OCCULT CHEMISTRY

INVESTIGATIONS BY CLAIRVOYANT MAGNIFICATION INTO THE STRUCTURE OF THE ATOMS OF THE PERIODIC TABLE AND OF SOME COMPOUNDS

BY

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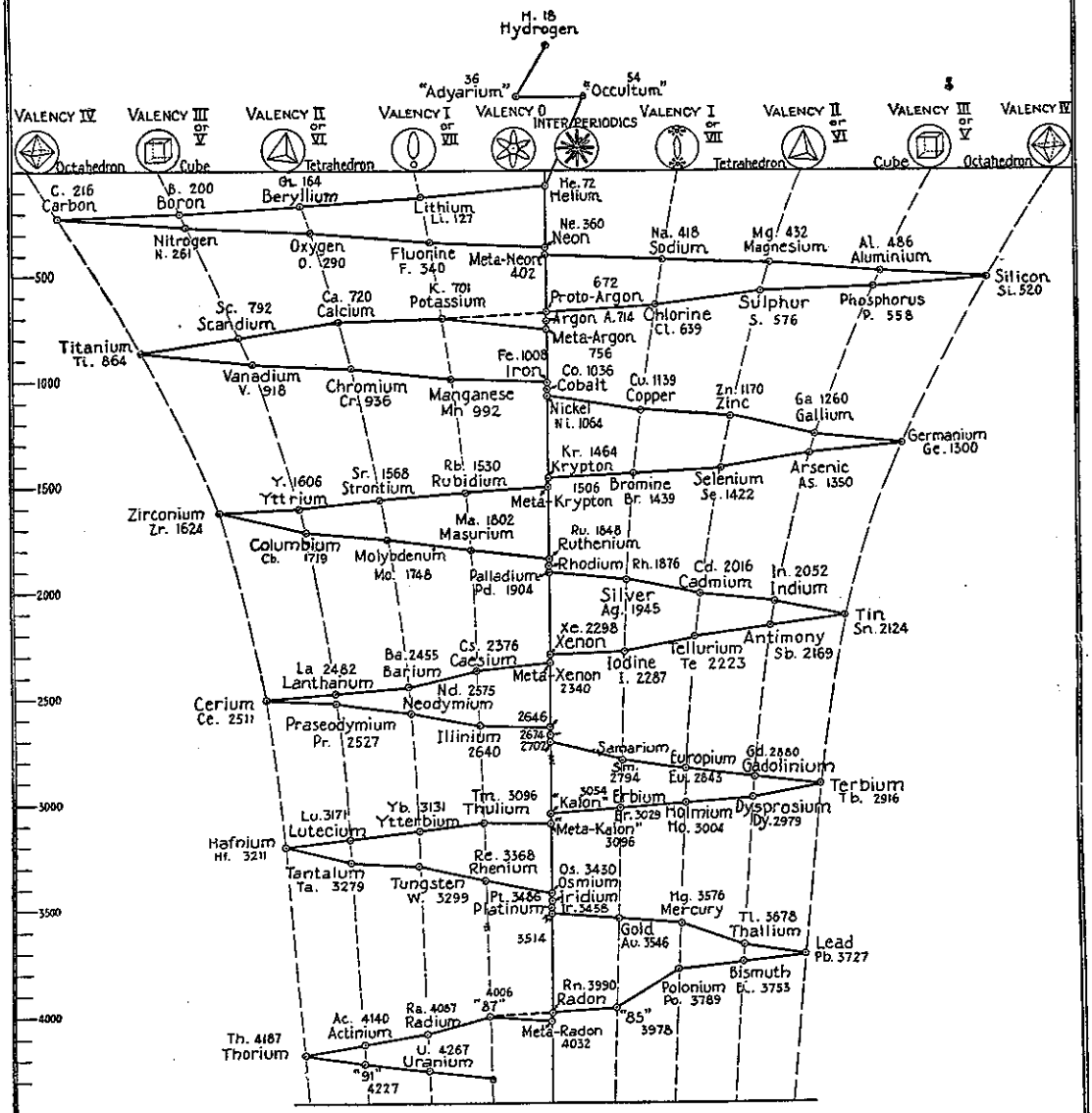
OCCULT CHEMISTRY

THE PERIODIC LAW

(after Crookes)



The number affixed to an element is the number of "Anu" (the ultimate physical particles of which matter is constituted) which compose the element.

Isotopes are not given.

Elements not yet discovered by chemists:- 36, 54, 2646, 2674, 3054-3096.

The Theosophical Society
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May 6, 1933.

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With 230 Illustrations

INTRODUCTION TO THE THIRD EDITION

BY C. JINARĀJADĀSA

THIS work contains a record of clairvoyant investigations into the structure of matter. The observations were carried out at intervals over a period of nearly forty years, the first in August 1895 and the last in October 1933. The two investigators, Annie Besant (1847-1933) and C. W. Leadbeater (1847-1934) were trained clairvoyants and well equipped to check and supplement each other's work.

Method of Investigation: The method is unique and difficult to explain. Many have heard of the word "clairvoyance" (clear-seeing), connoting the cognition of sights and sounds not perceived by ordinary people. In India the term *Yoga* is sometimes related to faculties that are beyond ordinary cognition. It is stated in Indian Yoga that one who has trained himself "can make himself infinitesimally small at will". This does not mean that he undergoes a diminution in bodily size, but only that, *relatively*, his conception of himself can be so minimized that objects which normally are small appear to him as large. The two investigators had been trained by their Eastern Gurus or Teachers to exercise this unique faculty of Yoga, so that when they observed a chemical atom it appeared to their vision as highly magnified.

When using this method the investigator is awake and not in any form of trance. He employs his usual faculties for recording what he observes; he maps out on a piece of paper a sketch of what he sees and may describe his impressions so that a stenographer can take down his remarks. Just as a microscopist, looking into the microscope and without removing his eyes from the slide, can describe what he observes so that it can be recorded, so the clairvoyant investigator watching an atom or molecule can describe what he sees in front of him. What he sees is not subjective, in the sense that it is a creation of the imagination; it is as objective as is the paper on which I am writing this and the pen which I use.

The object examined, whether an atom or a compound, is seen exactly as it exists normally, that is to say, it is not under any stress caused by an electric or magnetic field. As each object is in rapid motion, the only force brought to bear on it is a special form of will-power, so as to make its movement slow enough to observe the details.

The earliest investigations were made in England in 1895. The first atoms observed were four gases in the air, Hydrogen, Oxygen, Nitrogen, and a fourth gas (atomic weight=3) so far not discovered by chemists. The atoms do not carry their own labels and the first problem was that of identification. Most active of the four gases was one which the investigators considered was probably Oxygen. A somewhat lethargic gas was thought to be Nitrogen. The lightest of all four was

taken to be Hydrogen. But it was only after the fullest examination of the constituent parts of each gas (for each so-called "atom," the "un-cut-able," was found to be composed of smaller units) that finality was achieved regarding the identity of the gases. Hydrogen was found to be composed of 18 units; Nitrogen of 261; Oxygen of 290; and the fourth gas of 54. The weight of Hydrogen, composed of 18 units, was taken as atomic weight 1 (one), and the number of units in Oxygen and Nitrogen was divided by 18. The results agreed closely with the atomic weights given in textbooks and hence the gases were accepted as Hydrogen, Nitrogen and Oxygen. The atoms of these elements were never observed to move in pairs except in Deuterium. The fourth gas with atomic weight 3 was thought to be Helium, of which much had been said in the newspapers of 1894, following its discovery by Ramsay. It was only when the atomic weight of Helium was finally announced as 4, that the gas observed with weight 3 was realized as obviously a different gas. Later it was given the name of *Occultum*.

Diagrams and detailed descriptions of the internal structure of the atoms of Hydrogen, Oxygen and Nitrogen and of the *ultimate atoms*, or *Anu*, of which all the elements are composed, were first published in *Lucifer*, London, November 1895.

Work was resumed in 1907 when 59 more elements were observed.

When the element to be examined exists in a pure, easily obtainable state, as for example the elements Sulphur, Iron and Mercury, there was no difficulty as to the identification, even before mapping its structure. But a difficulty arose in the case of Lithium and other elements. A request for specimens of these elements was made to Sir William Crookes, a friend of both the investigators, and a member for some years of the Theosophical Society. He replied on July 18, 1907 to the mutual friend in London who contacted him, "Leadbeater's requirements constitute a large order. Of the list of requirements he sends I can give metallic Lithium, Chromium, Selenium, Titanium, Vanadium and Boron. Beryllium I can give him as an oxide. But Scandium, Gallium, Rubidium and Germanium are almost impossible to get, except perhaps in a very impure state."

It was then found by the investigators that it was not essential for the purpose of investigation to have an element unmixed or uncombined with any other element. In many compounds, the constituent atoms do not exist in juxtaposition, each retaining its atomic individuality, as is the theory in chemistry. Each atom breaks up into smaller parts and unites its parts with similar broken-up parts of the other atom or atoms, as the fingers of the right and left hands can interlock. In salt, Sodium and Chlorine are interblended in such a manner as to give to the compound the outline of a cube. By the exercise of will-power, the force holding the parts together as a molecule can be nullified; in such a case, the separated parts of each atom instantly group themselves as the atom was before combination. When, therefore, a salt molecule was "broken up," the parts composing Sodium came together, as the atom of Sodium; similarly the parts of Chlorine united to form a Chlorine atom.

