles, Esq., to the late Dean Dawson, with whose Collection it was purchased by the Academy. No. 3 is the fragment of a remarkable bowl-shaped urn, decorated all over. It does not appear to have been more than 3½ inches high, but is 5 inches wide across the broadest portion. The ornamentation was performed by some narrow tool pressed obliquely into the soft clay, which instrument must have been hollow, or grooved at the end. The surface is a darker brown than the foregoing, and the inside smooth. This urn was discovered in what has been termed, in the description sent with it, a subterraneous cavern, approached by a narrow passage, beside the moat of Dunagore, situated within two miles of the town of Antrim. It is also said that, in connexion with it, were found a number of flint arrow-heads, and a stone celt, &c. No. 4, a small cinerary urn of more graceful form than any of the foregoing, is very perfect. It stands on a flat foot or bottom, is

3¾ inches high, 4½ broad in the centre, and 3⅜ in the clear of the mouth. It is much decorated externally,—the ornamentation being divided into compartments by raised lines, between which we find the zig-zag character, such as may be seen on some of the most ancient stone monuments belonging to Pagan times, in Ireland, and also on Irish antique gold ornaments. A quantity of sand and minute pebbles is mixed with the reddish clay of which this urn is composed, and is likewise adherent in several places to its surface. It was found at Crowenstown, county of Westmeath, and—*Presented by the Rev. Joseph Fitzgerald, P. P.* of Rahan. No. 5 is a very small urn, much baked, and highly decorated all over; the bottom, or foot, 2¼ inches across, is slightly spread; it stands 3¼ inches high, is 4 wide across the bowl, and 3 in the span of the opening. The decoration consists of circular lines dividing it into five compartments; and the irregularity of these lines leads us to believe that they were not formed upon a wheel. Three of the compartments consist of rings presenting wreath-like markings, the two others have the ornaments embossed perpendicularly. This beautiful specimen of ancient Irish pottery was found in an inverted position, covering two small human bones—joints of a finger and a toe—in a kistvaen, or small stone grave, formed of six flags, 18 inches long, 7 high, and 10 broad, about two feet beneath the surface, in a solitary part of the mountain, parish of Kilbride, county Wicklow. This interesting relic, together with the foregoing description, was—*Presented by the Rev. Dr. Walsh* in 1839 (see Proceedings, vol. i. p. 296). No. 6 is an unusual-shaped urn, globular at the bottom like No. 3, and swelling less in the centre than any of the foregoing; it is 5 inches high, 5½ across the broadest part of the bowl, and 4 in the clear of the opening. All the external surface, including the bottom, is decorated. The ornaments are in five bands, two of which are rings, and three upright markings, divided into spaces by such impressions as might be made by the finger-nail on the soft clay. This urn, which contains fragments of unburned bones, a dorsal vertebra, portions of the upper jaw and teeth of the human subject, together with a fragment of one of the long bones of some small mammal, was—*Presented by F. M. Jennings, Esq.* No. 7 is an imperfect urn, wider at the mouth than any of the foregoing; 4 inches high, 6 broad, and 5 in the clear of the opening. It is highly decorated with elevated

ridges, presenting precisely the same pattern as some of the stones in the ancient Pagan monument of Newgrange, particularly that above the entrance.* The interstices of these interlacings are embossed with a net-like pattern, to produce which a stamp of some description was used. It contains fragments of human bones.

No. 8 commences a series of bowl-shaped urns, very perfect, and highly ornamented; it is $4\frac{1}{4}$ inches high, $5\frac{1}{2}$ wide, and 4 across the opening. The decorations with which it is covered divide it into six spaces, the horizontal or circular lines being so irregular that they could not have been made while the urn was turning on a wheel. The second and fifth spaces are ornamented by pectinated indentations running obliquely, whereas in the third and sixth these decorations are upright; the bottom is also decorated. It, together with No. 19, was found along with some incinerated bones, charred wood, and a quantity of the remains of some of the lower domestic animals, oxen, swine, cats, dogs, sheep, and also those of fowl, at Donaghanie, county of Donegal, in 1846, in a cairn contained within a circle of large stones measuring 70 yards in circumference; in laying open which, for procuring building materials, numerous sepulchral cells were discovered. The roofs of these chambers were formed on the principle of the beehive dome, by overlapping flags; and the vertical stones which formed the sides were covered with carvings cut into the flag, consisting of volutes, circles, spires, and zig-zag characters, such as are to be found upon those great sepulchral monuments on the banks of the Boyne, particularly Newgrange and Dowth (see Mr. Wilde's communication in Proceedings, vol. iii. p. 260). This urn was—*Presented by A. R. Nugent, Esq.*, to whom the Academy is indebted for many donations. No. 9, one of the most perfect urns of the globular shape in the Collection, is $4\frac{1}{4}$ inches high, 6 wide, and $4\frac{1}{2}$ across the mouth. The decorations are more regular than on any of the foregoing, and divide the vessel into six spaces, with circular and horizontal indentations, and short upright lines. These lines, both horizontal and perpendicular, seem, at first view, simple indentations, but on a close inspection they appear to have been

* See the cut in the Author's "Beauties of the Boyne," p. 193.

formed by some notched or serrated tool of the wheel character. This urn was found in an ancient grave at Kilmurry, near Thomastown, county of Kilkenny, and presented to Dean Dawson by Thomas Bushe, Esq. That locality abounds with ancient sepulchres (see "Transactions of the Kilkenny Archæological Society," vol. i. p. 27). No. 10 is somewhat smaller, and also thinner and lighter than any of the previously examined specimens, of the globular form; it is $3\frac{3}{4}$ inches high, $5\frac{5}{8}$ across the widest portion, and $4\frac{5}{8}$ in the mouth or opening. The decorations are more elaborate than those on No. 9, and resemble more those on No. 6. This vessel may have been at first formed on a wheel, and afterwards ornamented by hand. The decorations cover the bottom, and also pass, for a short distance, within the edge of the lip. Most of the side ornamentations must have been formed by a special tool, or stamp. Within it may be seen the fragment of a larger urn found in the same locality, and decorated with zig-zag lines, showing a ruder, and perhaps earlier form of art. These urns were found in June, 1848, on the townland of Kiltalown, near the top of the ridge of the Hill of Tallaght, within a few miles of Dublin—a locality long memorable in Irish history, and deriving its name, *Tamh-leacht*, "the stone of the grave of the people who died of the plague," from one of the earliest recorded pestilences which occurred in Ireland. It is related in our histories, that Parthalon, one of the first colonizers of this island, contracted a great pestilence at Ben Edar (the Hill of Howth), of which nine thousand of his people died, and were buried at Tallaght.* Many similar urns, contained in small stone chambers, have been discovered in the same locality; some very recently. No. 11 is similar to the last both in size and decoration, but not ornamented on the bottom; it is about 4 inches high, $5\frac{5}{8}$ wide, and $4\frac{3}{8}$ across the mouth. It was found in a stone chamber at Ballagradone, county of Sligo, and has been partially incrusted with carbonate of lime (possibly the dripping of stalactites), a material which has done good service in preserving cinerary urns. No. 12 is a globular urn, differing in decoration from the three former, being marked by two rows of lozenge-shaped devices, apparently

* See all the authorities bearing on this first great Irish pestilence in the Author's Report in the Tables of Deaths in the Irish Census of 1851, Part v. vol. i. p. 41.

formed by the same tool, a zig-zag intervening; it is also decorated round the lip. No. 13 is the most beautiful of this class yet examined, being as thin and light as modern pottery; averaging, in thickness, about $\frac{1}{4}$th of an inch. It is formed out of much finer and better clay than any of the foregoing, is perfectly smooth on the interior, evinces great perfection in the ceramic art, and is the nearest approach to the Roman terra cotta of any urn in the Collection. It is $3\frac{3}{4}$ inches high, 6 across the widest part, and $4\frac{1}{4}$ in the clear of the mouth, and is beautifully decorated all over the external surface by upright and horizontal markings, the former presenting a raised wavy scroll, and the three latter the usual decorated indentations, as if made by a wheel, the type of which may be seen in specimen, No. 9. The edge of the mouth, as well as the margin of the bottom, is decorated by a raised wavy line. It was found in Killinagh parish, county of Cavan, in 1822, in a stone chamber, buried about 2 feet under ground, and when found was nearly full of ashes; the place about it bore evident marks of fire. It was, with a number of other valuable antiquities—*Presented by Lord Farnham* (see Proceedings, vol. iii. p. 530). No. 14 is a *pendant* to the foregoing, but of a much smaller size. It is the most perfect of its kind both in shape and decoration yet discovered in Europe, and the only one of its exact shape recorded in the British Isles (see Fig. 129). It is 2 inches high, $3\frac{3}{4}$ across the outer margin of the lip, and $2\frac{1}{8}$ in the clear of the mouth. The widest part of the bowl is $3\frac{3}{8}$ inches across, and it stands on the edge of a cup-like bottom, $\frac{1}{2}$ an inch broad; the handle is $\frac{3}{4}$ths of an inch in extent at its points of attachment. For the details of this urn, and the circumstances under which it was found, see p. 180.

No. 15 is a globular urn, 4 inches high, $5\frac{1}{4}$ broad, and measuring $4\frac{1}{2}$ across the mouth. It is decorated with an angular-shaped indentations between circular lines, the marks appearing as if made by the point of an arrow; it has been coated with carbonate of lime, probably the dripping from stalactites; it was found in a grave at Kilmurry, and given by P. Crampton, Esq., to Dean Dawson. No. 16 is another bowl-urn, rather contracted at the foot, $4\frac{1}{4}$ inches high, $5\frac{1}{2}$ broad, and $4\frac{1}{2}$ wide across the mouth; it is highly decorated with apparently a stamped pattern; the ornamentation extends over the bottom, and also passes into the lip. It

was found at Cooen, barony of Fassidinin, county of Kilkenny. No. 17, a bowl-shaped urn, 4½ inches high, 5¾ broad, and 4½ wide at the mouth, slightly decorated with circular lines, between which may be observed triangular indentations, as if marked with a flint-arrow, but presenting upon a closer inspection all the characters of a stamp especially devised for the purpose. This vessel was procured from a grave in Kilmurry, county of Kilkenny, and given to Dean Dawson by T. Duffy, Esq. No. 18 is a small bowl-shaped urn, contracted at the foot, 4 inches high, 5⅓ broad, and 4¼ across the opening; it is decorated with a number of upright and oblique lines, passing between the rings or circles; but upon the whole the pattern is rather ruder than the foregoing, and resembles that upon No. 5.

The remaining perfect urns in the case do not present the globular form, but partake more of the elongated vase-shape. The series commences with No. 19, the rudest of the set, which is 5⅓ inches high, the same in breadth near the top, is 4¼ inches wide at the mouth, and stands on an outspread foot: the material of which it is composed is a red clay, mixed with a quantity of dark-coloured gravel; the style of ornament is very simple, and consists of two sets of circular lines, with oblique and upright lines between. These marks were not formed with any serrated tool, such as that used in some of the former specimens, but were simply scratched upon the soft clay with probably a piece of hard wood or bone. It was found at Donoghanie, with No. 8, full of small fragments of incinerated bones, apparently human, and a quantity of charcoal, and was—*Presented by A. R. Nugent, Esq.* (see Proceedings, vol. iii. p. 260). No. 20 belongs to the same variety as the foregoing, but is more globular, and not so tall; it is 4¾ inches high, 6 broad, and 4¾ wide in the mouth; has five raised bars above the middle, and is indented all over with a serrated tool, like some of the oldest specimens already described; it is also slightly tooled over the lip. It was found at Rathbarn, five miles west of Collooney, county of Sligo, in the summit of an ancient rath, "in a square coffer of flagstones, placed on edge, and contained burned bones and the small mica-slate disc" which stands in front of it on the shelf. It was—*Presented by Archdeacon Verschoyle*, who also afforded the foregoing particulars. No. 21 is a

very remarkable urn (see Fig. 125) of the vase-shape, 5¼ inches high, 6 broad at the widest part near the top, and 4¼ across the opening; it stands upon a base of only 3 inches in diameter. At first view it appears to be formed out of a piece of micaceous sandstone; tooled all over; but a closer inspection shows that it is composed of a sandy clay, sprinkled with minute particles of quartz and mica. It does not appear to have been burned, but has been either baked or sun-dried to a degree of excessive hardness. The ornamentations cut into it are much lighter in colour, and less smooth than the remainder of the surface, and appear to have been cut upon it with some sharp gouge-like tool, after the vessel was baked; its ornaments are of four kinds: circular lines, a middle band of zig-zag pattern, a number of cut-out points, giving it the appearance of punched rustic work, and a herring-bone pattern which passes a considerable way within the lip, which is more everted than in any of the preceding specimens except No. 14. It was found on the lands of Lugnagroagh, barony of Talbotstown, county of Wicklow. No. 22 is of the same type as the foregoing, but broader in proportion to its height, being 5¼ inches high, 6⅞ broad, and 5 wide in the mouth; it is remarkably rough on the surface, and so covered with carbonate of lime that in many places the ornamentation is obscured. Sufficient, however, remains clear to show the pattern, which consists in a horizontal zig-zag and herring-bone line, passing into the lip. The lime has formed a perfect coating to the interior. It contains a quantity of small fresh-water shells, particularly *Planorbis corneus*, *P. marginatus*, *Lymnea stagnalis*, and also *Littorina littoralis*, a marine species. No. 23 is a large but imperfect urn, of the vase-shape, 8⅓ inches high, and 8 wide; it is formed of very rough material, containing a quantity of comparatively coarse gravel; the lower part is plain, but the upper decorated with a rope-like pattern, a raised hoop passing between. It was found in the great cemetery of the Hill of Rath, and—*Presented by J. Huband Smith, Esq.* No. 24 is a rude vase-shaped urn, which became crooked in the drying; it is composed of very red clay, 6⅓ inches high, 6¾ broad, and 4½ wide; is decorated with circular lines, a network of lozenge-marks below, and a dotted indentation above; the lip is likewise decorated. No. 25 is a very beautiful specimen (see Fig. 126), and more elaborately decorated than any of the foregoing of the

vase-shaped variety; it is 6½ inches high, 7 wide in the middle, and 5 across the mouth; is of very dark material, and so smooth as to appear glazed. The raised pattern worked upon it consists of three sets of leaf-like marks, apparently made by a stamp, but finished by hand. The lip is very delicately impressed with lozenge-marks, passing horizontally for some distance within the interior.

Nos. 26, 27, and 28, are the three urns discovered in the small kists of the tumulus in the Phœnix Park, referred to at pages 180 and 183; all more or less imperfect, but the first and third more so than that in the centre, which is engraved as Fig. 132. No. 26 is a very beautiful specimen of the globular form, exhibiting a high degree of art, and great beauty of shape and decoration; it is 3¾ inches high, and measured, when perfect, about 4 inches broad; it bears all the appearance of having been formed on a wheel, but must have been finished by hand, as shown by the bottom decoration. A series of plain bands at different elevations divide the vessel into spaces filled with wave-line or rope ornaments. No. 27 is of a medium shape, between the vase and the bowl, having a narrow undecorated foot, 2¾ in diameter; it is 6 inches high, 7 wide in the middle, and 5 in the opening; externally it is of a light gray colour, but exhibits all the marks of firing upon the interior, to which some of the charcoal still adheres. The decorations are of the rudest kind, consisting at the lowest portion of a number of dots, apparently made with a flint point upon the soft clay, and above these a band of scratches making a zig-zag pattern. A double fillet surrounds the widest portion of the urn; above, the ornament consists of alternate spaces of nearly perpendicular lines and arrow-pointed indentations. The lip is likewise decorated, apparently by a bit of flint or bone. No. 28 is the lower portion of an urn, probably somewhat higher, though not so globular as the foregoing; it stands on an undecorated base 3 inches wide, and was, when perfect, from 7 to 8 inches high; the decorations are of the rudest character, consisting of zig-zag lines with horizontal scratches, so as to form in the centre a chevron pattern; it and the foregoing are much thicker, and also coarser material than No. 26; but neither exhibit the same amount of firing upon the inside; these three, as already stated, were—*Presented by the Lord Lieutenant, Lord Mulgrave.*

In a small case, placed beside No. 26, may be seen a quantity of burnt bones, a portion of the human remains originally found in in one of these urns; and beside No. 28 may be seen a collection of modern shells of the same species as those which form the antique necklace. Around these three urns are festooned the necklaces described at page 182. The larger of them consists of 274, and the smaller, of 195 shells of the *Nerita litoralis*, and so selected that they taper from the centre to the extremities.

In front of No. 27 is the bone fibula, $2\frac{1}{8}$ inches long, and also the flint-flake, $1\frac{5}{8}$ in length, exhibiting the secondary process or manufacture of such implements described at page 13. The necklaces, the bone, and the flint which bear no marks of fire, were not found, it must be remembered, in the kists with the urns, but along with the two human skeletons discovered in the central chamber of the cromlech. No. 29 is the underpart of a very large, rudely formed urn, totally undecorated; what remains is about 6 inches high, but it was probably, when perfect, double that size; it is 9 inches across, and composed of a red friable clay, without any mixture of gravel, the cause, in all probability, of its fragility. No. 30, in the lower Compartment, is the upper rim of a very large urn, partially restored; it is $13\frac{1}{4}$ inches across the mouth, and probably stood 14 or 15 inches high; the decorations are of the very rudest style, but still showing the zig-zag, chevron, and herring-bone character; the lip, which is slightly everted, is also ornamented. No. 31 is the largest urn in the collection, and possibly the largest yet discovered in Ireland; it is 16 inches high, and 15 across the opening, narrowing to 6 inches across the bottom, and is divided externally into three compartments by two bands; the upper decorated with short lines, forming a zig-zag pattern, and the lower by a network scratched into the clay when soft. It stands on an ancient iron tripod discovered in a bog. This large specimen of mortuary urn was found in an ancient cemetery at the Hill of Rath, county of Louth, near Drogheda; together with "from 150 to 200 urns of unbaked clay, of various sizes, almost all placed in an inverted position, and covering, each of them, a considerable quantity of human bones. The Rath appears to have occupied the declivity of a hill sloping gently to the west, and was originally enclosed by a breast-work of earth of inconsiderable elevation, but which, accord-

ing to report, may have once inclosed a space of five or six acres." The surface soil having been removed, the urns were discovered at a depth of from four to five feet beneath the original surface, resting upon the till or gravelly subsoil. In that under consideration, which was—*Presented by Mr. Kelly*—were found those stone, bone, and bronze articles in Rail-case C, from No. 19 to 25, already described at p. 150; and also the flint article, No. 1275, in Rail-case A (see Mr. J. Huband Smith's communication upon this subject in Proceedings of the Academy, vol. i. p. 259).