As the investigations developed, many atoms were thus examined. The two investigators were spending a summer holiday at Weisser-Hirsch, near Dresden in Germany. My task was to record and draw diagrams of the elements as they were mapped out. There was in the city of Dresden an excellent museum, one section being devoted to minerals. I made a list of the wanted elements as they existed as compounds;

this could be obtained by consulting an encyclopaedia. I went with the list to the Dresden Museum, and noted down in which of the show-cases the elements needed existed as compounds. Soon after my return, C. W. Leadbeater and I went to Dresden and I showed him the minerals I had noted. He examined them quickly and obtained a picture of the complex configuration of the mineral in which existed the element he needed. After returning to Weisser-Hirsch he was able at leisure to evoke by clairvoyance the picture he had seen at Dresden. Exercising, then, his will-power on a mineral molecule, he dissolved the complex structure. On so doing, the separated parts of each atom united and formed an individual unit. Thus the pure element which he desired was before him for examination and for drawing. As each element was mapped and drawn the rough diagram of it was passed on to me, to draw carefully the essential parts of the element (for final half-tone line block), to count the units in it, divide the number by 18 (the number of units in Hydrogen), and to see how near our weights came to the weights given in the latest book on Chemistry.

During the investigations at Weisser-Hirsch in 1907, 59 elements (*not counting several isotopes observed*) were drawn by me. These were printed month by month in the magazine *The Theosophist*, published at Adyar, a suburb of Madras, beginning with the issue of January 1908.

In 1907 three unrecorded elements were described, to which the provisional names Occultum, Kalon and Platinum B were given, also a new group of three inter-periodics labelled X, Y and Z. Observations of Radium, with a diagram, were made at Adyar in 1908. The diagram was sent to me when I was in the United States, and there I drew the diagram which appeared in *The Theosophist* for December 1908.

The diagrams of all these elements were drawn by me and appeared in the first edition of *Occult Chemistry* published in 1909, which also included the article on *The Ether of Space.*

In 1909, the work was resumed by Mr. Leadbeater at the Headquarters of the Theosophical Society at Adyar, Madras. Twenty more elements were mapped out. The rough drafts of drawings were made but they were not published, though a general description was given in *The Theosophist* of July 1909. Three more unrecorded elements and an isotope of Mercury are described there.

In 1919 in Sydney, Australia, the first compounds, salt and water, were investigated and very rough models made.

A second edition of *Occult Chemistry* was issued in 1919, but it contained no additional matter and gave no record of any work after 1907. Mr. A. P. Sinnett, who edited this second edition, merely wrote an introduction.

In 1922 the work was again resumed in Sydney and descriptions of compounds were then given for the first time. Water and salt had been examined in 1919, but no diagrams drawn. Then in 1922 they were examined again and diagrams drawn, and several other compounds were examined, all of which were published in *The Theosophist*, March, April, August 1924; March, April, August, September, October 1925; July 1926. Some Carbon compounds of the chain and ring series were among those examined. A complicated structure investigated was the diamond, composed of 594 Carbon atoms. A model was made in Sydney and sent to me in India. A description of the structure and a photograph of the

model appeared in *The Theosophist*, September 1925. Hafnium was described in 1928 and Rhenium in 1931.

After C. W. Leadbeater came to Adyar in 1930 such remaining elements of the Periodic Table, which had not been previously investigated, were mapped out by him.

In 1932 and 1933 more material was published in *The Theosophist*. This included a description of elements 85, 87 and 91 and a list of atomic weights. An element of atomic weight 2 was reported in 1932, and given the name Adyarium, as the discovery was made at Adyar, Madras.

In this *Third Edition* the results of the later researches have been incorporated. All the material has been carefully revised and checked with the original drawings at Adyar. New diagrams have been made where necessary and the whole has been rearranged so as to display the facts more clearly.

In any scientific work progress continues and a text book needs amendments to bring it up to date in accordance with later discoveries. This third edition contains such necessary additions and corrections and represents as accurately as possible the material at present available.

Diagrams and descriptions, hitherto unpublished, of thirty compounds, are here included, as well as all the material published in *The Theosophist*.

This third edition is in three parts, Part I being the general introduction, Part II a detailed study of all the elements, and Part III containing all the information available concerning the combination of the elements into compounds.

From the material the following facts emerge :

The unit of matter. It was noted in 1895 that Hydrogen, the lightest atom, was not a unity, but was composed of 18 smaller units. Each such unit was then called an "ultimate physical atom". Some thirty years later it seemed simpler to use the Sanskrit term for this ultimate particle of matter; the word is "Anu," pronounced as in Italian, or in English as "ahnoo." The word Anu does not add "s" to make the plural but remains unchanged. The investigators knew no way of measuring the size of an Anu. The only difference found was that the Anu existed in two varieties, positive and negative, and that in their formation the spirals wound themselves in opposite directions. Thus, each negative Anu was a looking-glass image of the positive Anu. There was no investigation made as to the nature of positive and negative.

There are at least 100 chemical elements, not counting isotopes. Clairvoyant research in 1907 described a neutral gas, Kalon, heavier than Xenon and lighter than Radon. Two elements, called here Adyarium and Occultum, have their place in the Periodic Table between Hydrogen and Helium. The diagram of Occultum had been drawn in 1896; it was drawn again in 1909. There is among the rare earths a group of three minerals forming a new inter-periodic group. These were found in 1909 in pitchblende, which I sent from U. S. A. to Mr. Leadbeater, and their weights published. In 1907 a fourth member of the Platinum group was found and called Platinum B. Elements "87" and "91" were described.

Isotopes were seen and described as early as 1907. Some elements have a variety which is not a true isotope, since it differs in internal arrangement only, and not in weight. It was in 1913 that Soddy coined the term "isotope"; he had suggested in 1910

that atoms of the same chemical element might possess different mass. In 1907, during the clairvoyant investigations at Weisser-Hirsch, some isotopes were found; the investigators used the term "meta" to denote the second variety of the element. The first noted was the inert gas Neon, with atomic weight 20 (H=1); the second variety of Neon, labelled Meta-Neon, had the weight 22.33 (H = 1). Then it was found that Argon, Krypton, and Xenon each had an isotope. At the same time a still heavier inert gas was found, for which the label Kalon was coined, and an Isotope, Meta-Kalon. Each meta variety or isotope of the inert gases has 42 Anu more than the element which bears the name. A variety of Argon lighter than that recorded in chemistry was found and named Proto-Argon.

There was found in the third interperiodic group a second variety or isotope of Platinum. We labelled the normal variety Platinum A, and the isotope Platinum B. The diagrams of both varieties were drawn by me in Weisser-Hirsch and published in *The Theosophist*. In the issue of July 1909, an isotope of Mercury is mentioned, especially notable for the fact that it is solid.

External Shapes. The elements have definite shapes. With a few exceptions all the elements fall into 7 groups or forms: the groups were named Spikes, Dumb-bell, Tetrahedron, Cube, Octahedron, Crossed-bars, Star.

Valency can be subdivided, that is to say an atom with valency 1 can divide itself into two halves each exercising $\frac{1}{2}$ valency. Hydrogen divides itself into 2 or 6 parts each with $\frac{1}{2}$ or $\frac{1}{6}$ valency, when it enters into combinations. Similarly, elements having valencies 2, 3 or 4 can subdivide. The valency has some connection with the shape. Divalent elements are predominently tetrahedra, trivalent elements cubes, and quadrivalent octahedra.

When one element combines with another the atoms almost always break up. The combination is not of one atom with another as a whole, but the component parts are re-arranged to form a complex structure.

Periodic Law. Of all the diagrams stating the Periodic Law, we have found that of Sir William Crookes the simplest and the most descriptive of the facts observed. His reasons for a diagram depicting a pendulum swing were given by him in a lecture at the Royal Institution, London, on February 18, 1887 and published by him later. We use a slightly amended form of this pendulum diagram.

The ultimate physical atom. All the elements are found to be built up from units called in the early editions the ultimate physical atom, and to which the name *Anu* has since been given.

Weights. The weights given in the tables are all in terms of Hydrogen. We take Hydrogen=18 Anu as our standard and equal to 1. The relation between our weights and that of the International Tables can be found by adjusting our weights to the standard of H=1.0078.

Of course it was seen at once that the investigations made into the structure of the chemical elements and into a few molecular compounds were nothing more than the scratching of the surface of an enormous sphere. The number of problems that arose and the questions that might be asked are innumerable, but the two investigators led very busy lives, as lecturers and authors, and the researches into Occult Chemistry were only

incidental in their very heavy labours in the field of Theosophy. While both were willing, when time permitted, to do further investigations, it was impossible to get the time and isolation necessary for concentration for clairvoyant magnification. The two investigators and the recorder were frequently in different countries of the world, busy at their work of Theosophical propaganda, and it was rarely that all three met together for any considerable period.

Throughout the investigations, from the beginning to the end, my role was that of recorder.

It has often been asked whether the Anu is the electron. The answer is definitely, *No.* What it is remains to be determined.

A further question raised has been regarding the relation which these investigations have to the discoveries of physicists. At the moment, no relation can be found. I am reminded here of what happens when a new tunnel is to be pierced through a mountain. Two sets of engineers, with carefully triangulated plans, begin, one at either side of the mountain range, to cut through the mountain. Slowly they come nearer and nearer, till the partition separating them is so thin that the hammering from one side can be heard by the other. In the case of one tunnel that was built, the displacement between the two tunnels at the meeting point was only about one foot. Similarly, the occult investigators and the physicists are working from two sides of a great range. I feel sure that some day in the future they will meet. It must be remembered that the results of the physicists' researches have been from reading of spectroscopic records. The work that has been done is so wonderful in technique that out of the lines of the spectrum new elements can be located and their atomic weight deduced. Work such as Aston's mass spectroscopy, requires magnetic forces to be brought to bear upon the atom. As already mentioned no force except that of will-power is used by the occult investigator.