Nos. 32 to 44 are fragments of different urns, showing great variety in styles of ornamentation, but principally those of the earliest and rudest forms. Nos. 33, 36, and 42, all present the same class of decoration, being simply scratches or indentations, impressed upon the clay while yet soft; they are of the very rudest description. No. 32, which is formed of apparently a very soft material, and overburned, has the lower portions plain, and the upper roughly indented with a rude tool, between which portions a projecting ridge encircled the widest part of the vessel. No. 33 consists of the fragments of a rudely formed urn, scratched roughly all over. It and Nos. 36 and 42 were found in a stone chamber in the townland of Ballynahatty, parish of Drumbo, county of Down, in a field adjoining the Giant's Ring, and were—*Presented by Lord Dungannon* (see Proceedings, vol. vi. p. 300). The last specimen is nearly 1 inch thick. No. 34 consists of a set of fragments of a rude thick urn, roughly tooled, but exhibiting greater irregularity of pattern than the foregoing. No. 35 is the fragment of the lip of a a very hard-baked, blackish urn, ornamented at the edge, but plain at the side; it resembles No. 25, and in material is composed of hard clay, mixed with a quantity of white sand. No. 36 is the fragment of a large and rudely decorated urn, and No. 37, a fragment much decorated. No. 38, several fragments of a much burned urn of small size; the material very sandy. No. 39, fragments of a large thick urn, covered with straight diagonal lines, not unlike No. 30. No. 40, fragments of a large urn, quite undecorated, except by a slight ornament on the lip, and a ridge which divided the upper from the middle third. No. 41 consists of fragments of a similar description of urn, with the same kind of ridge, but decorated with a zig-zag line round the inside of the lip. No. 42, fragments

of a large globular urn, of the rudest material, and impressed all over the surface as if with a piece of slate; it was found in a tomb along with Nos. 32 and 36. No. 43, the fragments of an urn, the lip ornamented, but no other decoration apparent. No. 44, the fragments of a small bowl-shaped urn, highly decorated, and not unlike No. 26. This urn was found four feet beneath the base of a tumulus in the fort of Croghan Erin, in the parish of Kiltale, barony of Lower Decies, county of Meath, and with it was said to have been "found a thin piece of either brass or copper, about 18 inches long, and 3 wide, which was figured or carved round its edges, but this has not been recovered or traced." See Proceedings, vol. iv. p. 338. Within a cromlech which occupied the centre of the tumulus, "with the earth packed round it and over it, a human skeleton was discovered, in a perpendicular position, the skull being immediately below the [covering] flag, and the lower extremities a little raised above the level of the base of the tumulus; in the vicinity the spear-heads were taken up." These, which are attached to the card containing the fragments of the urn, consist of a bronze sword-blade of the scythe character, broad at the base, with holes for attaching it to a metal stem or handle, of which there are several fine specimens to be seen among the metal weapons in Class V. It is $9\frac{1}{2}$ inches long, and $2\frac{3}{4}$ broad at the base, and is decorated on the sides totally different from any other specimen in the Academy's collection. It has been greatly corroded, and appears to have suffered from the action of fire. The second metal article is an iron spear-head, $6\frac{1}{2}$ inches in length, with an unusually long socket. All these articles were—*Presented by S. Searanke, Esq., C. E.* Without a careful examination of the circumstances under which these discoveries were made, it might at first sight appear that the cinerary urn and the metal weapons were found in connexion with the human skeleton, but it is manifest, from Mr. Searanke's communication, that such is not the fact. The urn does not appear to have been in any way connected with the cromlech, except by contiguity, like those found in the Phœnix Park tumulus, and the weapons were merely found in the "vicinity."

One glass urn, at least, has been found in Ireland.

CHINESE SEALS.—Cubical portions of white porcelain, about §ths of an inch upon each side of the square, surmounted by the figure of an ape, and embossed upon the under surface with characters which are proved to be a very ancient form of Chinese writing, have been found in so many localities in Ireland, and in such numbers, as to warrant their being assigned a place in any collection of Irish antiquities, although the mode or the period in which they were brought to this country have not been explained by antiquaries. More than eighty years have elapsed since the first of these porcelain seals was found in this country, and so early as 1793, an engraving of one was published in the "Anthologia Hibernica," vol. i. p. 284. Since then, one hundred, at least, must have been discovered, and the impressions of sixty-three have been published. They have been found both in bogs and uplands, in the beds of rivers, under the roots of large trees, beside burial-grounds, and in the neighbourhood of modern human habitations; in fact, in all localities where they might have been dropped accidentally; but no instance is recorded of one being discovered under circumstances which could lead to the belief that they were in any way connected with the history of the country, or with the habits, either social or commercial, of its people. Still, the fact of so many having been found in such different situations is remarkable. Mr. J. Huband Smith first drew public attention to these seals in 1839. See his Paper, published in the Proceedings, vol. i. p. 381. Since then, Mr. E. Getty, of Belfast, published a memoir upon the subject, illustrated with engravings, and impressions of sixty-three of them. The mottoes upon these Chinese seals found in Ireland have been all read by competent scholars,* and many of them are highly poetical, such as "Pure is the breeze on the stream," "Heaven and water

* See also Chambers' Journal, No, 414, New Series, for December 6, 1851, p. 364. See also "Notices of Chinese Seals found in Ireland," by Edmund Getty, M.R.I.A., p. 14. Dublin: 1850. Seal No. 4 is also No. 4 in Mr. Getty's Plate I.

are of the same colour," "The arrow returns to him who trusts to himself," "A friend, like the Mei flower," &c. In Rail-case D, numbered from 1 to 5, will be found five of these Chinese seals, from the last two of which the accompanying illustrations, the natural size, have been drawn. The inscription on No. 4 has been variously

Fig. 134. No. 4.

Fig. 135. No. 5.

read by different translators. Mr. Gutzlaff's translation is—"To have the same expansive heart as heaven and earth." No. 5 is a unique specimen, being oval in shape, and ornamented by the figure of an animal resembling a guinea-pig. It was found at Rathkeale, county of Limerick, and was—*Presented by the Rev. Dr. Todd, President.* The inscription has not yet been read. Besides these seals, a collection of twenty-two impressions of other Chinese seals found in Ireland may be seen in this case. It is said that no porcelain seals of a similar shape and size can now be procured in China.

No. 1 was found near Kilmainham, county of Dublin, and—*Presented by Mr. Thomas Young.* No. 2 was—*Presented by Miss Murphy.* No. 3 was turned up in the year 1832 in a ploughed field near Borrisokane, county of Tipperary. This, and No. 4, formerly in possession of R. Fannin, Esq., were procured with the collection of Dean Dawson. For No. 5 see the foregoing.

CLASS III.—VEGETABLE MATERIALS.

ORDER I.—WOOD.

EASTERN GALLERY.—CASE II.

BEFORE man had attained that amount of culture which enabled him to convert flint and stone into weapons and tools, we must suppose that he availed himself of the timber of the forest (when so located) to form a club as an implement of protection or offence, to make a wattle for his hut, and to construct from the slender twig a snare wherewith to entrap his prey. But although it is certain that the use of wood was thus, in the very infancy of the human race, resorted to, either alone, or in connexion with the flint and stone implements described in the first section, it could not be expected, from its decaying nature, that articles formed from vegetable material could endure, in a climate such as ours, for more than a few hundred years, except when preserved in bog. With the question respecting man's early state in his original habitat, we do not deal; in these examinations we take him as he first appears to us (judged by his remains) in our Western Islands,—uncultured and uncivilized, such as we find him in other portions of the world at the present day.

Coeval with, and perhaps antecedent to the first colonization of the island, but prior to the chief bog deposits, Ireland must have been, from the nature of its temperature, an Emerald Isle,—green, fruitful, and abounding in vegetation. History and tradition, confirmed by the existing remains of trees and plants conserved beneath our peat mosses, tell us that it was well wooded. What may have been the order of

succession in its forest trees botanists have not decided; but far down beneath the surface of our oldest and deepest bogs we find traces of the hazel, and trees of the oak, the yew, and the pine, of stupendous size, and bearing evidence of being the growth, perhaps, of centuries, either broken off in the stem, or uprooted and prostrated by the tempests or the floods which swept over these localities, before the mosses, heaths, rushes, and grasses had collected round them, and, in lapse of years, had formed, by compression, what is denominated Turf. An examination of the localities in which these and other trees are found, shows us that many of the places now covered by partially decayed vegetable matter were once dry and studded with forest trees, proving incontestably that several of our bogs are of comparatively recent formation. This assertion is further confirmed by our annals, in which we find notices of floods and storms that prostrated woods of gigantic growth. Hazel nuts, acorns, beech-mast, and crab apples, are frequently referred to in our earliest annals, and leave no doubt as to the great abundance of the trees which produced them. But even within the period of modern history—say three hundred years—we have faithful records of the existence of extensive forests. A few indigenous woods remain; and, besides those trees which may be considered of imported origin, we find there the oak, birch, hazel, yew, ash, and holly, the thorn, apple, sloe, and mountain ash, all of native growth; the fir alone having, it is generally believed, left few representatives, and in most localities none. Whether the alder and the different varieties of willow, popularly known as sallows, so widely distributed over the face of the country, particularly around the habitations of man, and also the elder, are of the early native stock, is still questionable.

While the substance of the bog mass is composed of numerous species of moss, chiefly the *spaghnum*, with several varieties of rushes, grasses, ferns, and heaths, there have been

frequently found, at from four to five feet above the gravel, a strata of broken branches of birch, beech, and hazel, although no trunks of such of any great size have yet been discovered; but in rare instances those of elm and alder have been found. It is remarkable that, while the roots of several other kinds of bog timber are frequently found turned on the side, those of the fir are usually discovered in a standing position, with a few feet of their trunks remaining attached to them. Several of these roots are in such positions as to show that they had grown on previously formed bog, whereas it is said the trunks of the oak and yew, which are found scattered near the verge of the bogs, rest "mostly on clay or gravel, seldom with a foot of peat between the trunk and the gravel." These trees, "being almost invariably attached to their roots, form a striking contrast with the fir trees."* Three varieties of pine, distinguished by their cones, have been discovered, *Pinus sylvestris*, *P. pinea*, and *P. pinaster*; a few successors of the latter are said to exist in the neighbourhood of Tarbert, county of Kerry; and some fine specimens of native *Pinus sylvestris*, not planted by human hand, may still be seen at Coolnamuck, on a hill-side near Carrick-on-Suir, county of Waterford.

Although the articles formed of wood in the Academy's Collection are, with some exceptions, of recent origin, compared with the antiquity of most of the objects in the two foregoing sections, they are, nevertheless, of great interest,

* See Mr. Aher's Report, in the Appendix to the "Third Report of the Commissioners for inquiring into the Nature and Extent of Bogs in Ireland," p. 64. See also Mackay's "Flora Hibernica."

One of the most interesting discoveries connected with the ancient forests of Ireland made of late years is that by Dr. Charles Farran, the well-known conchologist. Upon the Waterford coast, at Clonea, near Dungarvan, he found, after one of the highest tides remembered in this county, the remains of an ancient pine forest, miles in length, and which is ordinarily covered with many fathoms of water; the sea has very evidently encroached on the land at that point, probably by the subsidence of the latter. In the roots of the pines which formed this forest he found myriads of *Teredo Norvegica*, hitherto unknown in Ireland. An account of this discovery was laid before the Dublin Natural History Society.

and throw much light upon the domestic habits and manner of life of the Irish, from the tenth to the sixteenth or seventeenth centuries. In material, the implements in this compartment afford specimens of oak, in the remains of crannoge timbers, boats and paddles, mills, forks and spades; of yew and sycamore, in cups and turners' work; of willow, beech, and walnut, in bowls, large single-piece vessels, and methers; of fir, in horse-trappings; and so likewise of beech, sycamore, ash, and elm, according to their various applications.

All the articles of wood or other vegetable material have been arranged in the Central Glass-case of the Eastern Gallery, and in the adjoining Rail-cases E and F.

No wooden weapons or tools, of any great antiquity, have come down to the present time; as already stated, the bows, arrow-shafts, and the handles of spears, axes, and hatchets, not only of the early Stone period, but of the days when metal was in use, must have perished, while the implements to which they were attached remained.*

The only wooden articles supposed to belong to the weapon class are a number of small pieces of deal and yew, broad in the middle, sharpened at each end, and varying in size from 2½ to 12 inches in length. They were presented by Mr. Hitchcock, with the following note, which is printed in the Proceedings, vol. iv. p. 272:—"A collection of skewer-like pieces of wood, called 'arrows' by the peasantry, found in a bog on the top of the mountain of Coum-an-are, barony of Corkaguiny, county of Kerry, scattered about the broken and weather-beaten parts of the bog for about a quarter of a

* As shown by some of the Continental investigations, a pointed flint-flake was fixed into the hollow of a piece of bone or horn, which was perforated by a cross aperture, into which a slender wooden handle was inserted. Such an implement would make an admirable weapon or tool. Lord Talbot de Malahide possesses a dagger-shaped flint-flake with a handle of moss wrapped round it. See Proceedings, vol. v. p. 176. In a few instances portions of the wooden handles still remain in the sockets of spears and arrow-heads; and in two cases the original handles have been found with stone and bronze celts.

mile all around. There is a tradition current in the neighbourhood, of a battle having been fought near the place where the arrows were discovered." The collection consists of 228 pieces, some of which were found three feet below the present surface; they are, however, as likely to have been used in marking out land as for any other object. If landmarks, they come under the class of Food implements. The collection will be found attached to the under portion of the first Shelf in the third and fourth Compartments of the Glass-case. A similar wooden spike was found in the Dunshaughlin crannoge (see Rail-case E).

SPECIES III.—FOOD IMPLEMENTS.

JUDGING by analogy, it may well be supposed that the flint arrow or spear was in Ireland, as elsewhere, employed in killing fish; but as neither cetaceous nor amphibious animals frequent the shores or pass into the estuaries of this island as frequently as in more northern latitudes, the harpoon was less in use, and therefore we do not, as yet, possess any remains of that implement which can be referred to a remote period. That the ancient Celts were acquainted with the use of the net, as well as the fishing-line, is probable; but no proof exists wherewith to deny or affirm the proposition; neither are we aware of what vegetable fibre then known in Ireland such nets could be constructed. Fishing-rods must have been very early in use.

BOATS AND PADDLES.—Until within the last few weeks, the Royal Irish Academy did not possess a specimen of an ancient Irish boat, although several have been discovered of recent years both in the excavations made by the Board of Works and in drainages undertaken by individuals. An application having been made by the Council of the Academy to the Royal Dublin Society, that body has deposited all the Irish antiquities which it possessed in the Academy's Museum,

and, among other articles, three ancient boats, which are now placed in the crypt beneath the Museum and Library, where it is intended to arrange all such large articles, and also models of crosses, sculptured figures, &c. &c.

Little attention has been paid to the subject of the early naval architecture of this country. So far as we yet know, two kinds of boats appear to have been in use in very early times in the British Isles—the canoe and the curragh,—the one formed out of a single piece of wood, the other composed of wicker-work, covered with hide. No ancient specimen of the curragh could, however, have come down to modern times. The single-piece canoe is generally formed of oak, and may be divided into three varieties, viz., a small trough-shaped one, square at the ends, from 8 to 12 feet long, round at the bottom, and having projecting handles at either extremity, apparently for the purpose of transporting it from place to place.* Such a boat could be used either in fishing or as a means of transport upon the inland lakes and rivers. This, in common with the two other varieties, is very shallow, so that those who used it must have sat flat upon the bottom, and progressed themselves by means of light paddles,—probably one used in either hand; this is further confirmed by the total absence of all appearance of row-locks. The second variety generally averages 20 feet in length, and about 2 in breadth, is flat-bottomed, round at the prow, and nearly square at the stern. In a specimen of this description of boat, deposited by the Royal Dublin Society in the Academy's Museum, the structure is strengthened by three portions of in-timber, resembling knees, each 2 inches thick, and 4 broad, carved out of the original piece, two near the stem and one at the stern. This very ancient boat, Fig. 136, on the opposite page, measures 22 feet in length, and 2½ feet broad in the middle; the depth of the interior of the side being 11 inches. The stem

* An example of this form of canoe, found in the county of Monaghan, is figured in Mr. Shirley's "Account of the Territory of Farney."

is round and turned up, as shown in the cut; and the stem was formed of a separate piece let into a groove, 2 inches wide, and within a few inches of the extremity of the vessel. When found, the stern-piece was *in situ*, and caulked with bark, and

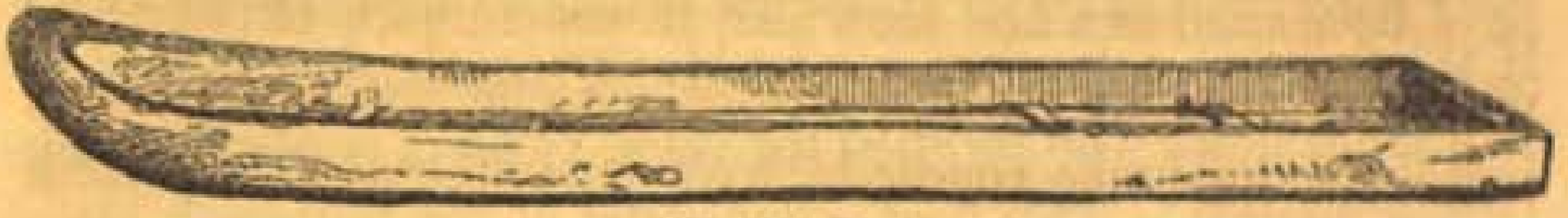

Fig. 136. No. 1.

the whole canoe was much more perfect than it is at present. It was found in a bog at Cahore, on the coast of Wexford, by John George, Esq., who presented it to the Royal Dublin Society. The bog or marsh in which it was found extends for about four miles between the chain of high sandbanks on the shore and the upland country, but was liable to inundations of both sea and fresh water. In forming a canal to drain *the marsh, this boat was discovered twelve feet below the sur*face, and with it a small bowl for baling, and also two rollers, apparently for getting the canoe to the sea. The oak tree from which this boat was carved must have been, at least, 4 feet across, and from 30 to 40 feet long in the stem.*

Fig. 137. No. 2.

The third variety of ancient Irish canoe is sharp at both ends. as shown in the accompanying cut from another specimen, also deposited in the Museum of the Academy by the Royal Dublin Society. It is lighter, much narrower, and

* The author is indebted to Mr. George, on whose property it was discovered, for a lengthened description of this boat. From long exposure to the atmosphere it has split in several places, and considerably altered in form since it was first taken up. It should be known that all wooden vessels found in bogs or other moist places alter very much, and are apt to split on becoming dry; they should, therefore, be hooped or corded immediately, so as to preserve as much as possible of the original form when dry.

also thinner than the foregoing. It is 21 feet 3 inches long, 12 inches broad, and 8 deep on the inside. It has three knees, or raised ledges, cut out of the original block of oak, which may have been originally much higher; they do not appear to have been used as seats, for which they were quite too narrow; if they served any other use besides strengthening the sides, it was for those who paddled the canoe to place either the back or feet against. This boat is quite flat at the bottom.