The recording of the two methods is not dissimilar to two photographs which night have been taken of Piccadilly Circus in London during the war. From five chief avenues of traffic vehicles are passing in various directions. If a photograph were to be taken there would not only be the picture of crowds of vehicles but also of pedestrians. This would be the state of Piccadilly Circus in normal times. But when an air raid alert is sounded, immediately everybody takes shelter and the only objects that might be found to be photographed would be fire engines, ambulances, the police and fire fighters. The second photograph would not be Piccadilly Circus in a normal condition. Similarly, the photographs of electrically excited atoms are not photographs of atoms under normal conditions. Nevertheless, the constituents of the atoms behave in such a regular fashion that the lines of the spectrum can be disentangled as characteristic of one atom, rather than that of another.

During the course of the many long years that I have been connected with *Occult Chemistry* as recorder, as I studied each new atom as it was mapped out, I have been profoundly impressed by two ideas: one, ingenuity, and the second, beauty. I have been strongly reminded of the maxim of the Platonic School: "God geometrizes". If, as they propounded, the universe is the result of the action of a Demiurge, "the Fashioner," then it is obvious that the Demiurge is not only a Great Architect of the Universe, but also a Grand Geometrician. For in some manner or other, whether

obvious or hidden, there seems to be a geometric basis to every object in the universe.

It is apparent from the diagrams in this work that the main thesis of Crookes of a "Genesis of the Elements" is borne out, since in a particular family the heavier element is built after what might be termed a pre-fixed model. It is in this slow building up that there appears what we can only term the working of a Divine Mind that introduces some incalculable factor for a heavier element. After I had drawn the diagrams of Iron, Cobalt and Nickel; Ruthenium, Rhodium and Palladium; Osmium, Iridium and Platinum; I could not help feeling that in the gap between the second and third groups in the Periodic Table there must exist another inter-periodic Group among what are known as the "rare earths". Working from the diagrams before me, I reconstructed theoretical diagrams for the missing group. This was in 1908. Later when I sent some minerals to Mr. Leadbeater from Montana, U. S. A., he found the missing inter-periodic Group. In my theorizing I gave for the new groups the weight of each "bar" as 185, 187 and 189. When the missing group was found, the weights were found to be 189, 191 and 193. In my diagram I had not calculated for something unexpected, which the Demiurge would do in constructing the new elements. All throughout it is this sudden emergence of a new idea from the mind of the Demiurge that is of the utmost fascination.

I have long desired complete leisure to construct a large circular room, on the walls of which would be placed enormously amplified diagrams of each element. Then, sitting in the middle on a revolving seat, I should like to meditate upon the diagrams before me, for I would then come into touch with the operations of the Divine Mind, which the Greeks postulated as not only Truth, but also Goodness and Beauty.

As a result of fifty-five years of pondering over the diagrams in *Occult Chemistry*, my mind has sought correlations with other natural objects. I have minerals showing the five Platonic solids in their structure. Why should a mineral, composed of diverse atoms, crystallizing under heat and pressure perhaps two thousand millions of years ago, crystallize into tetrahedra, cubes, octahedra, dodecahedra or icosahedra? Was it because in some unexplainable way the "form" or root-base of the mineral-to-be was influenced by the Platonic solids structure inherent in all the elements, with the exception of very few? When we see a dandelion in flower, the blossom is flat; when the flower has been fertilized and produces its seeds, why are the seeds arranged as a sphere? Many a time when noting such spherical seed-balls, my mind has pictured the sphere at the centre of Radium. There is a weed growing on Adyar Beach, which helps to hold the sand from drifting; it creeps to long lengths, and presently produces a seed-cluster like a stiff brush. We can separate the seeds and count their number, over one hundred. But why that particular number? Throughout the vegetable kingdom, geometrical forms appear in one form or another. But why? Of course, it is not for the strictly "scientific" mind to ask these questions. Yet did not Jeans say, "from the intrinsic evidence of His creation, the Great Architect of the Universe now begins to appear as a pure mathematician". And again, "the motions of electrons and atoms do not resemble those of the parts of a locomotive so much as those of the dancers in a cotillion".

When all is said and done, "Occult Chemistry," with its geometrical basic structures, is the source of all substances, and of all organisms built of those substances. A

day will come when a great synthesizer endowed with high mathematical and imaginative gifts will link physics and chemistry to the vegetable and animal kingdoms, and so to the human. Shall we then have a far-away glimpse of the Demiurge, the Fashioner, who builds in Beauty for everlasting ?

C. JINARĀJADĀSA

November 17, 1950.

NOTE

Nearly all the diagrams have been redrawn during the last three years, under the supervision of Miss Elizabeth W. Preston, who has been in touch with the work of *Occult Chemistry* for the last twenty years. I have put her in complete charge of the shaping of this Third Edition, and I desire to express to her my deepest obligation, since I am unable, with my heavy tasks as President of the Theosophical Society, to give adequate attention to supervision of the work myself.

C. J.

CHAPTER I

THE NATURE OF MATTER

AN article, bearing the title *Occult Chemistry*, appeared in *Lucifer*, November 1895, and was reprinted as a separate pamphlet in 1905. In that article three chemical elements, Hydrogen, Oxygen and Nitrogen, were clairvoyantly examined, and their analyses were presented tentatively to the public. The work was done by Mr. Leadbeater and myself. The pressing nature of our other labours prevented further investigation at the time, but we have, however, lately (1907) had the opportunity of pursuing these researches further, and as a considerable amount of work has been done, it seems worth while, still tentatively, to report the observations made. Certain principles seem to emerge from the mass of details, and it is possible that readers, who are better versed in chemistry than ourselves, may see suggestions to which we are blind. An observer's duty is to state clearly his observations; it is for others to judge of their value, and to decide whether they indicate lines of research that may be profitably followed up by scientists.

The drawings of the elements (in the first edition) were done by two Theosophical artists, Herr Hecker and Mrs. M. L. Kirby, whom we sincerely thank; the diagrams, showing the details of the construction of each element, we owe to the most painstaking labour of Mr. Jinarâjadâsa, without whose aid it would have been impossible for us to have presented clearly and definitely the complicated arrangements by which the chemical elements are built up. We have also to thank him for a number of most useful notes, implying much careful research, which are incorporated in the present series, and without which we could not have written these papers. Lastly, we have to thank Sir William Crookes for kindly lending his diagram of the grouping of the elements, showing them as arranged on successive "figures of eight," a grouping which, as will be seen, receives much support from clairvoyant observations.

As we study these complex arrangements, we realize the truth of the old Platonic idea that the LOGOS geometrizes; and we recall H. P. Blavatsky's statement that nature ever builds by form and number.

The physical world is regarded (1895) as being composed of between sixty and seventy chemical elements, aggregated into an infinite variety of combinations. These combinations fall under the three main heads of solids, liquids and gases, the recognized substates of physical matter, with the theoretical ether (Aether of space) scarcely admitted as material. It would not be allowed (by scientists) that gold could be raised to the etheric condition as it might be to the liquid and gaseous. The clairvoyant

finds that the gaseous is succeeded by the etheric state, as the solid is succeeded by the liquid. The etheric state is found to cover four substates, as distinct from each other as are solids, liquids and gases. All chemical elements have their four etheric substates, which, with the solid, liquid, and gaseous, give us seven substates of matter in the physical world.

The method by which these four etheric substates were studied consisted in taking what is called by chemists an atom of an element and breaking it up, time after time, until what proved to be the ultimate physical unit was reached.

HYDROGEN

The first chemical atom selected for examination was an atom of Hydrogen (H). On looking carefully at it, it was seen to consist of six small bodies, contained in an egg-like form, Fig. 1. It rotated with great rapidity on it own axis, vibrating at the same time, the internal bodies performing similar gyrations. The whole atom spins and quivers and has to be steadied before exact observation is possible. The six little bodies are arranged in two sets of three, forming two triangles that are not interchangeable. The lines in the diagram of the atom on the gaseous sub-plane, Fig 1, are not lines of force, but show the two triangles ; on a plane surface the interpenetration of the triangles cannot be clearly indicated. The six bodies are not all alike ; they each contain three smaller bodies—each of these being an ultimate physical atom or Anu. In two of them the three Anu are arranged in a line, while in the remaining four they are arranged in a triangle.

The first thing that happens on removing a gaseous atom from its 'hole' or encircling 'wall,' is that the contained bodies are set free, and, evidently released from tremendous pressure, assume spherical or ovoid forms, the Anu within each re-arranging themselves, more or less, within the new 'hole' or 'wall'. The figures are, of course, three-dimensional, and often remind one of crystals ; tetrahedra, octahedra, and other like forms being of constant occurrence.

It is, of course, impossible to convey in words the clear conceptions that are gained by direct vision of the objects of study, and Fig. 2 is offered as a substitute, however poor, for the lacking vision of the readers. The horizontal lines separate from each other the seven substates of matter ; solid, liquid, gas, ether 4, ether 3, ether 2, ether 1. The successive changes undergone by the Hydrogen atom are shown in the compartments vertically above it. It must be remembered that the bodies shown diagrammatically in no way indicate relative size ; as a body is raised from one substate to the one immediately above it, it is enormously magnified for the purpose of investigation.