Of this third variety is the long, narrow canoe, sharp at one end and square at the other, and, although formed out of a single piece of oak, much resembling a modern life-boat, also deposited by the Royal Dublin Society in the Academy's Museum; it is 20 feet long, and 22 inches broad, and has a square aperture cut out of each side, about the centre, either for adjusting to it some description of row-lock, or a seat. It has a round bottom, is slightly raised at stem and stern; and is evidently the most modern of the three. A single-piece canoe has been discovered either upon or in the vicinity of all the crannoges which have been carefully examined. They have also been found in bogs, and in the beds of rivers, as the Boyne, the Brosna, and the Bann, &c. Ware says that single-piece canoes were in use on some rivers in Ireland in his time. The curragh or coracle is still employed: upon the Boyne it is formed of wicker-work, covered with hide; and in Aran the framework is formed of light timber, fastened together with great ingenuity, and covered with canvas.

The Academy possesses four paddles, the largest of which,

Fig. 128. No. 3.

No. 3, represented in the accompanying cut, is 2 feet 7 inches in length, and 5½ inches broad in the blade, but only half an inch thick. It and each of the others are imperfect in the

handles, having been broken off in the same places, so that we cannot now tell what the original length was; but, from their slender form, they were evidently employed in propelling some very light craft, and used single-handed. This and No. 4, which is 2 feet 2 inches long, by 5 inches across the blade, were found at Toome bar, on the Lower Bann, and were, with No. 2—*Presented, through W. T. Mulvany, Esq., by the Board of Works.* No. 2, somewhat smaller than the others, was found at Kiltubbrid Castle, in the King's County; it had been mended by an iron clamp where the blade was split. They are all of black oak, and present the appearance of great antiquity.

No. 5 is a rope of three strands of heath, found in sinking a sewer on Michael's-hill, opposite the western entrance of Christ Church Cathedral, Dublin, 10 feet beneath the surface, and—*Presented by Park Neville, Esq., City Engineer.* Heath ropes, although very rare, are not altogether unknown in modern times; but one of the strongest and most durable pieces of rude cordage is that formed out of the fibre of the bog-deal, until very recently commonly used in roping beds, and sometimes in thatching in the west of Ireland.

Spades and Forks.—Spade husbandry, it is generally considered, preceded ploughing, which necessitated the use of domesticated oxen, or of horses, which latter were, in all probability, imported into Ireland as civilization and intercourse with other countries progressed. Fig. 139, No. 8, on the following page, drawn from the largest of a pair of three-grained forks, or grapes, of gray oak, is 7 feet 5 inches in length, 7 inches wide in the blade, which is 3 feet 10 inches long from the step to the end of the prongs. No. 6 is a smaller specimen of the same description of implement, also formed of oak; it is 7 feet 2 inches in length, 1 foot 11 inches from the step or foot-holder to the end of the prongs, and 6½ inches across the blade. They, with No. 7, were found in a

bog near Armagh, and were—*Presented by the Rev. T. R. Robinson*, late President of the Academy.

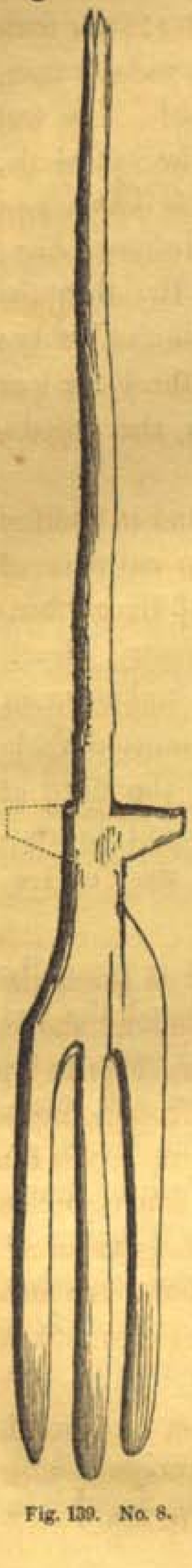

Fig. 139. No. 8.

Until very lately the Irish spade in common use was a long, narrow, one-sided implement, called a *Loy*, shod with iron, and either formed out of a single piece, generally of ash, or made up of two portions, the *fac*, or blade, and the shaft, or handle. No. 9, Fig. 140, formed out of sallow, is of this variety, but whether ever shod with iron is questionable. It is 4 feet long, of which the blade is 1 foot 2 inches, by 5 inches in breadth. It was found at a great depth in a bog near Roscrea, and was presented to Dean Dawson by the Hon. A. Prittie. The *Slane*, used for cutting turf, is a form of light loy, with a wing rising from the extremity of the iron blade. No. 7, here figured, is a spade-like implement, of antique form, and composed of black oak, 4 feet long, of which the blade is 10 inches, by 6¼ broad. No. 10 is a piece of a garden spade, of very old, hard, black oak, shod round the edge with iron; it is 1 foot 9 inches in length, but is broken off short above the double step. Until very recently the shovel common in Galway and other

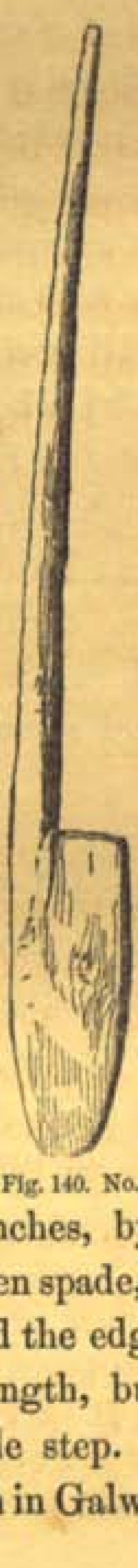

Fig. 140. No. 9.

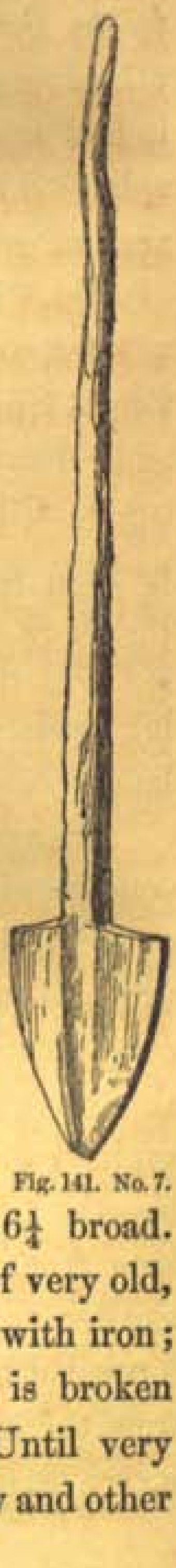

Fig. 141. No. 7.

parts of the west of Ireland, was composed of wood, shod with iron round the edge for about 2 inches in breadth; it was usually made of sallow. No. 11 is a two-pronged spade or fork, 4 feet 4 inches in length, the handle composed of sallow, but the spade portion of very old, black oak; the iron shoeings, 1 foot 1½ inches in length, are quite separate. This is a modern tool, still in use among the islanders on the western coast: it was—*Presented by William Todhunter, Esq.* Besides these kinds of forks and spades, there is in common use in the moory districts of the West a long two-handed dibber, with or without a cross-piece, used for planting potatoes, and called a *Steeveen.*

Mill Timber.—No. 12, Fig. 142, on the lower Shelf of the third space in the Glass-case, is the quern-cover referred to at p. 106. It is formed out of a single piece of fir, and consists of a circular bowl-shaped top, which fitted on the upper stone of the quern; it is hollow below, and convex above, with an aperture for the grain-hole, presenting an everted lip for the hopper. On either side handles project, each perforated for the application of a rope. The length across the handle is 2 feet 4 inches, and the width of the bowl portion 13 inches by about 10, but it was, probably, originally circular. It was found in July, 1835, four feet under the surface in Derryboy bog, in the parish of Killyman, county of Tyrone.

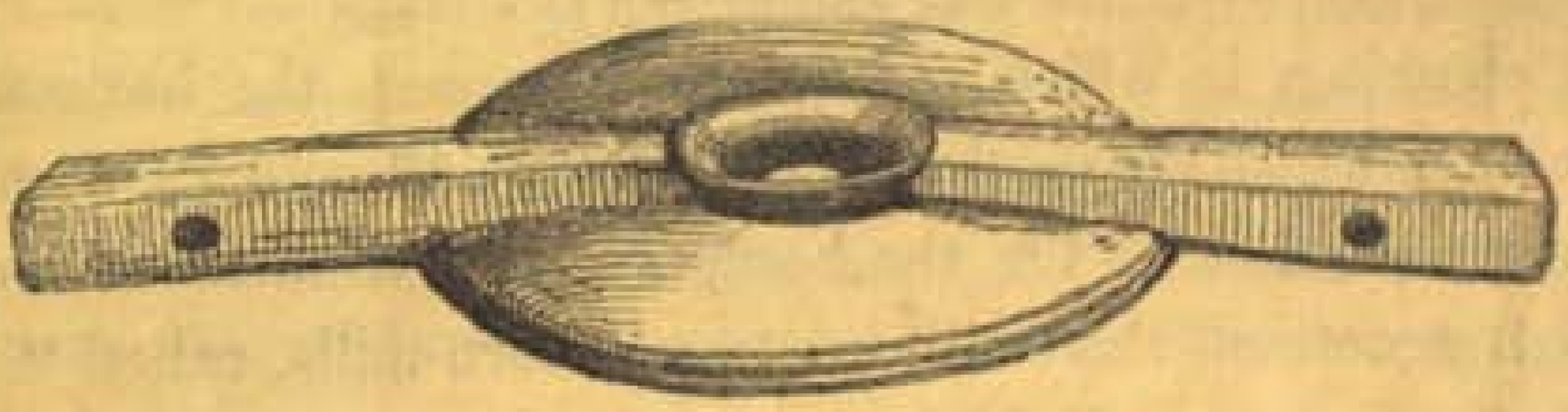

Fig. 142. No. 12.

Nos. 13 to 19 are seven pieces of an ancient water-mill, discovered in 1838, in a bog in the parish of Banagher, near Dungiven, county of Derry, and—*Presented by G. V. Du*

Noyer, Esq. With the exception of the first, which is yew, they are all of very old black oak.

No. 13 is a block about 7½ inches square, and 2½ thick, perforated in the centre obliquely. No. 14, a piece of very old black oak, 21 inches long, and 5 broad, cut out at one extremity, and also perforated at the projecting ends as if for a pivot. No. 15 is 16 inches in length, and 3½ broad, also perforated at the extremity and in the centre, as if for the attachment of wooden pins. No. 16 is another portion, flat, perforated, and 9½ inches long, by 4½ broad. Nos. 17, 18, and 19, are scoop-like pieces, each about 14 inches long, and perforated at the extremity, dished at one end, and having a projecting ledge or stop at the back, near the perforation. These, it is believed, were inserted into the periphery of an upright wheel or shaft, and served as the buckets or floats against which the stream played.

A stream of water was conducted to a large vat formed of oak planking, in which stood, it is supposed, the horizontal wheel, to which the portions numbered 17, 18, and 19, formed floats or paddles.* On the borders of the counties of Mayo and Roscommon there still exist small corn-mills, called "gig mills," the stones of which are not much larger than querns; and in these the water plays upon horizontal floats inserted into an upright shaft.

No. 20 is an ancient water-scoop of oak, 5½ inches long, with a hollowed-out handle; the body of it being much worn, apparently by long use; it was found in a crannoge in Ardakillin Lough, near Strokestown, and was—*Presented by the Board of Works.*

Kneading-troughs, Dishes, Bowls, Lossets, and Tables, each of a single piece of wood, appear to have been in common use in early times, and the Academy possesses an exten-

* Mr. Du Noyer furnished the Academy with an ingenious model of this ancient piece of machinery, which was, in all probability, a tuck-mill for thickening cloth. See also articles on "Ancient Water-mills" in the "Ulster Journal of Archæology," vol. iv. p. 6, and in the "Transactions of the Kilkenny Archæological Society," vol. i. p. 154.

sive collection of such articles. No. 25, represented by the accompanying illustration, Fig. 143, is a good example of this variety of dish, although the smallest specimen of the lot. It is formed out of a piece of sycamore, and is 19½ inches long, by 11½ broad, and 3 deep. A projecting handle, supported by a keel-shaped piece beneath, extends across each extremity. It was found in the bog of Moyntagh, parish of Drumcree, county of Armagh, in 1832, and was—*Presented by the Rev. Charles King Irvine.* "A nest of such dishes, diminishing in size, and lying inside this, were found at the same time; they were, however, imperfect, and split when drying." There are six such dishes in the Collection, but none so deep as this in proportion to its size.

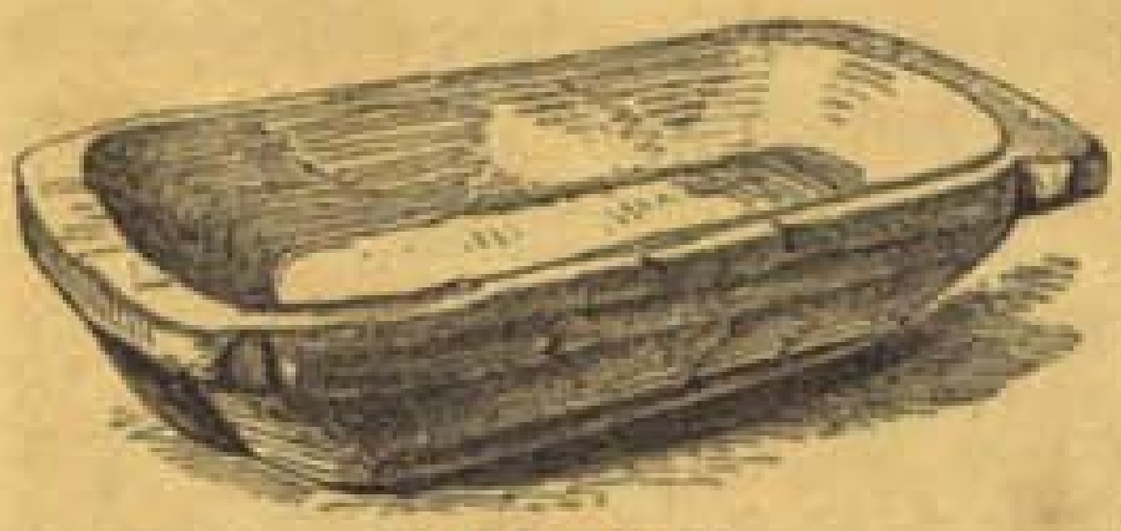

Fig. 143. No. 25.

No. 21, the largest-sized dish, of elm, oval in shape, 3 feet long, 21 inches broad, and 3½ deep; the handle is 15 inches across. It was found in the bog of Emlaroy, county of Roscommon, in 1850, and was—*Presented by D. H. Kelly, Esq.* No. 22, a dish, 2 feet 9 inches long, by 20 inches across the middle, and 2½ deep; it is of old black oak, oval in shape, but square at the handles. It was—*Presented by Arthur Webb, Esq.*, of Hilltown, county of Meath. No. 23, a dish of light-coloured oak, imperfect on one side, 2 feet 10 inches long, about 2 feet wide, and 4 inches deep. The handle is supported in the centre by a keel-like projection. No. 24, a dish or losset, 2 feet 7 inches long, 16 inches wide, and 2½ deep, composed of black oak, the handle strengthened by a keel, like Nos. 23 and 25. For 25, see above. No. 26, a losset-shaped dish of willow, deeper for its size and more oval than any of the others; a portion has been burned out of one extremity. It is 1 foot 6 inches long, by 15½ wide, and 4 deep, and was found in Lisnabin bog, county of Westmeath, 12 feet under the surface, in 1828.

Of the same class of utensils may be specified the oval and circular bowls found deep in bogs, and carved out of a single

piece, running the length of the timber. At the time of their discovery they are generally quite perfect, but on drying, or exposure to the atmosphere, they immediately split into fragments; and if not carefully hooped or corded while in a damp or moist state, they lose their shape. They are provided with perforated handles, carved out of the solid, and might have been used as milk-coolers. The largest and most perfect vessel of this kind in the Collection is No. 27, formed out of a piece of willow; it is 6½ feet in circumference below the handles, but narrows to the mouth, which is about 2 feet across. It is oval in shape, and 1 foot in depth. Each handle is 5 inches long, and perforated with a hole 1¼ inches wide. The vessel might have been carried by two persons, with sticks passed through these handles. It was found in Gartagowan bog, parish of Desertcreat, county of Tyrone, in 1856, and was—*Presented by the Rev. Thomas H. Porter, D.D.* Nos. 28 and 29 are of the same variety.

No. 28 is a shallow oval bowl, formed out of a root of willow, measuring about 2 feet in the longest diameter, a foot broad, and 7 inches deep; the handles are narrower than in the foregoing. No. 29 was originally a very perfect specimen of the oval bowl, but it has greatly altered in shape, and split in several places in drying; the handles differ from former specimens in being cut out below, so that it might have been carried between two sticks, or by the hands; it was found deep in a bog near Oughterard, county of Galway, and was—*Presented by G. F. O'Fflahertie, Esq.* Two others were found in the same place, but fell to pieces in the hands of the workmen (see Proceedings, vol. vi. p. 160.) No. 30 is a shallow boat-shaped bowl, of the same class as the foregoing, and composed of sallow, 2 feet 4 inches long, and 11 inches across; there are two holes near the upper edge, on one side, which correspond to the holes upon the table No. 35, with which it was found (see Fig. 143, p. 211). No. 31 is a bowl-shaped vessel of three circles, nearly on a level, and possibly made to hold three different kinds of food, like delph and silver dinner vessels of the present day; it is of willow, 9½ inches across, and each hollow about 1¼ deep. No. 32, a willow

dish, nearly circular, and standing upon a raised foot or boss; it is 14 inches in diameter, and was turned in a lathe, upon the long grain of the timber.

Two examples of single-piece wooden bowls, of a small size, and each furnished with one handle, may be seen in the fourth Glass-case, Nos. 33 and 34. The former is formed of sallow, and is 9½ inches in the long diameter, and 4 deep. It has one small handle, apparently more for the attachment of a string than to lift it. It was found in a bog near Rathconrath, county of Westmeath. The latter, No. 34, shown in the accompanying cut, Fig. 144, is also of willow, 8½ inches long, and 3¼ deep. It is a beautiful antique shape, and in both handle and general contour greatly resembles some of the ancient bronze vessels in the Academy's collection.

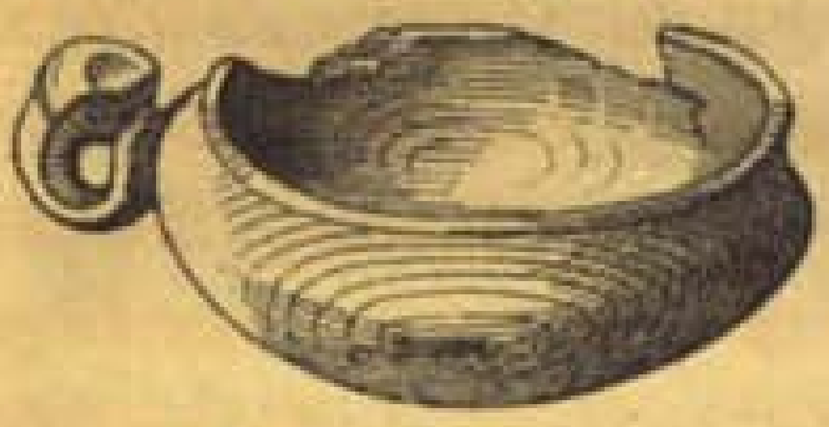

Fig. 144. No. 34.

Somewhat more of a food implement than an article of household economy is the small portable table, No. 35, Fig. 145, which was possibly used in bread-making, or as a kneading-trough, as well as for eating off. It is 2 feet 4½ inches long, and nearly 16 inches broad; the top is flat, and slightly curved outwards on the sides, and inwards at the ends. It is supported by four short legs, each 4½ inches high, and connected on three sides by a raised ledge, ¾ths of an

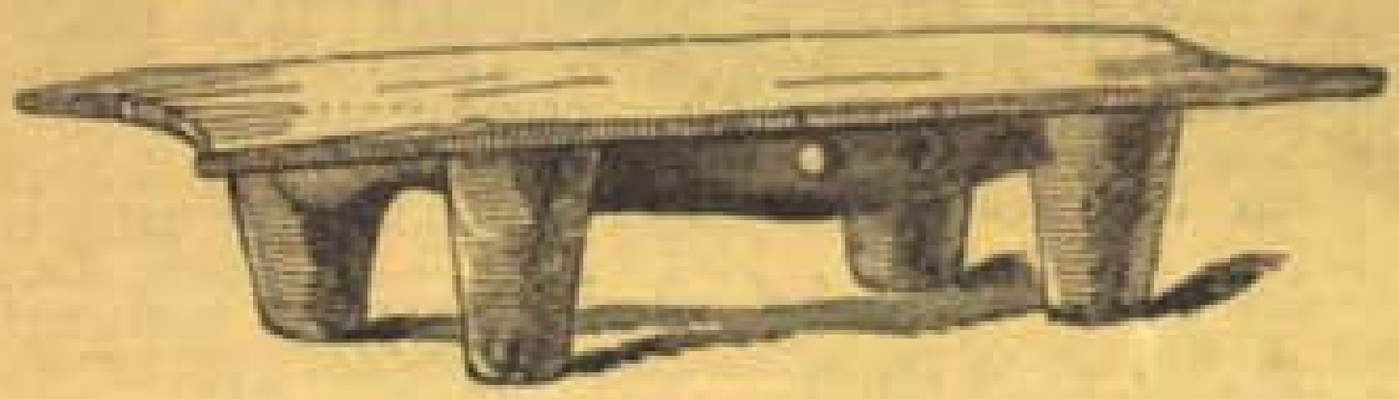

Fig. 145. No. 35.

inch thick. This ledge is perforated with two holes, which in distance correspond to those in the bowl, No. 30, with which it was found, and which was then of sufficient size "to

cover the extremities of the four legs." Both table and bowl are of willow. They were found in a turf bog, in the townland of Killygarvan, parish of Desertcreat, county of Tyrone, four or five feet below the surface, and were—*Presented by the Rev. Thomas H. Porter, D. D.*, who states in the Proceedings, vol. iii. p. 22:—"It may be inferred the table was used by persons who sat on the ground at their meals; and that the dish, when not in use, was attached by a thong to the under surface of the table, which might be hung against the wall of the dwelling, or slung on the baggage when the owners migrated from place to place in the woods. The rim on the under surface may have been of use in kneading dough, the table being inverted for that purpose. With the dish there was a quantity of hazel-nuts," but nothing else was found in the vicinity.

Barrels, formed out of a single piece, with the exception of the top and bottom, appear to have preceded the staved and hooped vessels in modern use. No. 36, in the lower compartment of the Glass-case in the Eastern Gallery, is a good specimen of this description of vessel, although of small size. It is 21 inches high, and 15 across the opening; upon one side there is a handle, with which it might be either carried in the hand or slung on a pole; the timber is what is termed sallow. No. 37 is the remains of a single-piece barrel, which enclosed a fine specimen of bog-butter; it is placed in the centre of the fourth compartment of the Gallery on the southern side. Although much injured by time, the original size may be computed from that of the material which it surrounded. It is formed out of a piece of sallow, is 26 inches high, and 32 in girth. Both top and bottom pieces still remain.

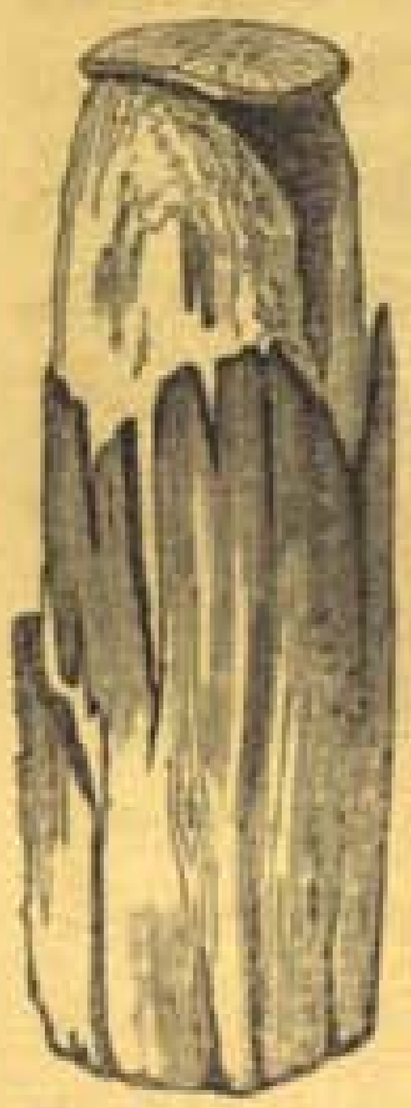

Fig. 146. No. 37.

No. 38 is a small churn-shaped vessel, formed out of a single piece of yew, 16½ inches high, and 9¼ from out to out at the bottom,

which is fitted with a single piece; it is provided with two handles, but not on opposite sides; between these handles the space is comparatively flat, as if made for fitting upon the back; it is grooved at top for the lid, which fitted into it; and there is a bung-hole on the outer side. Nos. 39 and 40 are two imperfect wooden vessels, of the canister shape, the latter in process of formation; each about 10 inches high, and 2 feet 6 inches in circumference; they are furnished with handles for string-holes near the top, which is formed into a narrow bottle-shaped neck, while the other extremity is grooved like a barrel, for the insertion of the bottom; they were evidently worked with a hand-tool, and not in a lathe (see "Dublin Penny Journal," vol. i. p. 322). No. 41, a can of willow, 11½ inches high, with a handle at top; the bottom, which is 7 across, is formed of a separate piece. This vessel, which was turned in a lathe, is comparatively modern. No. 42, the oaken cover of an oval vessel, 7 inches long by 5 broad; it was found in a bog at Castlekelly, county of Galway, and—*Presented by D. H. Kelly, Esq.*

MILK-PAILS AND BUTTER-PRINTS.—No. 43, shown in the accompanying cut, Fig. 147, is a four-sided oblong pail or bucket, formed out of a single piece of red deal, 1 foot long, 10½ inches deep, and 6½ broad. It is one of the most remarkable vessels in the collection of wooden articles; the moveable handle, which is composed of a piece of yew branch, was pressed, when in a flexible state, into notches with projecting lips on the inside. It was found in Meenskehy bog, near Millstreet, county of Cork, under 6 feet of bog, and was—*Presented by John E. Herrick, Esq.* No. 44 is a long, narrow, single-piece vessel, of sycamore, without a handle, 10½ inches high, 4½ wide at bottom, and 3 at top.

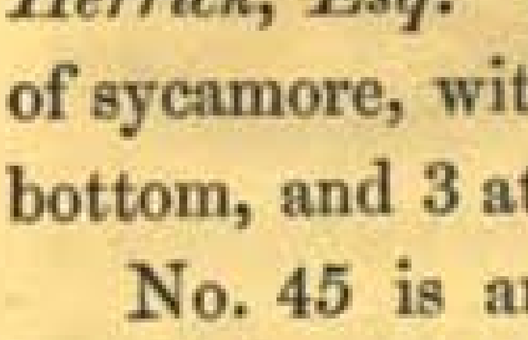

Fig. 147. No. 43.

No. 45 is an oblong single-piece box, such as may be found in most peasants' cabins of the present day, used either as a salt-box or for holding rush candles, probably the former. It is of yew, 16½ inches long, 4½ wide, and the same deep, and has the front decorated with some rude carving.

There are three ancient butter-prints or stamps in the Collection; Nos. 46 and 47 are circular, with handles projecting from the sides, and No. 48, which is oblong, has the handle upon the back. No. 46, of beech, is 3 inches across the circle, on the front of which is a rude flower-like pattern; the obverse is plain. It was found at Shrewle Castle, county of Carlow, and—*Presented by Miss Helen Cooper*. No. 47, Fig. 148,

Fig. 148. No. 47.

of willow, shown in the accompanying cut, is 5½ inches across the circular portion, and has a perforated handle, 4½ inches long. There is a rude star-shaped pattern upon the obverse side. No. 48, of oak, is oblong, 7 inches by 4¼; the pattern, though much obscured, appears to be floral. This is apparently the most ancient of the three butter-prints in the Collection.

DRINKING-VESSELS.—METHERS, so styled from being used in drinking mead or metheglin, are two-pieced wooden vessels, varying in height from 6 to 12 inches, and capable of holding from one to three pints. They are generally four-sided at the top, and round or oval at the bottom, and may be divided into three varieties, the one, the two, and the four-han-

Fig. 149. No. 57.

Fig. 150. No. 73.

Fig. 151. No. 88.

dled: in some of the last the handles project below the bottom, and form feet. The accompanying Figures 149 and 150, drawn from Nos. 57 and 73, afford good examples of both these forms of ancient drinking-vessels, while Fig. 151,

from No. 88, is a good specimen of the wooden goblet, or tumbler-shaped drinking-vessel, turned in a lathe, the others being formed by hand. It is, however, much more modern than the mether.

The mether and its handles were always formed of a single piece, but the bottom was separate, and inserted into a groove, within an inch or three-quarters of an inch of the lower end, and is often a different wood from that in the body of the vessel. It was, in all probability, pressed into its place after the vessel had been soaked some time in water, so as to expand the circle, into which it afterwards fitted closely, when the wood contracted; in some cases the bottom was further secured by a hoop of wood, copper, or iron. Many methers are rudely but ingeniously carved. In material these drinking-vessels afford great variety, viz., yew, walnut, willow, sycamore, oak, beech, elm, crab-tree, and even pine. There are twenty methers in the Academy's collection, some of great age; one single-handled, thirteen two-handled, and thirteen four-handled, in three of which latter the handles are prolonged into feet.

METHERS.—No. 49 is of sallow, the only specimen of a *One-handled* vessel of this class in the collection; it is 7¼ inches high, by 4½ broad at top, and likewise differs in shape from all the others. No. 50, a very old *Two-handled mether*, slightly decorated with lines and circles, square at top, and round at bottom, formed out of a piece of walnut, 5¾ inches high, 3½ in the clear of the top, and 2½ within the round of the bottom. It was—*Presented by Lord Farnham.* No. 51, also of walnut, is 6 inches high, and has a hoop-mark at the bottom. No. 52, of sallow, plain, 6¾ inches high, had been originally hooped below. No. 53, a large mether of yew, decorated with a triangular chequered pattern, is 7½ inches high, and 5 wide at top one way, and 4½ the other. No. 54, of yew, is 6½ inches high, and 4 across the opening; two wooden hoops encircle the bottom. No. 55, of sycamore, more modern than the foregoing, 6¼ inches high, and 4 wide. No. 56, of yew, 5¾ inches high, and 4 wide; the handles are prolonged so as to reach the bottom, like some of those in the four-

handled variety. No. 57, a large mether of sycamore, nearly square at top and bottom, decorated upon the sides, and having a hoop-mark below; it is 7½ inches high, and 5¼ wide. No. 58, a small, plain, two-handled mether of elm, originally hooped below, 5½ inches high, and 3¼ wide. No. 59, a large broad mether of sallow, 6¼ inches high, and 5¾ wide at top—*Presented by Lord Farnham.* No. 60, of oak, 4½ inches high, and 5½ wide, with a hoop-mark below. No. 61, a small mether of deal, 4 inches in height. No. 62, a small walnut mether, 4 inches high, by 3 wide at top. No. 62A, a large square mether filled with bog butter, placed in Class IV.

FOUR-HANDLED METHERS are usually more of a square than a round form, and present two varieties—those in which the handles are placed midway up the side, and the specimens in which the handles project below the level of the bottom, and serve as feet. No. 63, upon the top Shelf, affords a good example of the first variety, and is that figured and described in the "Dublin Penny Journal," vol. ii. p. 249. It is 8¾ inches high, 4¾ wide at the mouth, and is formed out of a piece of crab-tree. A copper hoop, ¾ths of an inch deep, surrounds the bottom; the sides are covered with various marks and devices, possibly cut on them at different times, long subsequent to the formation of the vessel, and, among the rest, the inscription "Dermot Tully, 1590." This curious old vessel was—*Presented by W. Allen, Esq.* No. 64 is said to have been originally in the possession of the O'Donohoes of Killarney, and is one of the most elegantly formed methers in the collection. It stands 8¼ inches high, is perfectly circular at the bottom, which is 3¾ inches in diameter; the top is square, and slightly indented on the sides and edges, which latter are remarkably thin and sharp; the material is light-coloured yew, and the handles are prolonged towards the lower end. No. 65 is another good specimen of the four-handled mether, somewhat similar to the last, of light-coloured yew, about 8 inches high, and 4½ across the opening.

In the following specimens the handles are prolonged to the hoop-marks at the bottom. No. 66, a large square mether of dark yew, decorated, and having a hoop-mark at the bottom, is 8 inches high, and 5¾ wide. No. 67 is middle-sized, and much worn at the top edge, as if from long use, the handles prolonged to the hoop-mark; it is composed of yew, and decorated with straight lines; is 6½ inches

high, round at bottom, and square at top. No. 68 is a small decorated mether, 5⅓ inches high, of sycamore. No. 69, a tall mether of yew, hooped with tin at the bottom and middle, 7⅓ inches high, by 4 wide at the opening; the handle is notched. No. 70, a small mether of dark elm, hooped with willow, the handles notched, 4¾ inches high, by 3 wide. No. 71, a very old and much worn vessel of sallow, 6⅓ inches high. No. 72, of sallow, wants a handle; is 6⅓ inches high, by 4⅓ wide, hooped with iron.

In the three following specimens the handles are prolonged for some distance below the bottom, so as to act as feet or supports. No. 73, Fig. 150, p. 214, is of sallow, decorated; handles project about ¾ths of an inch below the bottom; it is 8⅓ inches high, and 4¾ wide at top. No. 74, also of sallow, 6⅝ inches high, by 4⅓ wide, was originally hooped, and is now supported by the handles, which are prolonged into feet. No. 75, of yew, much decorated, as shown in cut, is 6¼ inches long, and has the handles prolonged into feet.

Circular Vessels and Drinking-cups, of a single piece, most of which were turned in a pole-lathe, are of various sizes, from those capable of holding above a quart of fluid measure, to others not larger than a wine-glass. No. 76 is a circular mug-shaped vessel of elm, 7½ inches high, and 3¼ wide, with a side-handle. No. 77 is of the same character and material, but wider, being 5 inches broad, and 6½ high. No. 78, ditto, of sallow, 6 inches high, by 4½ wide. No. 79, ditto, of sycamore, 5¼ inches, by 4⅓. No. 80, ditto, of elm, 5¾ inches high, by 4 wide. No. 81 is a circular one-piece vessel of sycamore, 4¼ inches high, by 5¼ broad, shaped like a modern noggin, and having two side-handles attached to the body by small nails. No. 82, 4⅓ inches, by 3¼, is a small wooden mug of yew, with a single handle. The four following wooden vessels gradually approach the cup shape, being contracted at the bottom, and then spreading into a foot. No. 83 is an elm cup, 3¾ inches high, by 4¾ broad. No. 84, ditto, of beech, 5¼ inches, by 5. No. 85, of elm, 5¼ inches, by 4½. No. 86, a small wooden mug of sycamore, 5 inches, by 3¼. No. 87 is a small turned noggin of yew, without a handle.

Goblets and wooden vessels with tumbler-like stems follow here. No. 88, figured on page 214, is the best specimen of this variety. It is of elm, 8 inches high, by 5½ wide in the opening. No. 89,

ditto, imperfect, of sallow, 8½ inches, by 6¼. No. 90, ditto, of sallow, 6 inches, by 3¾. No. 91, of beech, a shorter specimen, and consiberably worn, 5¼ inches, by 4¾ wide. No. 92, a salt-cellar of goblet-form, 3 inches high, and 3 wide, such as is still in common use in some remote districts. No. 93, a small walnut cup, or drinking-vessel, decorated at the bottom, but unfinished on the inside, very modern, 3½ inches high, by 2½ wide—*Presented by Lord Farnham.* No. 94, a small drinking-vessel of walnut, 3½ inches high, with the bottom inserted. No. 95, a small wooden vessel of wine-glass shape, slightly decorated, but wanting the stem and boss; it is of walnut, and 2 inches wide at the mouth. No. 96, of the same material, a decanter-shaped vessel, decorated, 4 inches high, 2½ wide at bottom, and 1½ at top. The bottom is inserted, and held in its position by pegs driven from the outside. It has the letters B. T. R. on the bottom.

SPECIES IV.—ARTICLES OF HOUSEHOLD ECONOMY, FURNITURE, AND DOMESTIC USE, ETC.