When the gaseous atom of Hydrogen is raised to the E4 level the wall of the limiting spheroid in which the bodies are enclosed, being composed of the matter of the gaseous kind, drops away and the six bodies are set free. They at once re-arrange themselves in two triangles, each enclosed by a limiting sphere ; one sphere having a positive character, the other being negative. These form the Hydrogen particles of the lowest etheric plane, marked E4 (ether 4) in Fig. 2.

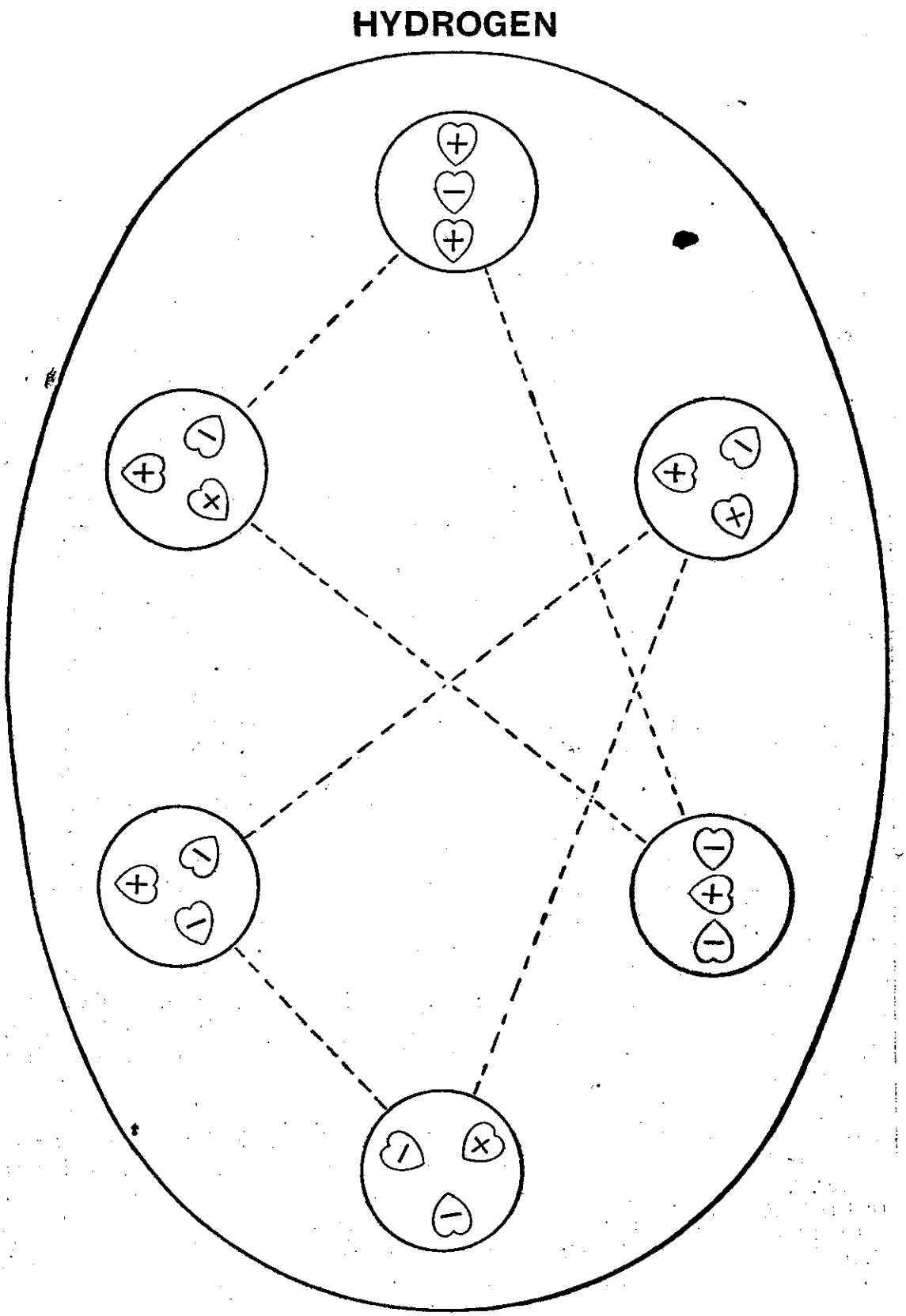


FIG. 1. HYDROGEN

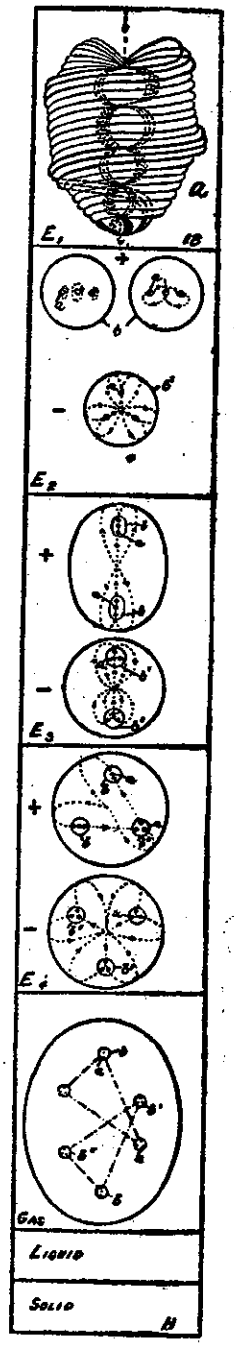


FIG. 2. DISINTEGRATION OF HYDROGEN

On raising to E3, they undergo another disintegration, losing their limiting walls. The positive sphere becomes two bodies, one consisting of the two groups distinguishable by the linear arrangement of the contained Anu, enclosed in a wall, and the other being the third body enclosed on the E4 level and now set free. The negative sphere also becomes two bodies, one consisting of the two groups of three Anu, and the second, the remaining body, being set free. These free bodies do not remain on the E3 level but pass immediately to E2 leaving the positive and negative groups, each containing two groups of three Anu, as the representatives of Hydrogen on E3. On taking these bodies a step higher to E2 in their turn, their wall disappears, and the internal triads are set free, those containing the Anu arranged lineally being positive, and those with the triangular arrangement being negative.

On again raising these bodies a step further, the falling away of the walls sets the contained Anu free and we reach the ultimate physical atom, the matter of E1, the Anu. The disintegration of this sets free particles of astral matter, so that we have thus reached the limit of physical matter.

The building up of a gaseous atom of Hydrogen may also be traced *downwards* from the E1 level. Every combination begins by a welling up of force at a centre, which is to form the centre of the combination. In the first positive Hydrogen combination on the E2 level, an Anu revolving at right angles to the plane of the paper and also revolving on its own axis, forms the centre, and force, rushing out at its lower point, rushes in at the depressions of two other Anu, which then set themselves with their points to the centre. As this triad whirls round, it clears itself a space, pressing back the undifferentiated matter of the plane, and making to itself a whirling wall of this matter, thus taking the first step towards building up the chemical Hydrogen atom. A negative triad is similarly formed, the three Anu being symmetrically arranged round the centre of out-welling force.

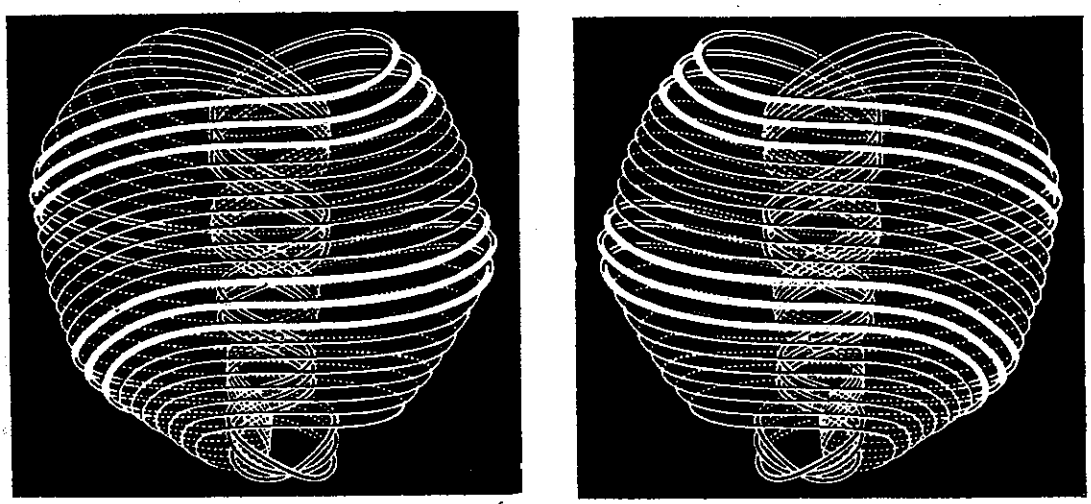
These triads then combine, two of the linear arrangement being attracted to each other and two of the triangular, force again welling up and forming a centre and acting on the triads as on a single Anu, and a limiting wall being again formed as the combination revolves round its centre.

The next stage, the E4 level, is produced by each of these combinations attracting to itself a third triad of the triangular type by the setting up of a new centre of up-welling force. Two of these uniting, and their triangles interpenetrating, the chemical atom is formed and we find it to contain all eighteen Anu.

Further details and diagrams concerning Hydrogen, based on later researches, are given in Chapter 2.