Although food implements (Species III.) form the great bulk of the wooden specimens in the Academy's collection of antiquities, there are several other wooden articles for domestic uses of considerable antiquity in the Museum, such as candlesticks, beetles used in clothes-washing, trowels, and a number of miscellaneous articles specified in the following enumeration, from Nos. 97 to 114, including portions of the oaken timber used in crannoges or stockaded islands, all of which are arranged in the upper or lower compartments of the central glass-case of the eastern gallery. Besides these, some minor wooden articles of domestic use will be found in Rail-case E, such as bodkins, piercers, and stamps, &c., along with those appertaining to dress and decoration : see No. 116 to No. 137, described at page 237.

No. 97 is an ancient wooden candlestick of fir, 8½ inches high, "found 16 feet deep in the bog of Lower Lyrane, near Blackstones, a wild but beautiful district westward of the Reeks, in the county of

Kerry. In the lower grounds or morasses, the timber of enormous pines, and also cones of the *Pinus pinaster* at considerable depths, have been occasionally dug out. Some years since a large pine, very bare of branches, and near it, a perfect cone, appearing identical with the cone of the *Pinus pinea*, were found at a great depth in a bog near Kenmare. The higher grounds of the Lyrane district are rocky, and these subalpine glens are clothed with native oak (*Quercus sessiliflora*), birch, holly, aspen, and hazel." The candlestick, together with this description of the locality, was—*Presented by William Andrews, Esq.* No. 98, a beetle of black oak, 15½ inches long, and 4 wide, was found at Kiltubbrid Castle, King's County, with the paddle No. 2, and—*Presented by the Board of Works.* No. 99 is another beetle, shorter and more modern than the former; slightly decorated on the surface, and 1 foot in length; it was procured from one of the Strokestown crannoges. Nos. 100 and 101, two paddle-shaped instruments of oak, apparently of great age, with long narrow handles and spoon-shaped blades; the former is 2 feet 6 inches, and the latter 2 feet 1 inch in length. They were "found in old workings at Knockmahon copper mine, county of Waterford, in 1850, about 70 feet below the surface," and were—*Presented by John Petherick, Esq.* No. 102 is a flat, thin piece of black oak, 18 inches long, and 8 broad in the widest part, described in the Dawson Catalogue as "a wooden trowel, found in Mongonvough bog." The handle is perforated with a circular, and the blade with a square aperture cut obliquely through its upper portion. No. 103 is the fragment of a similar instrument, composed of pine about 1 foot long. It was "found in the bog of Cana, at the foot of the Ox Mountains, county of Sligo, in 1845, about 10 feet under the surface," and was—*Presented by the Rev. James Burrowes.* Nos. 104 and 105 are two pieces of fir timber, hewn into eight globular portions, connected by a central stem, and appearing like pieces blocked out for turner's use. They were "found in the bog of Derrybrick, parish of Drumkeeran, county of Fermanagh, in 1846," and were—*Presented by Ffolliott W. Barton, Esq.*, see MS. Presentation Book, p. 52. No. 106 consists of five pieces of timber, like miniature spades and forks, possibly used as dibbers, and formed out of branches of fir and elm. No. 107 is a portion of an ancient vessel of a tub-shape, with the handle-hole at one extremity. Nos. 108 and 109

are two curious blocks of wood, with mortises, "found in a small lake at Montagh, county of Fermanagh." The first is 17 inches high, and the second somewhat less; they appear to have been supports to a large piece of timber which fitted the mortises, and were probably used in mill-work. Both are formed from branches cut off at the forking. They were—*Presented by the Earl of Enniskillen* (see Proceedings, vol. iii., p. 304). No. 110, a very rudely carved human head of oak, 13 inches long, found along with the dish or tray, No. 23, in the Bog of Allen (see Proceedings, vol. v. p. 85). Nos. 111 to 115 are five pieces of oak timber procured from crannoges, each morticed at the end. They average 3 feet 6 inches in length, and 10 inches in breadth, and appear to have been portions of the cross-timbers which connected the piles at certain distances. Other portions of crannoge beams may be seen in the crypt, along with the boats, &c. &c.

CRANNOGES.—The ancient stone habitation called a *clochaun*, in which an individual or a family resided,—the circular and dome-roofed buildings in which, apparently, a small community lived,—the entrenched earthen raths, possibly stockaded, which included several habitations,—the remains of the celtic city of Fahan,* and the great stone forts, cathairs, and duns, such as Staigue Fort or Dun Ængus,—have been already either alluded to, or specially described in the section devoted to the consideration of the Stone Materials. Under the head of Wooden Material may be considered those stockaded islands denominated in the Irish Annals *Crannoges*, or little wooden islands, of which several have come to light during the recent general drainage of the country. Whether the name was derived from the timber employed in enlarging, securing, and fortifying the island, or from the wooden houses erected on it, or whether also applied to log-houses on the land, is uncertain. But although alluded to so early as the middle of the

* In the Townland of Fahan, west of Ventry Harbour. I am indebted to Mr. Du Noyer for calling my attention to this interesting locality, where clochauns and cathairs of various types abound in a remarkable degree. These Mr. Du Noyer has recently examined and drawn, and has prepared a paper upon them for the forthcoming Meeting of the British Association, which he has shown to me.

See the Ordnance Map of Kerry, Sheet 52.

ninth century, it is remarkable that no examination of a single crannoge occurred until the end of the year 1839.

In most districts in which these islands were found, several small lakes are clustered together, as in the neighbourhood of Strokestown, Keshcarrigan, and Castleblaney, in the counties of Roscommon, Leitrim, and Monaghan. They were not, strictly speaking, artificial islands, but cluans, small islets or shallows of clay or marl, in these lakes, which were probably dry in summer-time, but submerged in winter; these were enlarged and fortified by piles of oaken timber, and in some cases by stone-work. A few were approached by moles or causeways, but, generally speaking, they were completely insulated, and only accessible by boat; and it is notable that in almost every instance an ancient canoe was discovered in connexion with the crannoge. Being thus insulated, they afforded secure places of retreat from the attacks of enemies, or were the fastnesses of predatory chiefs or robbers, to which might be conveyed the booty of a marauding excursion, or the product of a cattle raid.

It may naturally be concluded from the amount of oaken timber invariably discovered in these stockades, that the neighbouring country was well wooded; it is also manifest, from the quantity, age, and variety of the antiquities discovered in these crannoges, that they had been long occupied. We likewise learn from their recent submerged condition how much water had accumulated on the face of the country since their construction, probably owing to the great decrease of forest timber and the increased growth of bog. From the additions made to the height of the stockades, and also from the traces of fire discovered at different elevations in the sections made of these islands, it may be inferred that the rise of the waters commenced during the period of their occupation. The first examined and described was that at Lagore,*

* Loch Gobhair, the chief residence of a small territory in Meath, was very famous in the Irish Annals. See Four Masters, A. M. 3581 to A. D. 967. This island is referred to at the years A. D. 848 and 933.

near Dunshaughlin, county of Meath, an account of which was communicated to the Academy by the writer of this Catalogue, and described at length in the Proceedings for April, 1840 (see vol. i. p. 420). The Dunshaughlin crannoge differed, however, from all others since discovered, in not being then either submerged or surrounded by water; it consisted of a circular mound of about 520 feet in circumference, slightly raised above the surrounding bog or marshy ground, which forms a basin of about a mile and a half in circuit, and is bounded by elevated tillage and pasture lands. The lake in which this crannoge was situated has been drained within the memory of man. To the labours of the chemist making known the value of bones for manuring purposes, we are indebted for this ancient habitation being brought to light. Some labourers, when clearing the stream-way which surrounds a portion of it, having found several large bones, the fact became known to the usual collectors of such articles, who resorted there in numbers, and above 150 cart-loads were thus obtained. "The circumference of the circle was formed by upright posts of black oak, measuring from 6 to 8 feet in height; these were mortised into beams of a similar material, laid flat upon the marl and sand beneath the bog, and nearly 16 feet below the present surface. The upright posts were held together by connecting cross-beams, and [said to be] fastened by large iron nails; parts of a second upper tier of posts were likewise found resting on the lower ones. The space thus inclosed was divided into separate compartments by septa or divisions that intersected one another in different directions; these were also formed of oaken beams in a state of great preservation, joined together with greater accuracy than the former, and in some cases having their sides grooved or rabbited to admit large panels, driven down between them. The interiors of the chambers so formed were filled with bones and black moory earth, and the heap of bones was raised up, in some places, within a foot of the surface."

The animal remains found therein consisted of those of several varieties of oxen, also swine, deer, goats, sheep, dogs, foxes, horses, and asses,—specimens of which may be seen in Section IV. With these were found a vast collection of antiquities: warlike, culinary, personal and ornamental, of stone, bone, wood, bronze, and iron, &c., several of which are preserved in the Academy's Museum, and consist of swords, knives, spears, javelins and dagger-blades, sharpening stones, querns, beads, pins, brooches, combs, horse-trappings, shears, chains, axes, pots, and bowls, &c. (see Proceedings, vol. i. p. 425; see also the "Archæological Journal," vol. vi. p. 101). Some human remains were likewise discovered there, a specimen of which may also be seen in the Museum.

A few months after the discovery of the Lagore crannoge, an island, "artificially formed of timber and peat," was brought to light upon lowering the water in Roughan Lake, near Dungannon, "and numerous fragments of ancient pottery and bones, and a few bronze spear-heads, were discovered," together with the quern, No. 19, described at p. 111 (see Proceedings, vol. i. p. 457). It is said to have been the last retreat of Sir Phelim O'Neill in 1641, who held out there until boats were procured from Charlemont for his capture.

The next discovery of a similar structure was that at Lough Gur, county of Limerick, from which a vast collection of bones and a great number of antiquities have been from time to time obtained.*

Afterwards, Mr. Shirley, in his "Account of the Territory of Farney," described a stockaded island of this description found in Lough Fea, in the county of Monaghan, in 1843; and in 1844, two others at Monalta and Lough na Glac, in the same district.† The remains of crannoges were

* The author is indebted to a clergyman in the neighbourhood of Bruff for much information respecting the island exposed on lowering the waters of Lough Gur. There does not appear to have been any surrounding enclosure or staking upon it.

† The Archæological Journal, vol. iii. p. 46.

also discovered at Ballinderry Lake, near Moate, county of Westmeath, and vast quantities of bones and antiquities, and two canoes, were disinterred therefrom.* A crannoge was discovered in Lough Faughan, in the barony of Lecale, county of Down, and from it was procured the pitcher, No. 9, in Class II.† In 1845, the lake of Corcreevey, county of Tyrone, was drained, and its crannoge examined by Mr. Burnside.‡ Subsequently, several crannoges were discovered in the counties of Roscommon, Leitrim, Cavan, and Monaghan, during the workings of the Commission for the Arterial Drainage and Inland Navigation of Ireland, amounting altogether to about forty-six; viz. twenty in Leitrim, twelve in Roscommon, two in Cavan, six in Monaghan, and one in each of the counties of Limerick, Meath, Westmeath, Down, King's County, and Tyrone, including those not discovered by the officers of the Board of Works. No doubt others have been noticed in their several localities, although not yet described; and as the general drainage of the country proceeds, other crannoges will be exposed to view.

The following are the results of the examination of crannoges made by the engineers of the Board of Works:—

They are surrounded by stockades driven in a circle from 60 to 80 feet in diameter; but in some cases the enclosure is

* The author is indebted to Mr. Hayes of Moate for a description of these crannoges, and a plan and map of the locality.

† The Rev. Charles Archbold has afforded a notice of the Lough-falcon, or Lough-faughan crannoge. He says:—"I found that the island was in a great measure, if not altogether, artificial. There were large stakes driven into the ground, and completely enclosing the space within, but not rising above the surface, so as to form a palisade, but evidently for the purpose of keeping in the soil from the encroachment of the water. The tradition respecting it is, that there had been a castle on the shore opposite, the chieftain of which caused this island to be made as a place of refuge from the sudden onslaughts of the O'Neills; and to render this retreat more secure, he would never allow more than one boat or canoe on the lake. During the drainage of the lake some years ago, a canoe, formed out of a solid piece of oak, was found near the island."

‡ See the Earl of Enniskillen's communication in Proceedings, vol. v. p. 214.

larger, and oval in shape. The stakes of these are generally of oak, mostly young trees, from 4 to 9 inches broad, usually in a single row, but sometimes in double, and in a few instances in treble. The portions of these stakes remaining in the ground generally bear the marks of the hatchet by which they were felled. Several feet of these piles must have originally projected above the water, and were probably interlaced with horizontal branches, so as to form a screen or breastwork.

The surface within the staked enclosure is sometimes covered over with a layer of round logs cut into lengths of from 4 to 6 feet, over which was placed more or less stones, clay, or gravel. In some instances this platform is confined to a portion of the island. Besides these, pieces of oak framing, with mortises and cheeks cut in them, have been found within the circle of the outer work.

In almost every case a collection of flat stones was discovered near the centre of the enclosure, apparently serving as a hearth; in some instances two or three such hearths were discovered at different parts of the crannoge. Generally one or more pair of querns were found. Considerable quantities of the bones of black cattle, deer, and swine, were also discovered upon or around the island. (See Report upon the Presentation of Antiquities by the Board of Works, by William T. Mulvany, Esq., in the Proceedings, vol. v. App. p. xliv.)*

The following illustrations, reduced from plans and sections made by the drainage district engineers, afford us good ideas of two descriptions of crannoges. Fig. 152 is of that in Ardakillin Lough, near Stokestown, county of Roscommon, constructed with both stones and oak piling, and Fig. 153, one of those in Drumaleague Lake, county of Leitrim, the centre formed chiefly of alder timber, with the exception of the hearth-stones for fire-places; the former is an irregular oval, and the latter a perfect circle. Fig. 152 presents a section of the island in Arda-

* See maps and plans of the Drainage and Navigation of the Ballinamore and Ballyconnell districts, under Mr. T. J. Mulvany.—*Presented by the Board of Works.*

killin Lough; the top line shows the former highest water-level, the second that of the ordinary winter flood; and the third the ordinary summer water. The upper layer was formed of loose stones surrounded by an enclosing wall, supported in part by piling; the lower portion shows, as far

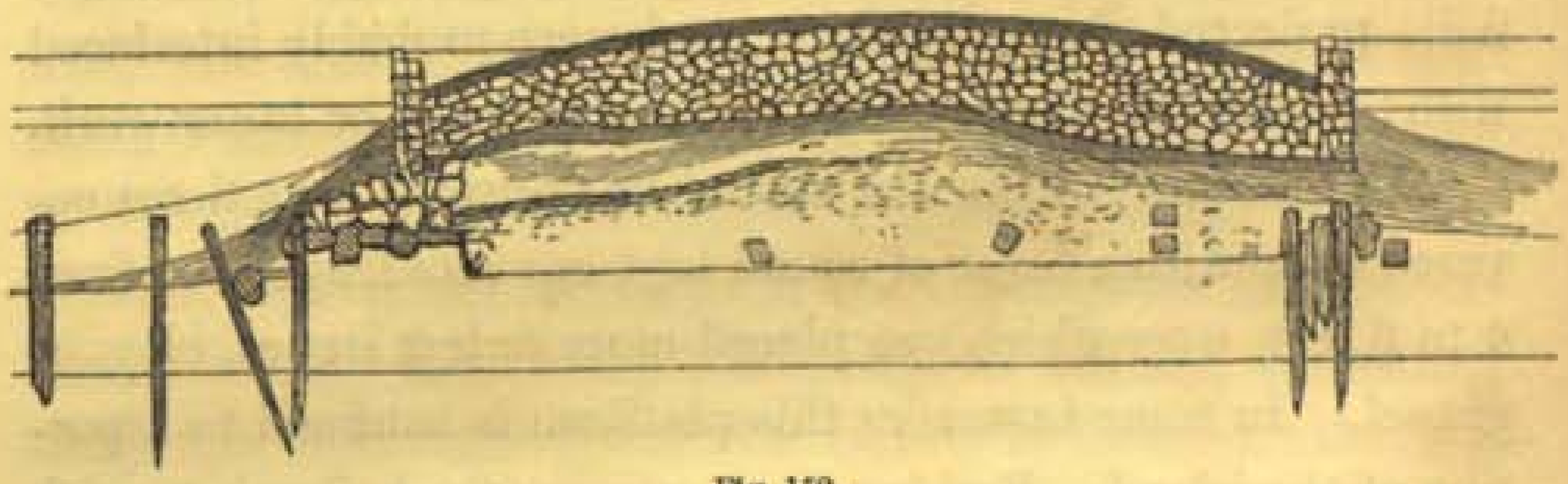

Fig. 152.

as it is possible on so small a scale, the original clay, peat, and stones of the island, on which were found, in various places, strata of ashes, bones, and logs of timber. The oak piling of different descriptions is shown in section, that driven obliquely being sheet piling, which was continuous all round the island.

In the same locality, celebrated as Cloon-Free, one of the royal residences of Connaught, and in the vicinity of Carn Free, the crowning place of its kings, and of Rathcroghan, the Tara of the west, several other islands were discovered in the cluster of lakes which occur in that locality; in one of these, Cloonfinlough, "the island of the white lake," was brought to light another crannoge, of which Denis H. Kelly, Esq., gave a description in 1850 (see Proceedings, vol. v. p. 208). He says:—"The dimensions of the island are about 130 feet in diameter; it is constructed on oak piles (many of them showing the action of fire), driven into the soft marl, at regular distances, and tied together by horizontal oak stretchers so as to form a triple stockade round it, with an interval of about 5 feet between each stockade. Outside of this, to the north-westward, are a number of irregularly placed piles, stretching a short distance from the islet, and it was adjoining to them

the great deposit of bones was found. The centre of these stockades was laid with trunks of smallish oak trees, placed flat on the marl, and all pointing to a common centre, thus forming a platform whereon the island itself was constructed. When it was first observed, there was jutting out from the island to the lake, towards the west, a kind of jetty or pier, formed of a double row of piles and stretchers running parallel, about 8 feet asunder, and on which logs of timber were closely laid horizontally." Between the island and a ruined church on the mainland were found two canoes, hollowed out of single oak trees, and each not more than 2 feet wide. In making a section of the island it was found to consist of a close-laid pavement of irregular-sized boulder stones, strata of bones and burned earth, layers of flat-surfaced stones; and again, strata of black earth with bones, particularly those of oxen and other domestic animals. The antiquities found there were of a similar character to those procured from the Dunshaughlin crannoge, and will be described in their proper places in subsequent portions of this Catalogue.

Drumaleague Lough, in the vicinity of Lough Scur, county of Leitrim, was about a mile in length, and, when lowered thirteen feet, disclosed two crannoges, also a canoe of a single piece of oak, 18 feet long, 22 inches broad, square at stem and stern, and remarkable for having apertures for row-locks cut into the sides, like that described at p. 204.

Fig. 153, on the following page, is the plan of one of the islands discovered in Drumaleague Lough, and affords a good idea of the general arrangement of these timber structures. The outer paling of stakes includes a circle 60 feet in diameter, in some parts double or treble; "there are clusters of stakes in other portions of the island, some of which appear to have been placed with regard to a particular arrangement. A, the central oblong portion, consists of a platform of round logs, cut in lengths of from 4 to 6 feet, chiefly of alder timber. B, a collection of stones with marks of fire on

them. C, a heap of stiff clay. D, the root of a large tree, nearly buried in the peat, the surface of the wood bevilled off

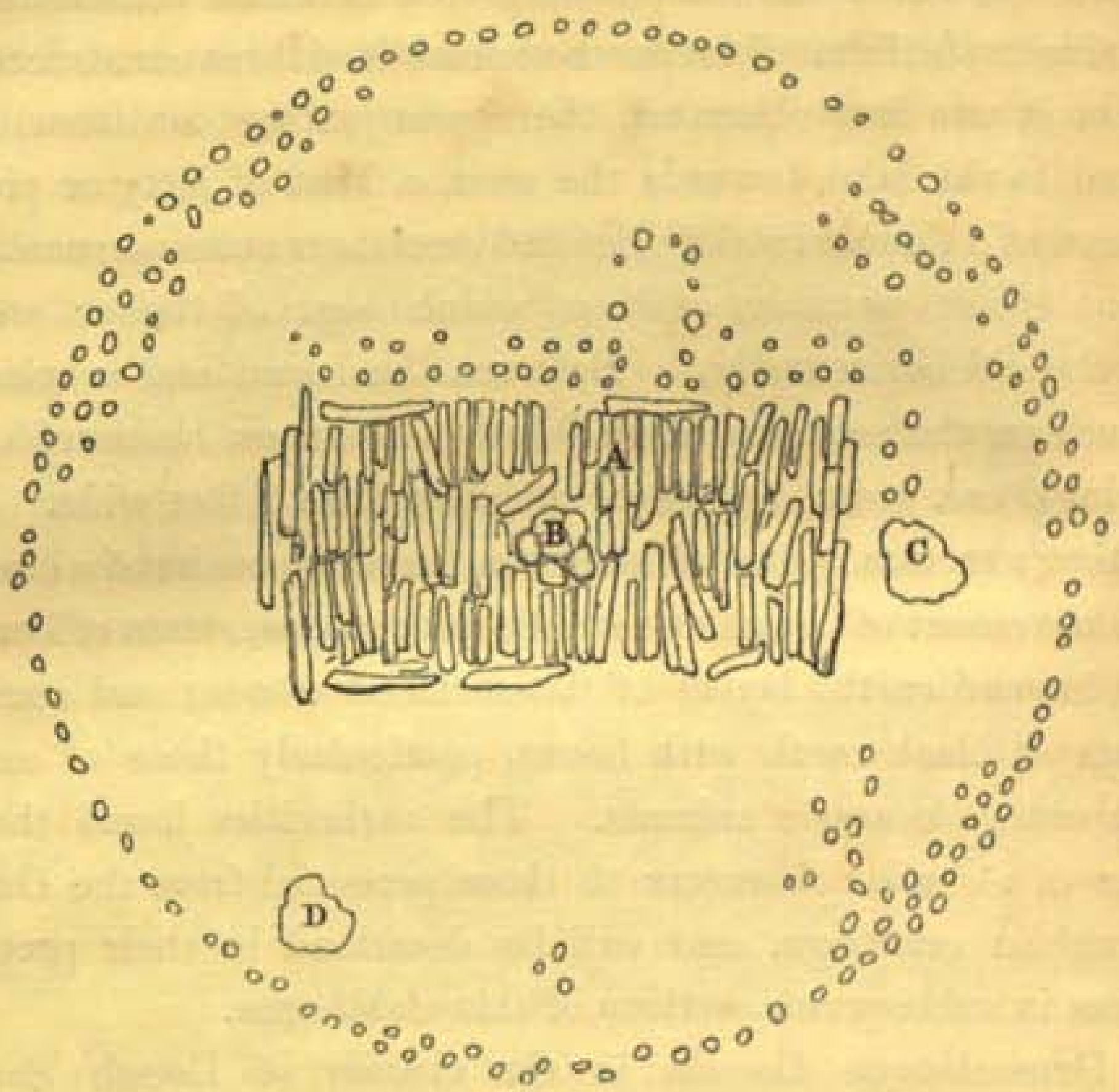

Fig. 153.

with a hatchet, so as to form a sort of table, under which a considerable quantity of bones was found, apparently those of deer and swine."*

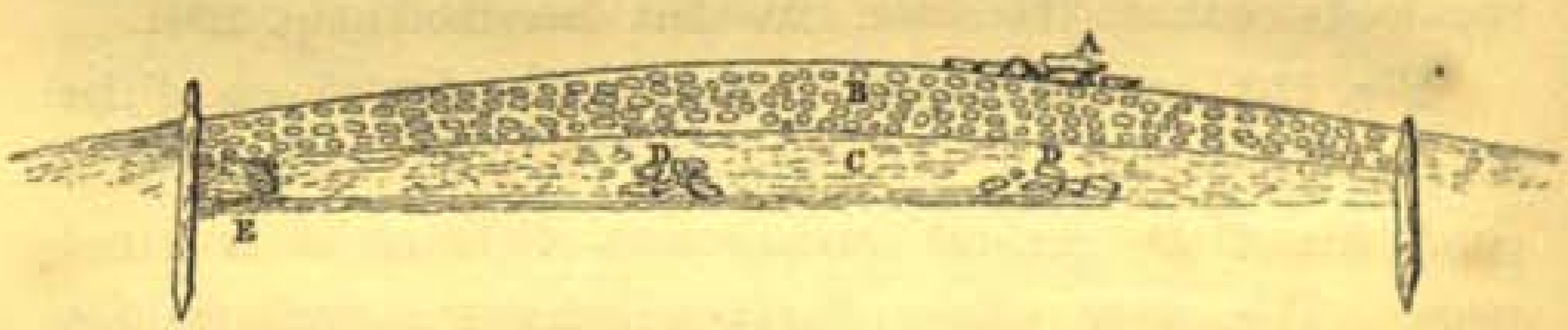

Fig. 154.

Fig. 154 shows a section of the second crannoge in Drumaleague Lake, which was 72 feet in diameter within the circle of oak stakes represented in the cut. Between these may

* The foregoing quotations are taken from the description attached to the map furnished by the Board of Works; the scale in the illustration is 20 feet to an inch.

be seen in the section—B—horizontal pieces of alder timber, laid upon the natural surface of the island, each log being "from 3 to 8 inches in diameter, all water-soaked and rotten. This stratum was 3 feet 6 inches deep. A, a heap of stones, with marks of fire on them; other hearths were found in different parts of the island. C, the lower stratum, of black, rotted sticks and branches of all sorts, lying in all directions. This stratum was examined for four feet in depth, and appeared to continue deeper. DD, two heaps of stones, found in the lower stratum. E, a large quantity of the bones of deer, swine, &c., found together about four feet below the surface. The circle of this island, which was tolerably regular, was formed by a single row of oak stakes."

The discoveries connected with Crannoges have been the greatest additions to the subject of Irish antiquities made during the present century. Besides the valuable donations to the Museum, and the reports of the engineers employed under the Board of Works, the Academy has been likewise furnished with several plans, maps, and sections of crannoges, worthy of the most careful preservation. From three of these drawings the woodcuts on pages 226 and 228 have been reduced.

The foregoing particulars will explain the nature of crannoges; and the following historic notices, together with the authorities from whence derived, may serve to give an additional interest to the subject, and also to fix the dates of their occupation:—

As the earliest discovered and examined crannoge in modern times has been that of Lagore, near Dunshaughlin, county of Meath, so, upon looking into the authorities, we find it the first alluded to. Loch Gabhair is said to have been one of the nine lakes which burst forth in Ireland A. M. 3581.—*Annals of the Four Masters.* See also Colgan's "Acta Sanctorum," p. 422, n. 14. In A. D. 848, we read that Cinaedh, son of Conaing, lord of Cianachta-Breagh, in

Meath, went with a strong force of foreigners, and plundered the Ui-Neill from the Sionainn (the Shannon) to the sea; "and he plundered the island of Loch Gabhor, and afterwards burned it, so that it was level with the ground." And in the old translation of the "Annals of Ulster," Codex Clarendensis, the passage is thus rendered:—"And brake down the island of Loch Gavar to the very bottom." Again, in A. D. 933, the same authority informs us that—"The iland of Loch-Gavar [was] pulled down by Aulaiv O'Hivair," and the cave of Knowth, on the Boyne, plundered during one of the Scandinavian marauding expeditions with which the kingdom was then troubled. Thus we have evidence that Lagore crannoge was occupied upwards of one thousand years ago.

A.D. 991:—"The wind sunk the island of Lough Cimbe (now Lough Hackett, near Headford, county of Galway) suddenly, with its dreach and rampart, that is, thirty feet."—*Annals of the Four Masters.* This circumstance is likewise recorded in the "*Annals of Clonmacnoise*" under the year 984.

A. D. 1246. "Turlough, the son of Hugh O'Conor, made his escape from the crannoge (wooden house) of Lough Leisi, in autumn, having drowned his keepers."—*Annals of the Four Masters.* This lake, although no longer known by that name, has been recognised by Dr. O'Donovan as Muickeanagh Lough, in O'Hanly's country, near the old church of Kilglass, county of Roscommon, and not far from the site of the Strokestown crannoges. It is also alluded to under the year 1452, as the scene of the murder of Loughlin Oge O'Hanly.

A. D. 1368. "Teige, the son of Manus, son of Cathal, the son of Donnell O'Conor, was treacherously taken prisoner by Rory, the son of Turlough, at his own fortress at Ard-an-choillin,"—the height of the little wood,—now Ardakillin, in the parish of Killukin, county of Roscommon; in the neighbourhood of which is the lake bearing the same name, but formerly called Lough Cairgin, and referred to in 1388, thus:—"Donnell O'Conor made an incursion into Machaire-Connacht, and burned Ard-an-choillin and the island Loch-Cairgin."—*Annals of the Four Masters.* The level of this lake was lowered by the Board of Works in 1850, when four artificial islands were discovered in it, on the principal of which upwards of fifty tons of bones were found.

A. D. 1436. "The crannoge of Loch-Laoghaire (near Clogher, in Tyrone) was taken by the sons of Brian O'Neill."—*Annals of the Four Masters.* The O'Neills, it is said, on arriving at the lake commenced the construction of cots or small boats, for the purpose of taking the crannoge. This island is also referred to in A. D. 1150.

A. D. 1455. "Turlough, the son of Philip Maguire, went to Loch Melge (now Lough Melvin, on the borders of Leitrim and Fermanagh), and took and plundered Mac Clancy's crannoge on it."—*Annals of the Four Masters.*

A. D. 1495. "Magauran, Chief of Tullyhaw, was drowned in Loch Crannoige," or the lake of the crannoge, now Ballywillin Lough, county of Cavan.—*Annals of the Four Masters.*

A. D. 1512. Philip Maguire made an incursion into Tullyhaw, county of Cavan, and "from thence they proceeded to the crannoge of Magauran, which they took."—*Annals of the Four Masters.*

A. D. 1540. The O'Donnells "went into the crannoge of Loch Beiathaigh," now Lough Veagh, in the parish of Gartan, county of Donegal; and "O'Donnell broke down and demolished the crannoge."—*Annals of the Four Masters.*

A. D. 1560. Teige O'Rourke "was drowned in the autumn of this year, as he was going across a lake to sleep in a low retired crannoge, in Muintir-Eolais,"—Mac Rannall's country, in the county of Leitrim, possibly one of those on Drumaleague Lough recently examined.

A. D. 1591. The map of the escheated territories made for the Government by Francis Jobson, or the "Platt of the county of Monaghan," preserved in the State Paper Office, contains rough sketches of the dwellings of the petty chiefs of Monaghan, which "are in all cases surrounded by water. One is to be found in every barony distinguished as '*The Iland*,' that in Farney was at *Lisanisk*, then called '*Lysonske*,' and is marked in the map as 'The Iland Ever M'Cooley's house.'" The crannoge at Lisanisk, alluded to above, was excavated in 1843 by C. C. Gibson, Esq., who found, "seven feet below the present surface of the earth, in the little island at Lisanisk, and two feet below the present water-level of the lake, a double row of piles, formed of young trees from 6 to 12 inches in diameter, with the bark on; the area enclosed by these

piles was 60 feet in length, by 42 in breadth. Vast quantities of bones were also found there; and also, in a small island in the lake of Monalty, not far from Lisanisk, a canoe or boat formed out of a single piece of oak, and measuring 24 feet in length, besides stone and bronze celts, and hunting spears, and various other instruments were found. The largest house of this description in Ireland is said to have been on an island in Lough Allen, county of Leitrim;* it was the residence of Mac Anaw (now Ford), one of O'Rourke's sub-chieftains."—Shirley's *Account of the Territory or Dominion of Farney*. "The crannoge," adds Mr. Shirley, "was the universal system of defence in the north of Ireland. Thus, one Thomas Phettiplace, in his answer to an inquiry from the Government, as to what castles or forts O'Neil hath, and of what strength they be, states (May 15, 1567), 'For castles I think it be not unknown unto your honors, he trusteth no point thereunto for his safety, as appeareth by the raising of the strongest castles of all his countreys, and that fortification that he only dependeth upon is *in sartin ffreshwater loghes* in his country, which from the sea there come neither ship nor boat to approach them; it is thought that there in the said fortified islands lyeth all his plate, which is much, and money, prisoners, and gages; which islands, hath in wars tofore been attempted, and now of late again by the Lord Deputy there, Sir Harry Sydney, which for want of means for safe conduct upon the water it hath not prevailed."

In Marshal Bagenal's description of Ulster, A. D. 1586, published in the "Ulster Journal of Archæology," vol. ii., p. 142, the following reference to O'Neill's condition appears to contain an allusion to a crannoge:—"You shall do verie well to see his lodgings in the fen, where he built his lodging, and kept his cattell and all his men." And, adds the editor, Mr. H. F. Hore, "this stronghold was undoubtedly a crannoge or wooden house, and was probably constructed either on the 'little island called Loch Coe,' mentioned by Bagenal, or on the artificial one called Inish-na-gardy, or Guard Is-

* Inis na Conaire, now called "O'Reilly's Island," opposite Drumshambo, on the county of Leitrim side of Lough Allen, might have been fortified, but it never could have been a crannoge in the strict sense of that term, at least, as I understand it, and have endeavoured to explain it in the foregoing description.—W. R. W.

land in Loughinsholin," county of Derry. It was said to be "a place of considerable strength, and successfully defended by O'Hagan in the wars subsequent to 1641" (see also Dr. Reeves' Notes to "Primate Colton's Visitation," p. 76).

A. D. 1603. Hugh Boy O'Donnell having been wounded, "was sent to crannog-na-n-Duini in Ross Guill, in the Tuathas, to be healed." This wooden house of Duini was situated in the parish of Mevagh, county of Donegal, between Redhaven and Sheephaven.—*Annals of the Four Masters.*

Even so late as 1610 we read of Crannagh Mac Knavin, in the parish of Tynagh, barony of Leitrim, and county of Galway (see "The Tribes and Customs of Hy-Many," edited by John O'Donovan, LL. D.

No doubt many other notices of crannoges will appear in the subsequent investigations of materials for Irish history.

Shortly after the discovery of the Irish crannoges, structures very similar in character were observed in some of the lakes in Switzerland, and have been described by Professor Ferdinand Keller in the "Transactions of the Antiquarian Society of Zurich," vol. ix. The winter of 1853–54 having proved unusually dry and cold, the lakes of Switzerland, deprived of their usual supply from the mountains, fell far below the level previously known to the oldest historians of these localities. In consequence thereof, as well as the result of some previously dry seasons, several Celtic stockades, *Keltische Pfahlbauten*, or crannoges, were discovered in the Lakes of Zurich, Biel, Sempach, Neufchatel, Geneva, and Wallenstad, of which those only in the two former were examined. In the crannoge of Meilen, in the Lake of Zurich, the enclosure extended along the shore, and the stakes, or piles of oak, beech, birch, and fir, which formed it, were pointed at the lower ends, some of them by burning, others with the stone axe. This timber piling was in such a decayed condition that it was not possible to examine it accurately. The piles were placed from 1 foot to 18 inches apart.

Within this enclosure were found quantities of animal remains, especially those of stags and wild swine, the former bearing traces of having been acted upon by stone implements; no bones of domestic animals were brought to light, but much of the bone heap had been destroyed before the place was investigated. One perfect human skull, and fragments of several skeletons, were found. Upwards of one hundred stone implements,—celts, hatchets, hammers, and whetstones, &c., were found, some of them of foreign origin; also knives and scrapers of flint, pins and other pieces of bone, and bowls and vases of earthenware. Some of the tools of flint and stone were inserted into hafts of bone or deer-horn, which were again perforated transversely for the passage of a handle. Several large flags, apparently hearthstones, were also discovered. Although many flint implements were found, it is remarkable that this material is very rare in Switzerland. An amber bead, and a quantity of hazel-nuts, were found, but the only metal object discovered was a single piece of bronze.

Traces of a similar crannoge were discovered near Mänedorf, in the Lake of Zurich, in 1844, but had not been investigated in 1854.

In the Lake of Biel, near Nidau, a crannoge island, two or three acres in extent, and consisting of an accumulation of round stones, which appeared to have been transported there, has been discovered, but it is still submerged. It is surrounded by piles, and connected with the neighbouring land by a causeway. The antiquities at this island of Sternberg were chiefly of bronze, a few iron points, some earthenware, and a canoe formed out of a single piece of oak. In this lake another submerged crannoge was discovered, distant about 150 feet from the beach—bronze implements were found in it. Also at Lattringen, upon the same lake, two other places have been noticed, showing evidence of crannoge stakes. At Möringen, in the same locality, were found the remains of a submerged

crannoge, with three single-piece canoes, some bronze antiquities, an iron sword, and several clay rings. Three other crannoges were found in the Lake of Biel, at Hagenech, Kleine Insel, and Peters-Insel, but which have not yet been fully explored. An immense canoe, 50 feet long, by from 3½ to 4 broad, and half filled with stones, has been observed embedded in the mud in the neighbourhood of the latter.*

Log-houses. — Another kind of habitation among the Celtic Irish was that of the Log-house, constructed altogether of beams and planks of timber, and in form resembling the Swiss chalet, a model of one of which, *Presented by Colonel Larcom*, may be seen on the ground-floor of the Museum. The ancient structure of which it is the model was discovered in 1833, in Drumkelin bog, parish of Inver, county of Donegal, by a man searching for bog timber, and was described at the time by Captain W. Mudge, R. N., in the "Archæologia" (see vol. xxvi. p. 361).† As shown in the plan, the house consisted of a square structure, 12 feet wide, and 9 feet high, formed of rough blocks and planks of oak timber, apparently split with wedges. The framework was composed of upright posts and horizontal sleepers, mortised at the angles, the end of each upright post being inserted into the lower sleeper of the frame, and fastened by a large block of wood or fore-lock. "The mortises were very roughly cut, as if they had been made with a kind of blunt instrument, the wood being more bruised than cut; and it may be inferred that a stone chisel [celt] which was found lying upon the floor of the house was the identical tool with which the mortises were cut. By

* *Die Keltischen Pfahlbauten in den Schweizerseen beschrieben von Dr. Ferdinand Keller.* Zürich, 1854. My attention was called to the subject of the Swiss crannoges by Dr. Siegfried, Professor of Sanscrit in Trinity College, Dublin.