THE ULTIMATE PHYSICAL ATOM OR ANU

As we have seen, a chemical atom may be dissociated into less complicated bodies; these, again, into still less complicated; these, again, into yet still less complicated. After the third dissociation but one more is possible; the fourth dissociation gives the ultimate physical atom on the atomic sub-plane, the Anu. This may vanish from the plane, but it can undergo no further dissociation on it. In this ultimate state of physical matter two types of units, or Anu, have been observed; they are alike in everything save the direction of their whorls and of the force which pours through them. In the one case force pours in from the "outside," from fourth-dimensional space, the Astral plane, and passing through the Anu, pours into the physical world. In the second, it pours in from the physical world, and out through the Anu into the "outside" again, *i.e.*, vanishes from the physical world. The one is like a spring, from which water bubbles out; the other is like a hole, into which water disappears. We call the Anu from which force comes out *positive* or *male*; those through which it disappears, *negative* or *female*. All Anu, so far as observed, are of one or other of these two forms. Fig. 3.



POSITIVE NEGATIVE

FIG. 3. THE ANU

It will be seen that the Anu is a sphere, slightly flattened, and there is a depression at the point where the force flows in, causing a heart-like form. Each is surrounded by a field.

The Anu can scarcely be said to be a "thing," though it is the material out of which all things physical are composed. It is formed by the flow of the life-force and vanishes with its ebb. The life-force is known to Theosophists as Fohat, the force of which all the physical plane forces are differentiations. When this force arises in "space," that is when Fohat "digs holes in space,"—the apparent void which must be filled with substance of some kind, of inconceivable tenuity—Anu appear; if this be artificially stopped for a single Anu, the Anu disappears; there is nothing left. Presumably, were

that flow checked but for an instant, the whole physical world would vanish as a cloud melts away in the empyrean. It is only the persistence of that flow (the first life-wave, the work of the third Logos) which maintains the physical basis of the universe.

In order to examine the construction of the Anu, a space is artificially made. (By a certain action of the will, known to students, it is possible to make such a space by pressing back and walling off the matter of space.) Then, if an opening be made in the wall thus constructed, the surrounding force flows in, and three whorls immediately appear surrounding the "hole" with their triple spiral of two and a half coils, and returning to their origin by a spiral within the Anu; these are at once followed by seven finer whorls, which, following the spiral of the first three on the outer surface, and returning to their origin by a spiral within that, flowing in the opposite direction—form a caduceus with the first three. Each of the three coarser whorls, flattened out, makes a closed circle; each of the seven finer ones, similarly flattened out, makes a closed circle. The forces which flow in them again come from "outside," from a fourth-dimensional space. Each of the finer whorls is formed of seven yet finer ones, set successively at right angles to each other, each finer than its predecessor; these we call spirillae. (Each spirilla is animated by the life-force of a plane, and four are at present normally active, one for each Round. Their activity in an individual may be prematurely forced by yoga practice.)

In the three whorls flow currents of different electricities; the seven whorls vibrate in response to etheric waves of all kinds—to sound, light, heat, etc.; they show the seven colours of the spectrum; give out the seven sounds of the natural scale; respond in a variety of ways to physical vibration—flashing, singing, pulsing bodies, they move incessantly, inconceivably beautiful and brilliant.

The Anu is a sun in miniature in its own universe of the inconceivably minute. Each of the seven whorls is connected with one of the Planetary Logoi, so that each Planetary Logos has a direct influence playing on the very matter of which all things are constructed. It may be supposed that the three conveying electricity, a differentiation of Fohat, are related to the Solar Logos.

Force pours into the heart-shaped depression at the top of the Anu, and issues from the point, and is changed in character by its passage; further, force rushes through every spiral and every spirilla, and the changing shades of colour that flash out from the rapidly revolving and vibrating Anu depend on the several activities of the spirals; sometimes one, sometimes another, is thrown into more energetic action, and with the change of activity from one spiral to another the colour changes.

The Anu has—as observed so far—three proper motions, *i.e.*, motions of its own, independent of any imposed upon it from outside. It turns incessantly upon its own axis, spinning like a top; it describes a small circle with its axis, as though the axis of the spinning top moved in a small circle; it has a regular pulsation, a contraction and expansion, like the pulsation of the heart. When a force is brought to bear upon it, it dances up and down, flings itself wildly from side to side, performs the most astonishing and rapid gyrations, but the three fundamental motions incessantly persist. If it be made to vibrate, as a whole, at the rate which gives any one of the seven colours, the whorl belonging to that colour glows out brilliantly.

An electric current brought to bear upon the Anu checks their proper motions, *i.e.*, renders them slower; the Anu exposed to it arrange themselves in parallel lines, and in each line the heart-shaped depression receives the flow, which passes out through the apex into the depression of the next, and so on. The Anu always set themselves to the current. Fig. 4. In all the diagrams the heart-shaped body, exaggerated to show the depression caused by the inflow and the point caused by the outflow, is a single Anu.

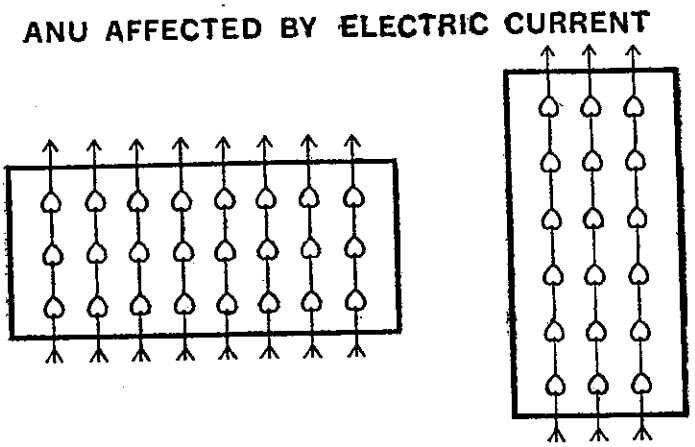


FIG. 4

The action of electricity opens up ground of large extent, and cannot be dealt with here. Does it act on the Anu themselves, or on molecules, or sometimes on one and sometimes on the other? In soft iron, for instance, are the internal arrangements of the chemical atom forcibly distorted, and do they elastically return to their original relations when released? In steel is the distortion permanent?

It will be understood from the foregoing, that the Anu cannot be said to have a wall of its own, unless these whorls of force can be so designated; its "wall" is the pressed back "space." As said in 1895, of the chemical atom, the force "clears itself a space, pressing back the undifferentiated matter of the plane, and making to itself a whirling wall of this matter." The wall belongs to space, not to the atom.

NOTE BY C. JINARĀJADĀSA

The sphere-wall of the Anu. Each Anu, as each group of Anu, whether few in number or making a large configuration as in Radium, has round it what has been termed a "sphere-wall". This enclosing sphere is at a great distance from the central group and is generally a sphere; there are a few exceptions as in Nitrogen, an ovoid. When writing out for publication the structure of the Anu, Annie Besant stated that the sphere-wall of the Anu was composed of the "undifferentiated matter of the plane". From the beginning this has created difficulties for me, since the term used by her to describe the sphere-wall could only be composed of Anu. It was only later that a special investigation was made to examine the nature of the sphere-wall of the Anu. Though there were no final conclusions on the matter, it appeared to the investigator as if the sphere-wall was composed of

forces radiating from the centre, which after travelling a certain distance, returned to the centre. The nature of this radiating force was not analyzed. Therefore, though the sphere-wall appears as a part of the Anu, it is only a temporary phenomenon. It was later discovered that the sphere-walls of Anu within the solar system were all compressed by the attraction of the sun. When so compressed the sphere-wall did not, as expected, have the shape of the dodecahedron, but that of the rhombic dodecahedron.

KOILON—THE AETHER OF SPACE

The following account was written by C. W. Leadbeater in 1907. It is reproduced here as giving further essential details concerning the relation between the planes of nature and the structure of the Anu :

The scientific hypothesis is that all space is filled with a substance called aether, as to the constitution of which many apparently contradictory statements are made. It is thought to be infinitely thinner than the thinnest gas, absolutely frictionless and without weight, and yet from another point of view far denser than the densest solid. In this substance the ultimate atoms of matter are thought to float as motes may be seen to float in the air, and light, heat and electricity are supposed to be its vibrations.

Theosophical investigators, using methods not yet at the disposal of physical science, have found that this hypothesis includes under one head two entirely different and widely separated sets of phenomena. They have been able to deal with states of matter higher than the gaseous, and have observed that it is by means of vibrations of this finer matter that light, heat and electricity manifest themselves to us. Seeing that matter in these higher states thus performs the functions attributed to the aether of science, they have (perhaps unadvisedly) called these states etheric, and have thus left themselves without a convenient name for that substance which fulfils the other part of the scientific requirements.

Let us for the moment name this substance koilon [1], since it fills what we are in the habit of calling empty space. What Mûlaprakriti or "mother-matter" is to the inconceivable totality of universes, koilon is to our particular universe—not to our solar system merely, but to the vast unit which includes all visible suns. Between koilon and Mûlaprakriti there must be very many stages, but we have at present no means of estimating their number or of knowing anything whatever about them.

To any power of sight which we can bring to bear upon it this koilon appears homogeneous, though it is not probable that it is so in reality. It answers to scientific demands in so far that it is out of all proportion denser than any substance known to us—

[1] Greek word meaning "hollow"—C. J.

quite infinitely denser—belonging to another order and type of density altogether. For the very kernel and nexus of the whole conception is that what we call matter is *not* koilon, but the *absence of koilon.* So that to comprehend the real conditions we must modify our ideas of matter and space—modify them almost to the extent of reversing our terminology. Emptiness has become solidity and solidity emptiness.