† The original communication, together with detailed drawings and plans, &c., was sent to Colonel Larcom, then conducting the Irish Survey, and may now be seen in the "Specimen Book," a most valuable collection of original letters, maps, and drawings, preserved in the library of the Academy, and from which some useful information bearing upon the subject of this Catalogue has been derived.

comparing the chisel with the cuts and marks of the tool used in forming the mortises and grooves, I found it," adds Captain Mudge, "to correspond exactly with them, even to the slight curved surface of the chisel; but the logs have evidently been hewn with a larger instrument in the shape of an axe, which I have no doubt was also of stone, as the marks, though larger than those the chisel would have made, are of the same character, being rather hollow and small cuts, and not presenting the smooth flat surface produced by our common iron axe."

The roof was flat, and the house consisted of two compartments, one over the other, each 4 feet high. The top of the house was 14 feet below the surface of the bog, and, therefore, nearly 26 feet of bog must have grown up within and around it since the period of its occupation. The interstices between the planks in the floorings were filled with a cement, which appeared to be grease and fine sea-sand. The house stood upon a stratum of bog, 15 feet deep, between which and the floor was spread a layer of fine sand, over the surface of a layer of hazel-bushes. A paved causeway, resting upon a foundation of hazel-bushes and birch-wood, led for some distance from the house to the remains of a fire-place, on which was a quantity of ashes, charred wood, half-burned turf, and hazel nutshells.

This appears to have been a very ancient dwelling, surrounded by a staked enclosure, portions of the gates of which were discovered. Upon a level with the floor, and in its immediate vicinity, were found the roots and trunks of several large trees, of bog-sallow, ash, and oak, in an upright position; these probably coexisted with the occupation of the dwelling, which appeared to be only one portion of a collection of houses, and was probably used for sleeping in. A piece of a leather sandal, an arrow-head of flint, and a wooden sword, were subsequently found in the locality. Whether this wooden house is similar in character

to those which formerly existed on the stockaded islands, and may have given them their names of crannoges, is now a matter of conjecture; but, judging from the amount of bog which had accumulated around and above it, as well as the evidence afforded by the flint weapon and stone tool discovered, it must be of immense antiquity. The different steps in the model represent portions of the cut-away bog.

Wooden Houses must have been common in remote districts in Ireland, and were probably similar to the foregoing, although it does not appear that they were known by the name of crannoge. Bird-cage wooden houses, like those so frequently met with in England, were not uncommon in some of the old towns in Ireland. The two last structures of this description existed in Dublin and Drogheda,—the former stood at the corner of Castle-street and Werburgh-street, and was taken down in 1813. The house in Drogheda stood until 1824; and, when removed, the bressimer facing Laurence-street, and containing the following inscription in antique raised letters, each about 6 inches long—was presented to the Royal Dublin Society, and has been, by that body, deposited in the Academy. The inscription runs thus:—Made Bi Nicolas Bathe In The Iere of our Lorde God 1570 Bi Hiv Mor Carpenter. A star separates each word. The family of Bath had considerable possessions in the neighbourhood of Drogheda about the middle and end of the sixteenth century. The timber is oak, and in two pieces, the united length of which is about 31 feet. See "Dublin Penny Journal," vol. i. pages 89 and 268.

Boxes, composed of timber, although common, and many of great antiquity, have not yet found their way into the Academy, with the exception of one small ornamented oak chest, bearing this inscription—"Com not in hest, to open this chst," and the date "1616, I. W." It is 1 foot 9 inches long, and 1 foot high, and had an ingeniously con-

trived secret compartment within it. It was—*Presented by Barclay Clibborn, Esq.*

In the commencement of Rail-case E may be seen twenty-two small articles: most of which appear to be connected with household economy, and are arranged from Nos. 116 to 137. They consist of piercers, stamps, the fragment of a wheel, and the handles and covers of wooden vessels, &c. Of these the most worthy of notice are No. 120, a very perfect and beautiful wooden bodkin, 4½ inches long. Nos. 122 and 123 are conical bits of carved wood, like chessmen. The former, however, is hollowed at the base, as if for the insertion of a stamp, and the latter is carved upon the face of the base with a device not unlike a seal; each is 2½ inches high. No. 135, the oaken top of a spear-handle, found *in situ;* and No. 136, an arrow-head or skewer, like those from Coumanare mountain, in Kerry, and to which reference has been made at page 200.* All these articles were found in crannoges.

Books.—As there is no species in the classification devoted to objects connected with literature, the following example of an ancient wooden book may be placed under the head of Articles of Furniture and Domestic Use. In Rail-case F will be found one cover and four leaves of an ancient waxed tablet-book of pine,† found in a bog at Maghera, county of Derry, and—*Presented by the Rev. J. Spencer Knox*, an account of which was read to the Academy in May, 1845, by the Rev. J. H. Todd, D.D., President, and has been published in the Transactions, vol. xxi. part 2. The leaves and cover are

* Portions of wood resembling in shape that found in Dunshaughlin and those discovered in Coumanare Bog were also found, in connexion with a kistvaen, at Foulksrath (see "Transactions of the Kilkenny Archæological Society," vol. i. p. 382.)

† In the foregoing description of the various woods I have taken the opinions of intelligent and experienced tradesmen; but in many instances, owing to the great age and the alterations made by time upon the surface of the article, considerable difficulty was experienced in determining the kind of timber of which the object was composed.

of pine wood, each 4½ inches long, and 2½ wide; the cover is carved into compartments for holding the style, and possibly the wax, &c. The leaves are coated to within a quarter of an inch of the edge with wax, now become almost black. "The letters are traced on the wax with a sharp point, and are still in some places very legible; the character is Irish, although the language is Latin." A large portion of the writing has been deciphered, but "appears to have been little better than mere scribbling;" portions of it appear to be rules of grammar, and it has been conjectured that the book "was probably the property of some schoolmaster or scholar, who had inscribed upon it, amongst other things, his exercises in grammar and dialectics." The characters are as old as the thirteenth or fourteenth century; but it would appear, adds Dr. Todd, that the ancient wax tablets or memoranda books "were in size and form very similar to ours; and, therefore, as far as form, size, and material can be considered a criterion, our tablets may be as old as the eleventh century." The wax leaves are coated upon both sides. Along with these curious objects are placed several fragments of the leather cover found along with the book, and which was curiously embossed.

Under the head of Species IV. may be enumerated three other articles connected with literature, Nos. 138, 139, and 140, in the Glass-case of the Eastern Gallery. The first is one of the ancient oaken covers of the Book of Lecan (an ancient Irish MS. preserved in the Academy). It is 13 inches long, 9 wide, and ½ an inch thick, and is covered with thin leather, and studded with brass fastenings. It was—*Presented by Dr. Petrie.* No. 139 is the ancient cover of another Irish MS. No. 140 is a reading-stand, hinged in the centre by what is termed a knuckle-joint, and ingeniously constructed out of the same piece. It is 12½ inches long, and 9 broad. It was found deep in a bog in the Rosses, county of Donegal, and—*Presented by Lord George Hill.*

SPECIES V.—DRESS AND PERSONAL DECORATION.

In Rail-case E may be seen a few wooden pins and fibulæ found in crannoges, resembling in every respect some of the metal and bone implements used for similar purposes; and, as already stated at page 168, two wooden beads which formed part of a collection of such articles found in that at Ardakillin. But at no period, in any country, or in any state of society where harder materials could be obtained, have objects of personal decoration been formed out of recent vegetable productions.

All the articles of vegetable material connected with dress or personal decoration have been arranged in Rail-cases E and F. Following the small articles belonging to Class IV. may be seen fourteen pins, principally of yew and deal.

ORDERS II. AND III.—AMBER AND JET.

Amber and jet, both of vegetable structure, have, wherever they were attainable, been employed in forming ornaments, such as beads, rings, bracelets, buttons, and fasteners, &c. The Academy possesses a very extensive collection of amber beads, amounting to four hundred and eighty, inclusive of the eleven alluded to in connexion with the crannoge beads already described at pp. 167 and 168. They vary in size from the smallest necklace bead to the largest specimen, which is $2\frac{3}{4}$ inches in diameter; and are nearly all of the globular form. The great bulk of them were obtained with the Dawson and Sirr collections, without any record of the circumstances or locality in which they were found. The Danish incursions were, in all probability, a fruitful source of such objects. Amber beads have been found amongst the personal objects in crannoges, and they are also said to have been found in ancient tumuli, but many were in modern use among the peasantry as prayer-beads.

JET appears to have been extensively employed in Ireland in the manufacture of decorative objects, and the Academy possesses sixty specimens, which are arranged in Rail-case F, and numbered from 1 to 60. They consist chiefly of necklace beads and studs, the latter perforated obliquely at the back, so as to form fibulæ or buttons. Nos. 21 to 25 are necklace beads, varying in size from $\frac{1}{2}$ to $\frac{3}{4}$ths of an inch in diameter. No. 26 is a heart-shaped piece of jet, imperfect at top, but originally 2 inches long—*Presented by Lord Farnham.* No. 27 is a small heart of jet. Nos. 28 to 37 are ten jet studs or buttons, square, circular, or oval in shape, and varying in size from 1 inch to $1\frac{3}{8}$ in their greatest length, convex and polished upon the external surface, but comparatively rough, and perforated by a semicircular aperture upon the under surface, of which the accompanying illustration, Fig. 155, drawn from No.

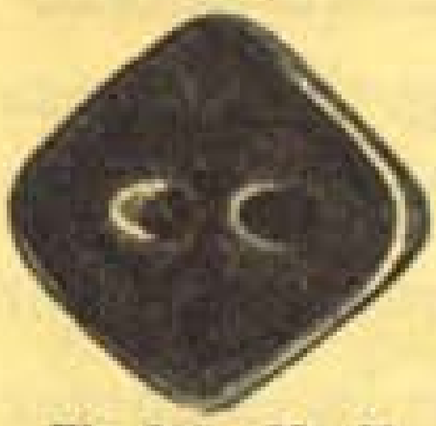

Fig. 155. No. 31.

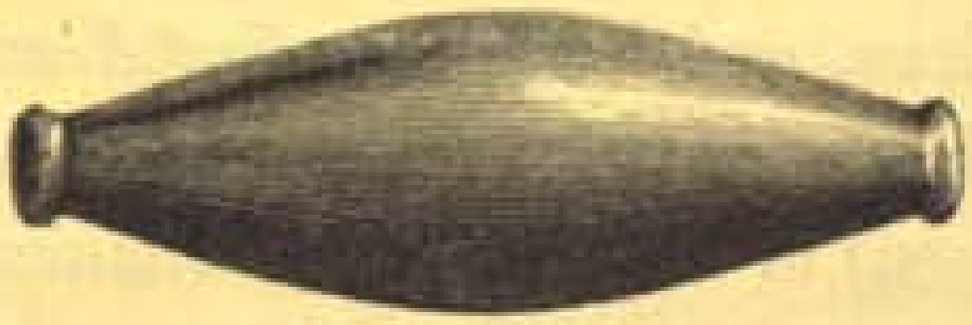

Fig. 157. No. 50.

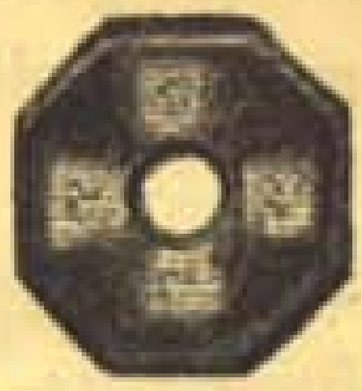

Fig. 156. No. 44.

31, affords a faithful representation. They have been arranged so as to show the back and front in alternate specimens. Articles of this description could have been sewn upon garments, and may have been used as buttons or fasteners. The chief peculiarity of these objects consists in the large oblique aperture drilled in the back, and by which they might have been attached to clothes, have formed heads to pins, or were strung together into necklaces. We find the original idea of this oblique aperture in the shell ornaments of the very earliest period figured on page 183. No. 38 is a jet boss, of a button-shape, 2 inches in diameter, and perforated by a number of holes passing obliquely through the top, possibly for sewing it to a garment. No. 39 is a bead, much worn in the aperture, as if by being long pendant. Nos. 40 to 43 are four jet

rings, the largest 1½ inches in diameter; No. 44, the next specimen, is a flat ring bead, 1¼ inches wide, having four leaden studs passing through it, either as an inlaid decoration or to prevent it splitting, a fracture appearing upon the edge. It is octagonal on the outside, and circular in the bore (see Fig. 156). Lead appears to have been the metal chosen for setting specimens of jet. Nos. 45 to 48 are four oblong or irregularly-shaped pieces of jet, perforated at the extremities, apparently for the purpose of attaching them to the strings of necklaces. Nos. 49, 50, and 51 are three oblong beads, the largest of which, No. 50, is shown by Fig. 157; it is 5 inches long, and 1§ wide, and was originally burred at each end, but it now, as well as the two other beads of the same variety, exhibits the marks of long and continuous wear. A similar oval bead of stone is represented by Fig. 95, on page 122.

Large rings, bracelets, and armlets of jet, are not uncommon in collections, and have been found among the objects brought to light in investigating crannoges. Nos. 52 to 60 are nine specimens of this variety of ornament, and consist of fragments, or nearly perfect rings, of jet, varying in diameter from 2¾ inches to 4¾. No. 52 is unpolished, and was apparently in process of formation. No. 53 was found at Loughlane, in the county of Westmeath, and No. 58 at Ballyhoe Lake, county of Louth. It was—*Presented by the Board of Works.* No. 59 is semicircular, flat on one side, convex on the other, and perforated as if for sewing to a dress. It has also leaden rivets at the ends. No. 60 is the only one of the set now nearly perfect; it is 4¼ inches in diameter, and 3⅜ in the clear, so that it may have been worn on the arm above the elbow. It had been fractured at one point, and was repaired by means of a silver plate or clasp. In Rail-case D may be seen the fragment of the large bracelet of jet found at Dowth (see page 167).

HORSE-TRAPPINGS. ORDER I.—WOOD.

HORSE-YOKES, as well as harness employed in working oxen and asses, follow next in succession; and of these, two specimens, No. 141, a wooden straddle, and No. 142, a two-horse yoke, both placed in the Eastern Glass-case, may be given as examples. This straddle, composed of two pieces of fir timber, each 17 inches long, by 8 broad, was found deep in a bog; similar implements are, however, still in daily use in remote country districts. No. 142, shown by Fig. 158, is an ancient horse or bullock-yoke, 3 feet 9 inches long, and 7 inches deep at the extremities, very ingeniously formed; there is an aperture in the centre, by which it was apparently attached to a pole, like that used in the modern curricle. Apertures also exist at either extremity of the lower end of the body, and likewise pass from above downwards through the curved extremities, which evidently overlapped the necks of the horses

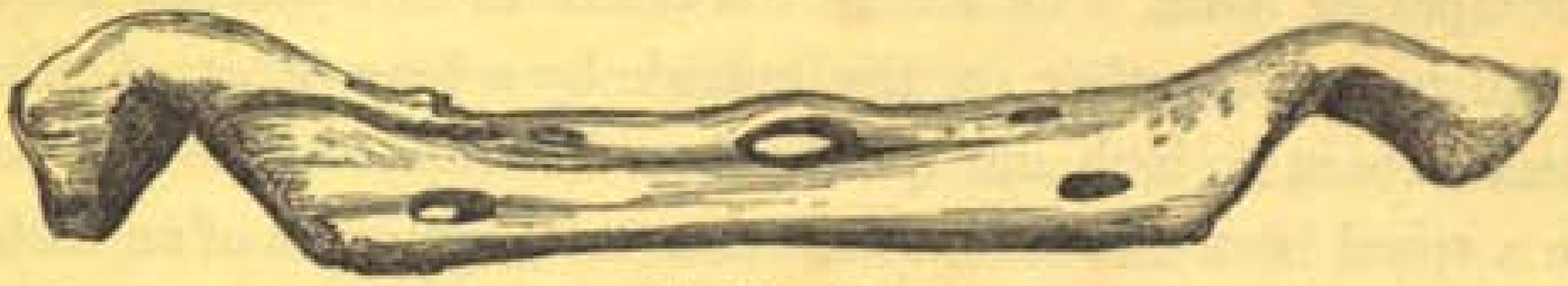

Fig. 158. No. 142.

upon which it was placed. It was apparently too light an implement to have been employed in ploughing; and yet the great length of time which has elapsed since the chariot was in use among the early Irish rather militates against the idea of its having been used for that purpose. It was found in a very fragile condition* in a bog near Castle Leslie, county of Monaghan, and was—*Presented by Charles Leslie, Esq.* No. 143 is an "Exchequer Tally," 3 feet 9 inches long.

* The form of this most curious implement has been preserved by saturating the wood with treacle and glue.

SPECIES VII.—MUSIC—HORNS.