To help us to understand more clearly let us examine the ultimate atom of the physical plane. (See Figs. 3 and 6.) It is composed of ten rings or wires, which lie side by side, but never touch one another. If one of these wires be taken away from the atom, and as it were untwisted from its peculiar spiral shape and laid out on a flat surface, it will be seen that it is a complete circle—a tightly twisted endless coil. This coil is itself a spiral containing 1,680 turns; it can be unwound, and it will then make a much larger circle. There are in each wire seven sets of such coils or spirillae, each finer than the preceding coil, to which its axis lies at right angles. The process of unwinding them in succession may be continued until we have nothing but an enormous circle of the tiniest imaginable dots lying like pearls upon an invisible string. These dots are so inconceivably small that many millions of them are needed to make one ultimate physical atom. They appear to be the basis of all matter of which we at present know anything; astral, mental and buddhic atoms also are built of them, so we may regard them as fundamental units of which all material atoms on any plane yet attainable are composed.

These units are all alike, spherical and absolutely simple in construction. Though they are the basis of all matter, they are not themselves matter; they are not blocks but bubbles. They do not resemble bubbles floating in the air, which consist of a thin film of water separating the air within them from the air outside, so that the film has both an outer and an inner surface. Their analogy is rather with the bubbles that we see rising in water, bubbles which may be said to have only one surface—that of the water which is pushed back by the contained air. Just as the bubbles are not water, but are precisely the spots from which water is absent, so these units are not koilon but the absence of koilon—the only spots where it is not—specks of nothingness floating in it, so to speak, for the interior of these space-bubbles is an absolute void to the highest power of vision that we can turn upon them.

What then is their real content—the tremendous force that can blow bubbles in a material of infinite density? What but the creative power of the Logos, the Breath which He breathes into the waters of space when He wills that manifestation shall commence? These infinitesimal bubbles are the "holes" which "Fohat digs in space"; the Logos Himself fills them, and holds them in existence against the pressure of the koilon because He Himself is in them. These units of force are the bricks which He uses in the building of His universe, and everything that we call matter, on however high or low a plane it may be, is composed of these and so is divine in its very essence.

The Outbreathing which makes these bubbles is quite distinct from and long antecedent to the Three Outpourings which have been so frequently discussed in Theosophical literature; it is not even certain whether it is the work of the Solar Logos or of One a stage higher still. The later Outpourings whirl the bubbles into the various arrangements which we call the atoms of the several planes, and then aggregate those atoms into the molecules of the chemical elements.

Thus the worlds are gradually built up, but always out of this selfsame material which to us seems nothingness, and yet is divine power. It is indeed a veritable creation, a building of something out of nothing—of what we call matter out of a privation of matter.

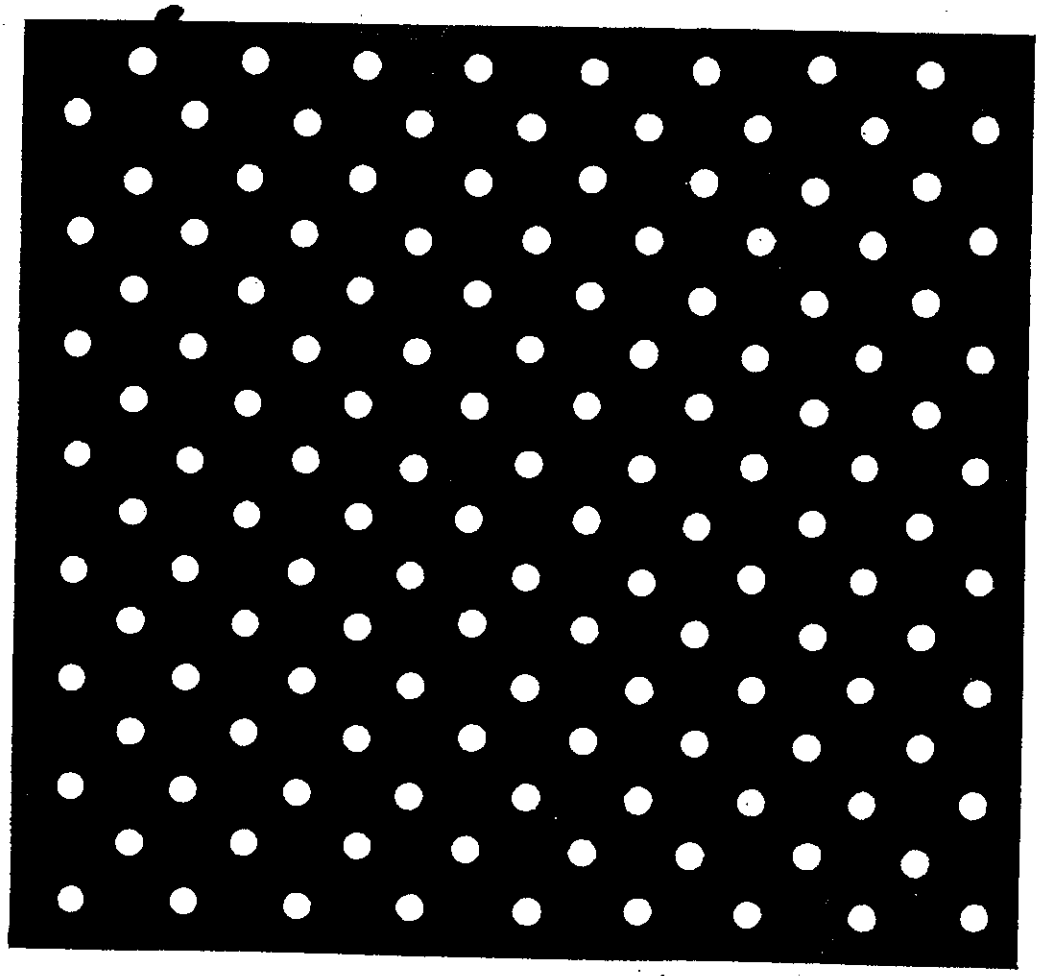


FIG. 5. BUBBLES IN KOILON

The exact number of these bubbles included in an ultimate physical atom is not readily ascertainable, but several different lines of calculation agree in indicating it as closely approximating to the almost incredible total of fourteen thousand millions. Where figures are so huge direct counting is obviously impossible, but fortunately the different parts of the atom are sufficiently alike to enable us to make an estimate whose margin of error is not likely to be very great. The atom consists of ten wires, which divide themselves naturally into two groups—the three which are thicker and more prominent, and the seven thinner ones which correspond to the colours and planets. These latter appear to be identical in constitution, though the forces flowing through them must differ, since each responds most readily to its own special set of vibrations. By actual counting it has been discovered that the numbers of coils or spirillæ of the first order in each wire is 1,680; and the proportion of the different order of spirillæ to one another is equal in all cases that have been examined, and corresponds with the number of bubbles in the ultimate spirilla of the lowest order. The ordinary sevenfold rule works quite accurately with the thinner coils, but there is a very curious variation with regard to the set of three. As may be seen from the drawings, these are obviously thicker and more prominent, and this increase of size is produced by an augmentation (so slight as to be barely perceptible) in the proportion to one another of the different orders of spirillæ and in the number of bubbles in the lowest. This augmentation, amounting at present to not more than ·00571428 of the whole in each case, suggests the unexpected possibility that this portion of the atom may be somehow actually undergoing a change—may in fact be in process of growth, as there is reason to suppose that these three thicker spirals orginally resembled the others.

Since observation shows us that each physical atom is represented by forty-nine astral atoms, each astral atom by forty-nine mental atoms and each mental atom by forty-nine of those on the buddhic plane, we have here evidently several terms of a regular progressive series, and the natural presumption is that the series continues where we are no longer able to observe it. Further probability is lent to this assumption by the remarkable fact that—if we assume one bubble to be what corresponds to an atom on the seventh or highest of our planes and then suppose the law of multiplication to begin its operation, so that 49 bubbles shall form the atom of the next or sixth plane, 2,401 that of the fifth, and so on—we find that the number indicated for the physical atom (49^6) corresponds almost exactly with the calculation based upon the actual counting of the coils. Indeed, it seems probable that but for the slight growth of the three thicker wires of the atom the correspondence would have been perfect.

It must be noted that an ultimate physical atom cannot be directly broken up into astral atoms. If the unit of force which whirls those millions of bubbles into the complicated shape of a physical atom be pressed back by an effort of will over the threshold of the astral plane, the atom disappears instantly, for the bubbles are released. But the same unit of force, working now upon a higher level, expresses itself not through one astral atom, but through a group of 49. If the process of pressing back the unit of force is repeated, so that it energizes upon the mental plane, we find the group there enlarged to the number of 2,401 of those higher atoms. Upon the buddhic plane the number of atoms formed by the same amount of force is very much greater still—probably the cube of 49 instead of

the square, though they have not been actually counted. It is also probable, though not certainly known, that the number of bubbles utilized by that unit of force is the same on all these planes, though grouped on the physical as one atom, on the astral as 49 atoms, on the mental as 2,401. Therefore one physical atom is not *composed of* forty-nine astral or 2,401 mental atoms, but *corresponds* to them in the sense that the force which manifests through it would show itself on those higher planes by energizing respectively those numbers of atoms.

The koilon in which all these bubbles are formed undoubtedly represents a part, and perhaps the principal part, of what science describes as the luminiferous æther. Whether it is actually the bearer of the vibrations of light and heat through interplanetary space is as yet undetermined. It is certain that these vibrations impinge upon and are perceptible to our bodily senses only through the etheric matter of the physical plane. But this by no means proves that they are conveyed through space in the same manner, for we know very little of the extent to which the physical etheric matter exists in interplanetary and interstellar space, though the examination of meteoric matter and cosmic dust shows that at least some of it is scattered there.

The scientific theory is that the aether has some quality which enables it to transmit at a certain definite velocity transverse waves of all lengths and intensities—that velocity being what is commonly called the speed of light. Quite probably this may be true of koilon, and if so it must also be capable of communicating those waves to bubbles or aggregations of bubbles, and before the light can reach our eyes there must be a downward transference from plane to plane similiar to that which takes place when a thought awakens emotion or causes action.

In a recent pamphlet on *The Density of Aether* Sir Oliver Lodge remarks "Just as the ratio of mass to volume is small in the case of a solar system or a nebula or a cobweb, I have been driven to think that the observed mechanical density of matter is probably an excessively small fraction of the total density of the substance, or æther, contained in the space which it thus partially occupies—the substance, of which it may hypothetically be held to be composed.

"Thus for instance, consider a mass of platinum, and assume that its atoms are composed of electrons, or of some structures not wholly dissimilar: the space which these bodies actually fill, as compared with the whole space which in a sense they 'occupy,' is comparable to one ten-millionth of the whole, even inside each atom; and the fraction is still smaller if it refers to the visible mass. So that a kind of minimum estimate of ætherial density, on this basis, would be something like ten thousand million times that of platinum." And further on he adds that this density may well turn out to be fifty thousand million times that of platinum. "The densest matter known" he says, "is trivial and gossamer-like compared with the unmodified æther in the same space."

Incredible as this seems to our ordinary ideas, it is undoubtedly an understatement rather than an exaggeration of the true proportion as observed in the case of koilon. We shall understand how this can be so if we remember that koilon seems absolutely homogeneous and solid even when examined by a power of magnification which makes physical atoms appear in size and arrangement like cottages scattered over a lonely moor, and when we further add to this the recollection that the bubbles of which these atoms

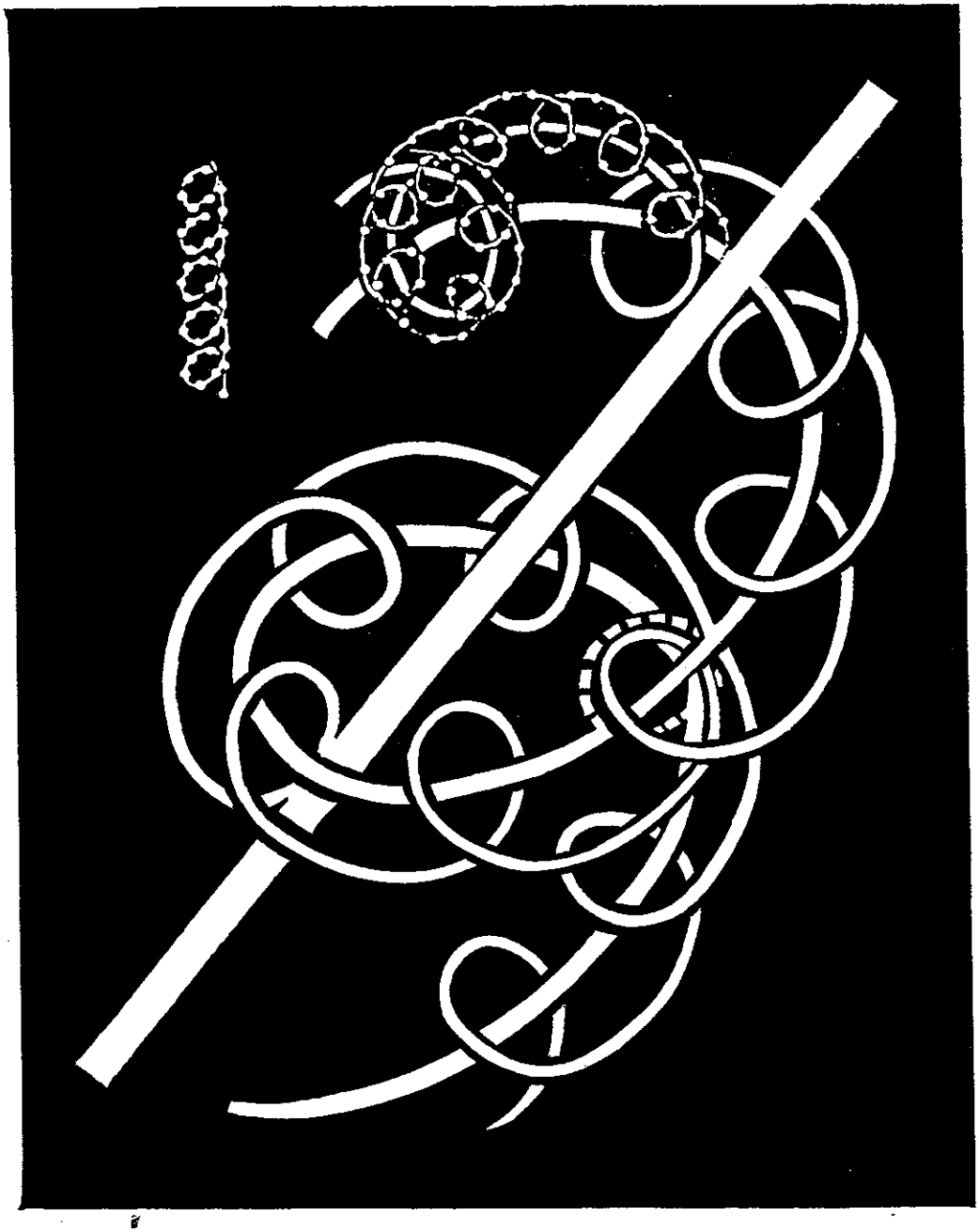


FIG. 5a. FORMATION OF BUBBLES INTO 1ST SPIRILLA AND 2ND AND 3RD SPIRILLAE

in turn are composed are themselves what may be not inaptly called fragments of nothingness.

In the same pamphlet Sir Oliver Lodge makes a very striking estimate of the intrinsic energy of the aether. He says "The total output of a million-kilowatt power station for thirty million years exists permanently, and at present inaccessibly, in every cubic millimetre of space." Here again he is probably underestimating rather than over-estimating the stupendous truth.

It may be asked how it is possible, if all this be so, that we can be so utterly unaware of the facts—how we can pass through and move amongst so dense a solid as this koilon without seeing or feeling it in any way. The answer is that consciousness can recognize only consciousness—that since we are of the nature of the Logos we can sense only those things which are also of His nature. These bubbles are of His essence, and therefore we, who are also part of Him, can see matter which is built of them, for they represent to us vehicles or manifestations of Him. But the koilon in which they move is of some other and as yet unknown nature, and therefore it is to us non-manifestation, and so imperceptible. We pass through it just as easily and unconsciously as a gnome passes through a rock, or as the wind blows through a network of iron wire. We live in it as mites live in a cheese or microbes in a body. The world built up of fragments of nothingness is to us the visible reality, just as to a miner his mine is an objective reality even though it consists of empty galleries hollowed out of the solid rock.

As none of our investigators can raise his consciousness to the seventh plane, it will be of interest to explain how it is possible for them to see what may very probably be the atom of that plane. That this may be understood it is essential to remember that the power of magnification by means of which these experiments are conducted is quite apart from the faculty of functioning upon one or other of the planes. The latter is the result of a slow and gradual unfoldment of the self, while the former is merely a special development of one of the many powers latent in man. All the planes are round us here, just as much as at any other point in space, and if a man sharpens his sight until he can see their tiniest atoms he can make a study of them, even though he may as yet be far from the level necessary to enable him to understand and function upon the higher planes as a whole or to come into touch with the glorious Intelligences who gather those atoms into vehicles for Themselves.

A partial analogy may be found in the position of the astronomer with regard to the stellar universe, or let us say the Milky Way. He can observe its constituent parts and learn a good deal about them along various lines, but it is absolutely impossible for him to see it as a whole from outside, or form any certain conception of its true shape and to know what it really is. Suppose that the universe is, as many of the ancients thought, some inconceivably vast Being; it is utterly impossible for us, here in the midst of it, to know what that Being is or is doing, for that would mean raising ourselves to a height comparable with His; but we may make extensive and detailed examination of such particles of His body as happen to be within our reach, for that means only the patient use of powers and machinery already at our command.

Let it not be supposed that, in thus unfolding a little more of the wonders of Divine truth by pushing our investigations to the very furthest point at present possible

to us, we in any way alter or modify all that has been written in Theosophical books of the shape and constitution of the physical atom, and of the wonderful and orderly arrangements by which it is grouped into the various chemical molecules; all this remains entirely unaffected.