The oldest presentation made to the Academy's collection is a conical tube, No. 144, 6 feet 4 inches long, 3¼ inches in diameter at the bottom, and tapering to a point, where it was supposed a mouth-piece had been affixed. Horns of this description, but much shorter, are common in Switzerland and the Tyrol. It was—*Presented by Lord Viscount Dillon*, and an account of it by Ralph Ousley, Esq., was read to the Academy in 1791, and has been published in vol. iv. of the Transactions, from which the following extract is made:—"It seems to have been originally a solid piece, which in that state was split from end to end; each of the pieces into which it was thus divided was then hollowed or grooved on the inside, and tapering in such a manner that, when joined again, these grooves, applying to each other, formed a circular and conical perforation through the whole length, resembling that of a trumpet or horn. To secure the pieces in this position they were bound together on the outside by a long fillet of thin brass, about an inch and quarter broad, wrapped round them in a spiral from one end to the other, with upwards of an inch of interval between the rolls, and fastened to the wood with small brass nails. The ends were secured by circular plates, probably of the same metal, as appears from marks still remaining on the surface of the wood, these pieces having been lost." A portion of the spiral brass plate still remains, and the instrument is in a state of good preservation. It appears to have been formed out of willow, and was found on the lands of Becan, barony of Costello, and county of Mayo, in August, 1791. According to the opinion of the author in the paper, it was one of the trumpets called in the Irish tales and romances "Benwowen or Buabhal, a military instrument used only on emergencies, and capable of producing a most tremendous sound." The only difficulty in accepting this explanation exists in the exceeding smallness of the aperture at the

narrow end; but then it is possible that it may have been provided with a reed or mouth-piece, which produced the desired effect. "It lay horizontally in a turf bog, about nine feet from the surface. When taken up it was perfectly straight, but has since warped somewhat in drying. The wood is still very sound."

Of the same class of instrument, and apparently constructed upon the same principle, are four pieces of wooden tubing, each averaging 28 inches in length, and about 2 inches in diameter, and so constructed as to fit one into the other at their extremities. When placed together they would form a tube 9 feet long, and making two-thirds of a circle. They were formed, like the foregoing specimen, by first splitting the wood, then hollowing out the centre, and afterwards bringing the sides together. The most curious circumstance connected with this instrument is the mode in which the sides were ingeniously joined by copper rivets, many of which still remain. It is said that, when found, there was a thin, ornamented brass plate extending along the joinings. These tubes were discovered in 1837, in the bog of Killyfaddy, near Clogher, county of Tyrone, and were—*Presented by J. Huband Smith, Esq.*

Harps.—As a flute, clarionet, or piano, depends for its tone more upon its wooden than its bone or metallic materials, so the harp may with propriety be placed among the objects composed of vegetable material. There are two harps in the Academy's collection, placed upon the top of the glass-case of the Eastern Gallery, Nos. 1 and 2; the former, shown in the cut on the next page (Fig. 159), is 5 feet 2½ inches high, and 2 feet 8 inches broad at the widest portion. It had thirty-six wire strings; the pins are iron, inserted into a brass plate. The plate upon the sounding-board is also brass. The head of an eagle has been carved upon the top of the key-piece, and the figure of a rabbit surmounts the lower portion of it. This harp was procured with the collection of the late Major Sirr, and is said to have belonged to a bard of the O'Neills;

but it is probably not older than 250 years. No. 2 is a smaller specimen, 4 feet 6 inches high, and 2 feet 7 inches broad. It had thirty-five strings, attached to brass pins.

No. 3 is a model of the ancient Irish harp in the Museum of Trinity College, usually called "Brian Boroihme's harp." According to Dr. Petrie, this is "not only the most ancient instrument of the kind known to exist in Ireland, but is, in all probability, the oldest harp now remaining in Europe." Mr. Ferguson thus describes it:—"From recent examination it appears that this harp had but one row of strings, and that these were thirty in number. It is 32 inches high, and of exquisite workmanship: the extremity of the fore-arm is capped in part with silver, extremely well wrought and chiselled; it also contains a large crystal, set in silver, under which was another stone, now lost. The whole bears evidence of having been the work of a very expert artist, and it is unquestionably the most ancient harp in existence."

Fig. 159. No. 1.

For further description of the Irish harp, which was invariably strung with wire, the reader is referred to Mr. Ferguson's learned essay on the subject, in Bunting's "Ancient Music of Ireland," from which work the foregoing quotations have been made.

In the Moore Library, adjoining the Museum, may be seen the small modern harp belonging to the bard, made by Egan, of Dublin, which was presented to the Academy, along with his books, by Mrs. Moore.

THE IRISH ARCHÆOLOGICAL AND CELTIC SOCIETY.

MDCCCLVII.

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THE materials for Irish history, although rich and abundant, have hitherto been but to a small extent available to the student. The few accessible authorities have been so frequently used, and the works compiled from them are so incomplete, that the expectation of any accurate history of Ireland has been generally deferred, under the conviction that vast additions must be made to the materials at present available before any complete work of that nature can be produced. The immediate object of this Society is to print, with accurate English translations and annotations, the unpublished documents illustrative of Irish history, especially those in the ancient

and obsolete Irish language, many of which can be accurately translated and elucidated only by scholars who have been long engaged in investigating the Celtic remains of Ireland; and should the publication of these manuscripts be long delayed, many most important literary monuments may become unavailable to the students of history and comparative philology. The Society will also endeavour to protect the existing monumental and architectural remains of Ireland, by directing public attention to their preservation from the destruction with which they frequently are threatened.

The publication of twenty-one volumes, illustrative of Irish history, has been completed by the Irish Archæological Society, founded in 1840, and the Celtic Society, established in 1845. The present Society has been formed by the union of these two bodies, under the name of the "Irish Archæological and Celtic Society," for the preservation of the monuments illustrative of Irish history, and for the publication of the historic, bardic, ecclesiastical, and topographical remains of Ireland, especially such as are extant in the Irish language. Since the union of the two Societies, two important volumes have been published.

The Books of the Society are published solely for the use of its Subscribers, who are divided into two classes: Members, who pay three pounds admission, and one pound per annum; and Associates, who pay an annual subscription of one pound, without any entrance fee. The Fundamental Laws of the Society regulate the privileges of each class of Subscribers, who can also obtain the publications of the two former Societies, at the rates, and under the conditions specified in the present Prospectus.

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PUBLICATIONS OF THE IRISH ARCHÆOLOGICAL SOCIETY,

FOUNDED MDCCCXL.

1841.

I. TRACTS RELATING TO IRELAND, vol. I., containing:

1. The Circuit of Ireland; by Muircheartach Mac Neill, Prince of Aileach; a Poem written in the year 942 by Cormacan Eigeas, Chief Poet of the North of Ireland. Edited, with a Translation and Notes, and a Map of the Circuit, by JOHN O'DONOVAN, LL. D., M. R. I. A.
2. "A Brife Description of Ireland, made in the year 1589, by Robert Payne, vnto XXV. of his partners, for whom he is vndertaker there." Reprinted from the second edition, London, 1590, with a Preface and Notes, by AQUILLA SMITH, M. D., M. R. I. A. (Out of print.)

II. THE ANNALS OF IRELAND, by James Grace, of Kilkenny. Edited from the MS. in the Library of Trinity College, Dublin, in the original Latin, with a Translation and Notes, by the Rev. RICHARD BUTLER, A. B., M. R. I. A. Price 8s.

1842.

I. Cath Muighi Rath. The Battle of Magh Rath (Moira), from an ancient MS. in the Library of Trinity College, Dublin. Edited in the original Irish, with a Translation and Notes, by JOHN O'DONOVAN, LL.D., M.R. I. A. Price 10s.

II. TRACTS RELATING TO IRELAND, vol. II. containing:

1. "A Treatise of Ireland; by John Dymmok." Edited from a MS. in the British Museum, with Notes, by the Rev. RICHARD BUTLER, A. B., M. R. I. A.
2. The Annals of Multifernan; from the original MS. in the Library of Trinity College, Dublin. Edited by AQUILLA SMITH, M. D., M. R. I. A.
3. A Statute passed at a Parliament held at Kilkenny, A. D. 1367; from a MS. in the British Museum. Edited, with a Translation and Notes, by JAMES HARDIMAN, Esq., M. R. I. A. Price 10s.

1843.

I. An Account of the Tribes and Customs of the District of Hy-Many, commonly called O'Kelly's Country, in the Counties of Galway and Roscommon. Edited from the Book of Lecan in the Library of the Royal Irish Academy, in the original Irish; with a Translation and Notes, and a Map of Hy-Many, by John O'Donovan, LL. D., M.R.I.A. Price 12s.

II. The Book of Obits and Martyrology of the Cathedral of the Holy Trinity, commonly called Christ Church, Dublin. Edited from the original MS. in the Library of Trinity College, Dublin. By the Rev. John Clarke Crosthwaite, A. M., Rector of St. Mary-at-Hill, and St. Andrew Hubbart, London. With an Introduction by James Henthorn Todd, D. D., V. P. R. I. A., Fellow of Trinity College, Dublin. Price 12s.

1844.

I. Registrum Ecclesie Omnium Sanctorum juxta Dublin; from the original MS. in the Library of Trinity College, Dublin. Edited by the Rev. Richard Butler, A.B., M.R.I.A. Price 7s.

II. An Account of the Tribes and Customs of the District of Hy-Fiachrach, in the Counties of Sligo and Mayo. Edited from the Book of Lecan, in the Library of the Royal Irish Academy, and from a copy of the Mac Firbis MS. in the possession of the Earl of Roden. With a Translation and Notes, and a Map of Hy-Fiachrach. By John O'Donovan, LL.D., M. R. I. A. Price 15s.

1845.

A Description of West or H-Iar Connaught, by Roderic O'Flaherty, Author of the Ogygia, written A.D. 1684. Edited from a MS. in the Library of Trinity College, Dublin; with copious Notes and an Appendix. By James Hardiman, Esq., M.R.I.A. Price 15s.

1846.

The Miscellany of the Irish Archæological Society: vol. I. containing:

1. An ancient Poem attributed to St. Columbkille, with a Translation and Notes by John O'Donovan, LL. D., M. R. I. A.
2. De Concilio Hiberniæ; the earliest extant record of a Parliament in Ireland; with Notes by the Rev. R. Butler, M. R. I. A.
3. Copy of the Award as concerning the Tolboll (Dublin): contributed by Dr. Aquilla Smith, M. R. I. A.
4. Pedigree of Dr. Dominick Lynch, Regent of the Colledge of St. Thomas of Aquin, in Seville, A.D. 1674: contributed by James Hardiman, Esq., M. R. I. A.
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11. Original Charter granted by John Lord of Ireland, to the Abbey of Mellifont: contributed by Dr. A. SMITH, M. R. I. A.
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14. The Annals of Ireland, from A.D. 1453 to 1468, translated from a lost Irish original, by Dudley Firbise; with Notes by J. O'DONOVAN, LL.D., M. R. I. A. Price 8*s*.

1847.

The Irish Version of the HISTORIA BRITONUM of Nennius, or, as it is called in Irish MSS. Leabar Bhreathnach, the British Book. Edited from the Book of Ballimote, collated with copies in the Book of Lecan and in the Library of Trinity College, Dublin, with a Translation and Notes, by JAMES HENTHORN TODD, D. D., M. R. I. A., Fellow of Trinity College, &c.; and Additional Notes and an Introduction, by the Hon. ALGERNON HERBERT. Price 15*s*.

1848.

THE LATIN ANNALISTS OF IRELAND; edited with Introductory Remarks and Notes by the Very Rev. RICHARD BUTLER, M. R. I. A., Dean of Clonmacnois,—viz.:

1. The Annals of Ireland, by John Clyn, of Kilkenny; from a MS. in the Library of Trinity College, Dublin, collated with another in the Bodleian Library, Oxford.
2. The Annals of Ireland, by Thady Dowling, Chancellor of Leighlin. From a MS. in the Library of Trinity College, Dublin. Price 8*s*.

1849–50.

MACARIÆ EXCIDIUM, the Destruction of Cyprus; being a secret History of the Civil War in Ireland, under James II., by Colonel Charles O'Kelly. Edited in the Latin from a MS. presented by the late Professor M'Cullagh to the Library of the Royal Irish Academy; with a Translation from a MS. of the seventeenth century; and Notes by JOHN C. O'CALLAGHAN, Esq. Price 1*l*.

1851.

ACTS OF ARCHBISHOP COLTON in his Visitation of the Diocese of Derry, A. D. 1397. Edited from the original Roll, with Introduction and Notes, by WILLIAM REEVES, D. D., M. R. I. A. (Not sold.)

[PRESENTED TO THE SOCIETY BY THE REV. DR. REEVES.]

1852.

SIR WILLIAM PETTY'S NARRATIVE OF HIS PROCEEDINGS IN THE SURVEY OF IRELAND; from a MS. in the Library of Trinity College, Dublin. Edited, with Notes, by THOMAS A. LARCOM, Esq., R. E., V. P. R. I. A. Price 15*s*.

1853.

CAMBRENSIS EVERSUS; or, Refutation of the Authority of Giraldus Cambrensis on the History of Ireland, by Dr. John Lynch (1662), with some Account of the Affairs of that Kingdom during his own and former times. Edited, with Translation and copious Notes, by the Rev. MATTHEW KELLY, Royal College of St. Patrick, Maynooth. Three volumes. Price 4*l*.

A few complete Sets of the foregoing Publications (with the exception of that for 1851), can still be had by Members only. Application to be made to EDWARD CLIBBORN, Esq., Royal Irish Academy, Dawson-street, Dublin.

PUBLICATIONS OF THE CELTIC SOCIETY,

FOUNDED MDCCCXLV.

1847.

Leabar na g-Ceart, or, The Book of Rights; a Treatise on the Rights and Privileges of the Ancient Kings of Ireland, now for the first time edited, with Translation and Notes, by JOHN O'DONOVAN, LL. D., M. R. I. A. Prefixed to this volume are the following historical and critical dissertations by the Editor:—I. On the various Manuscripts of the Book of Rights. II. On the Saltair Chaisil, or Psalter of Cashel. III. On the will of Cathaeir Mor, and other pieces introduced into Leabhar na g-Ceart. IV. On the references to Tomar as King or Prince of the Danes of Dublin. V. On the Tract prefixed to the Book of Rights, entitled, 'The Restrictions and Prerogatives of the Kings of Eire.' VI. On the Division of the Year among the ancient Irish. VII. On the Chariots and Roads of the ancient Irish. VIII. On Chess among the ancient Irish (with engravings). IX. On the Irish Text and Translation. The large-paper copy contains full-length portraits of Archbishop Ussher, Luke Wadding, and Roderick O'Flaherty. Price 1*l*.

1848–50–51–52.

CAMBRENSIS EVERSUS, &c. as above. Three volumes. Price 4*l*.

[Given to Members of the Celtic Society for 1848, 1850–52; and to Members or Associates of the United Society for 1853.]

1849.

MISCELLANY OF THE CELTIC SOCIETY, containing:

A Treatise from the Book of Leacan on the O'h-Eidirsceoil's (O'Driscol's) Country, in the County of Cork.

A Historical Poem on the Battle of Dun (Downpatrick), A.D. 1260.

Sir Richard Bingham's Account of his Proceedings in Connacht, in the reign of Elizabeth.

A Narration of Sir Henry Docwra's Services in Ulster, written A.D. 1614; together with other original Documents and Letters illustrative of Irish History. Edited by JOHN O'DONOVAN, Esq., LL. D., M. R. I. A. Price 1*l*.

1853.

CATH MUIGHE LENA: The Battle of Magh Lena; an ancient historic Tale, edited by EUGENE CURRY, Esq., M. R. I. A., from original MSS. Price *1l.*

Complete Sets of the above Publications can still be had, by Members only, on application to MR. CLIBBORN.

PUBLICATIONS OF THE IRISH ARCHÆOLOGICAL AND CELTIC SOCIETY.

UNITED MDCCCLIII.

1854.

LIBER HYMNORUM: The Book of Hymns of the Ancient Church of Ireland; from the original MS. in the Library of Trinity College, Dublin. Edited by the Rev. JAMES HENTHORN TODD, D. D., Pres. R. I. A., Senior Fellow of Trinity College. Part I. Containing the following Latin Hymns, with Irish Scholia and Gloss:—

1. The Alphabetical Hymn of St. Sechnall, or Secundinus, in praise of St. Patrick. 2. The Alphabetical Hymn in praise of St. Brigid, attributed to St. Ultan, Bishop of Ardbreccan. 3. The Hymn of St. Cummain Fota. 4. The Hymn or Prayer of St. Mugint.

1855 and 1856.

THE LIFE OF ST. COLUMBA, by ADAMNAN, Ninth Abbot of Hy [or Iona]. The Latin text taken from a MS. of the early part of the eighth century, preserved at Schaffhausen; accompanied by Various Readings from six other MSS., found in different parts of Europe; and illustrated by copious Notes and Dissertations. By the Rev. WILLIAM REEVES, D. D., M. B., M. R. I. A. With Maps, and coloured Facsimiles of the MSS.

The two Parts are bound in one Volume, for the convenience of Members.

1857.

LIBER HYMNORUM: The Book of Hymns of the Ancient Church of Ireland; from the original MS. in the Library of Trinity College, Dublin. Edited by the Rev. JAMES HENTHORN TODD, D. D., Pres. R. I. A., Senior Fellow of Trinity College. Part II. (*In the Press.*)

1858.

Cogad Gaedhel re Gallaib. The Wars of the Irish and Danes. Edited, with a Translation and Notes, from a MS. in the Library of Trinity College, Dublin, collated with a MS. in the handwriting of Fr. Michael O'Clery, now in the Burgundian Library at Brussels. By JAMES HENTHORN TODD, D. D., Pres. R. I. A., assisted by JOHN O'DONOVAN, LL. D., M. R. I. A., and EUGENE CURRY, ESQ., M. R. I. A.

PUBLICATIONS SUGGESTED OR IN PROGRESS.

I. A Treatise on the Ogham or Occult Forms of Writing of the Ancient Irish; from a MS. in the Library of Trinity College, Dublin; with a Translation and Notes, and Preliminary Dissertation, by the Rev. Charles Graves, D. D., M. R. I. A., Fellow of Trinity College, and Professor of Mathematics in the University of Dublin. (*In the Press.*)

II. The Martyrology of Donegal.

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V. The Annals of Innisfallen; from a MS. in the Bodleian Library, Oxford.

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VII. The Genealogy and History of the Saints of Ireland: from the Book of Lecan.

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XII. Foṙuṙ Feaṙa aṅ Eiṙinn, or, The History of Ireland, by Dr. Geoffrey Keating.

XIII. Leabaṙ Dinn Seanċuṙ, or, History of the Noted Places in Ireland.

XIV. The Works of Giraldus Cambrensis relating to Ireland.

XV. Miscellany of the Irish Archæological and Celtic Society.

The Council will receive Donations or Subscriptions to be applied especially to any of the above Publications.

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REPORT OF THE AUDITORS.

AN ABSTRACT OF THE RECEIPTS AND EXPENDITURE OF THE IRISH ARCHÆOLOGICAL SOCIETY,

FROM THE 31ST DAY OF DECEMBER, 1851, TO THE 1ST DAY OF MAY, 1854.

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1852. *June* 1.	To Mr. Curry, on account of editing Cormac's Glossary,		15	0	0
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REPORT OF THE AUDITORS.

AN ABSTRACT OF THE RECEIPTS AND EXPENDITURE OF THE IRISH ARCHÆOLOGICAL AND CELTIC SOCIETY,

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2852.