Nor is any change introduced as regards the Three Outpourings from the Logos, and the marvellous facility with which the matter of the various planes is by them moulded into forms for the service of the evolving life. But if we wish to have a right view of the realities underlying manifestation in this universe we must to a considerable extent reverse the ordinary conception as to what this matter essentially is. Instead of thinking of its ultimate constituents as solid specks floating in a void, we must realize that it is the apparent void itself which is solid, and that the specks are but bubbles in it. That fact once grasped, all the rest remains as before. The relative position of what we have hitherto called matter and force is still for us the same as ever; it is only that on closer examination both of these conceptions of ours prove to be in reality variants of force, the one ensouling combinations of the other, and the real matter (koilon) is seen to be something which has hitherto been outside our scheme of thought altogether.

How vividly, how unmistakably this knowledge brings home to us the great doctrine of Maya, the transitoriness and unreality of earthly things, the utterly deceptive nature of appearances! When the candidate for initiation sees (not merely believes, remember, but actually *sees*) that what has always before seemed to him empty space is in reality a solid mass of inconceivable density, and that the matter which has appeared to be the one tangible and certain basis of things is not only by comparison tenuous as gossamer (the "web" spun by "Father-Mother"), but is actually composed of emptiness and nothingness—is itself the very negation of matter—then for the first time he thoroughly appreciates the valuelessness of the physical senses as guides to the truth. Yet even more clearly still stands out the glorious certainty of the immanence of the Divine; not only is everything ensouled by the Logos, but even its visible manifestation is literally part of Him, is built of His very substance, so that matter as well as spirit becomes sacred to the student who really understands.

Perhaps the consideration of these two factors may help us to comprehend many statements in *The Secret Doctrine*, such as (to select two references at random) that "matter is nothing but an aggregation of atomic forces" (iii, 398) and that "Buddha taught that the primitive substance is eternal and unchangeable. Its vehicle is the pure luminous ether, the boundless infinite space, not a void resulting from the absence of the forms, but on the contrary the foundation of all forms." (iii, 402)

It has been suggested (though this is merely a matter of reverent speculation) that in successive universes there may be a progressive diminution in the size of the bubbles—that it may be the very glory of a Logos that He can sacrifice Himself to the uttermost by thus thoroughly permeating and making Himself one with that portion of koilon which He selects as the field of His universe.

What is the actual nature of koilon, what is its origin, whether it is itself in any way changed by the Divine Breath which is poured into it—these are questions the answers to which investigation cannot as yet give, though they may perchance be found by an intelligent study of the great scriptures of the world.

NOTE BY C. W. LEADBEATER

There is a sentence in the article on "Koilon". It runs as follows:

"By actual counting it has been discovered that the number of coils or spirillæ of the first order in each wire is 1,680; and the proportion of the different orders of spirillæ to one another is equal in all cases that have been examined, and corresponds with the number of bubbles in the ultimate spirilla of the lowest order."

I counted all those 1,680 turns in the wire of the Anu, not once, but many times. I tried altogether 135 different specimens, taken from all sorts of substances.

If we remove one wire from the Anu it can of course be straightened out into a circle. Really, however, it is not a single wire but a spiral spring, as in Fig. 6, and I called each of these little rings a coil, or a "spirilla of the first order," "a," and I meant to explain that there were 1,680 of these rings or turns or coils in each wire. But each of those coils is itself a spiral spring made up of *finer* coils (which we might call "b") and I

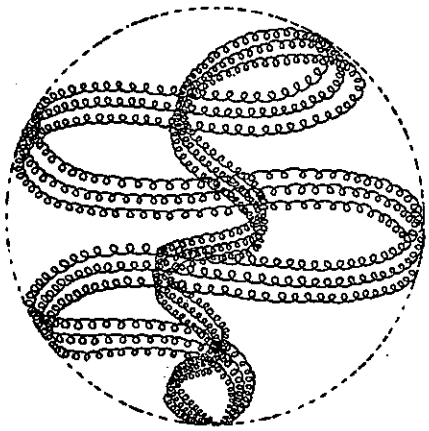


FIG. 6. THREE COILS IN AN ANU

called *those* "spirillæ of the second order," and so on down to "spirillæ of the lowest order". In the seven thinner wires of the atom which correspond to the seven colours I find that each "spirilla of the first order," "a," is composed of *seven* "spirillæ of the second order", "b", each "b" in turn is composed of seven "c"s, each "c" of seven "d"s, and so on down to the "spirilla of the lowest order" which is composed of exactly seven bubbles.

But in the three thicker wires of the atom there is a very slight difference. The seven bubbles no longer fit *exactly* under one another, as it were, if one looks along or through the wire endwise; in 100 "spirillæ of the lowest order" there *ought* to be just 700 bubbles; so there *are* in the seven thinner, coloured wires, but in the three thicker wires there are 704. So the increase is at present 1 in 175. *And* the same curious little increase holds good in the relation of the different orders of spirillae. In the *thinner* wires exactly 7 spirillae of one order make 1 of the next higher order, so that 700 "b"s make exactly 100 "a"s and so on; but in the *thicker* wires 704 "b"s go to 100 "a"s, and the same curious proportion all through. That is what I meant when I said that "the proportion of the different orders of spirillae to one another

is equal, and corresponds with the number of bubbles in the ultimate spirilla of the lowest order."

THE ETHERIC SUBPLANES

The first etheric subplane E1 is formed, as has been previously explained, by single Anu. More or less complex combinations of these Anu form successively the second, E2, third, E3, and fourth, E4, etheric subplanes.

The second subplane E2—The simplest union of Anu, apparently never consisting of more than seven, form the second etheric subplane. In Fig. 7 are shown some characteristic combinations of the E2 state; the Anu is conventional, with the depression emphasized. The lines, always entering at the depression and coming out at the apex, show the resultants of lines of force. Where no line appears entering the depression, the force wells up from four-dimensional space; where no line appears leaving the apex, the force disappears into four-dimensional space; where the point of entry and departure is outside the Anu, it is indicated by a dot. It must be remembered that the diagrams represent three-dimensional objects, and that the Anu are not necessarily all on one plane.

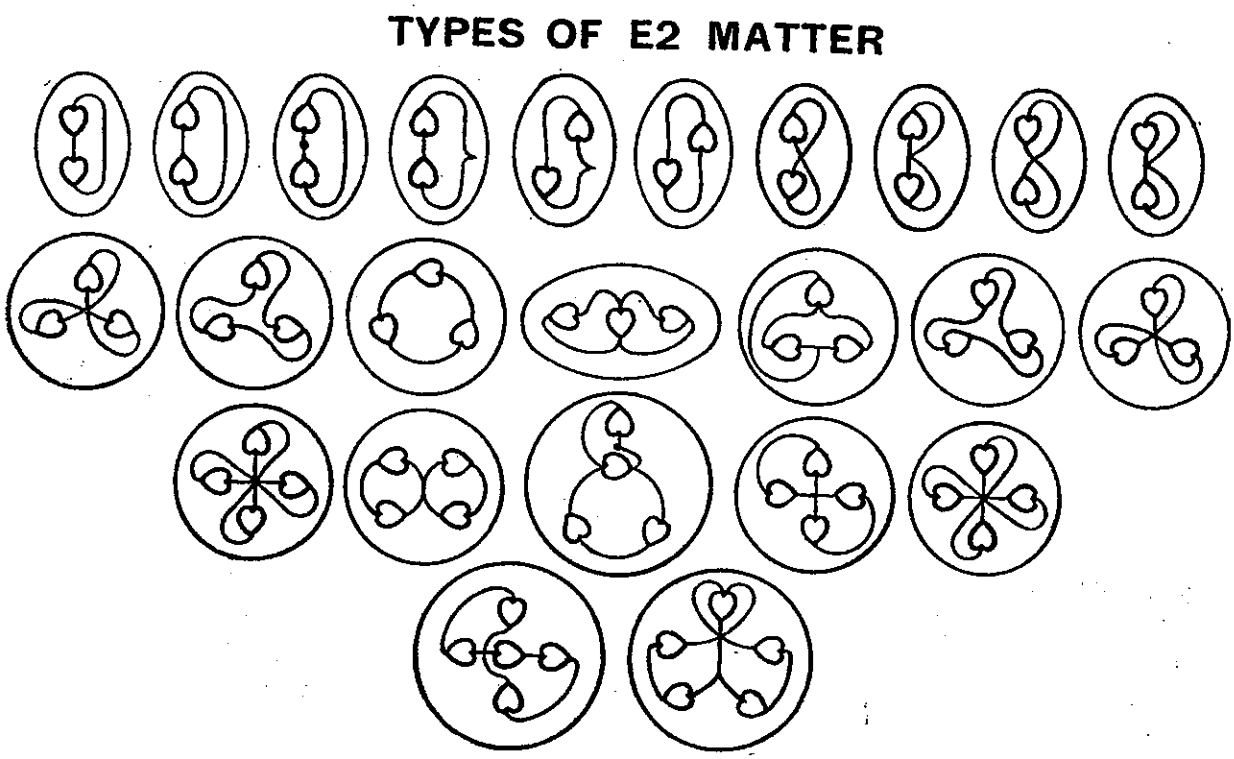


FIG. 7

The third Etheric Subplane E3—The E3 state, in some of its combinations, appears at first sight to repeat those of the E2 state; the only obvious way of distinguishing to which some of the groups of less complexity belong is to pull them out of the "cell-wall"; if they are E2 groups they at once fly off as separate Anu; if they are E3 groups they break up into two or more groups containing a smaller number of Anu. Thus one of the E2 groups of iron, containing seven Anu, is identical in appearance with an E3 heptad, but the former dissociates into seven Anu, the latter into two triads and a single Anu. Long-continued research into the detailed play of forces and their results is necessary; we are here only able to give preliminary facts and details, are opening up the way.

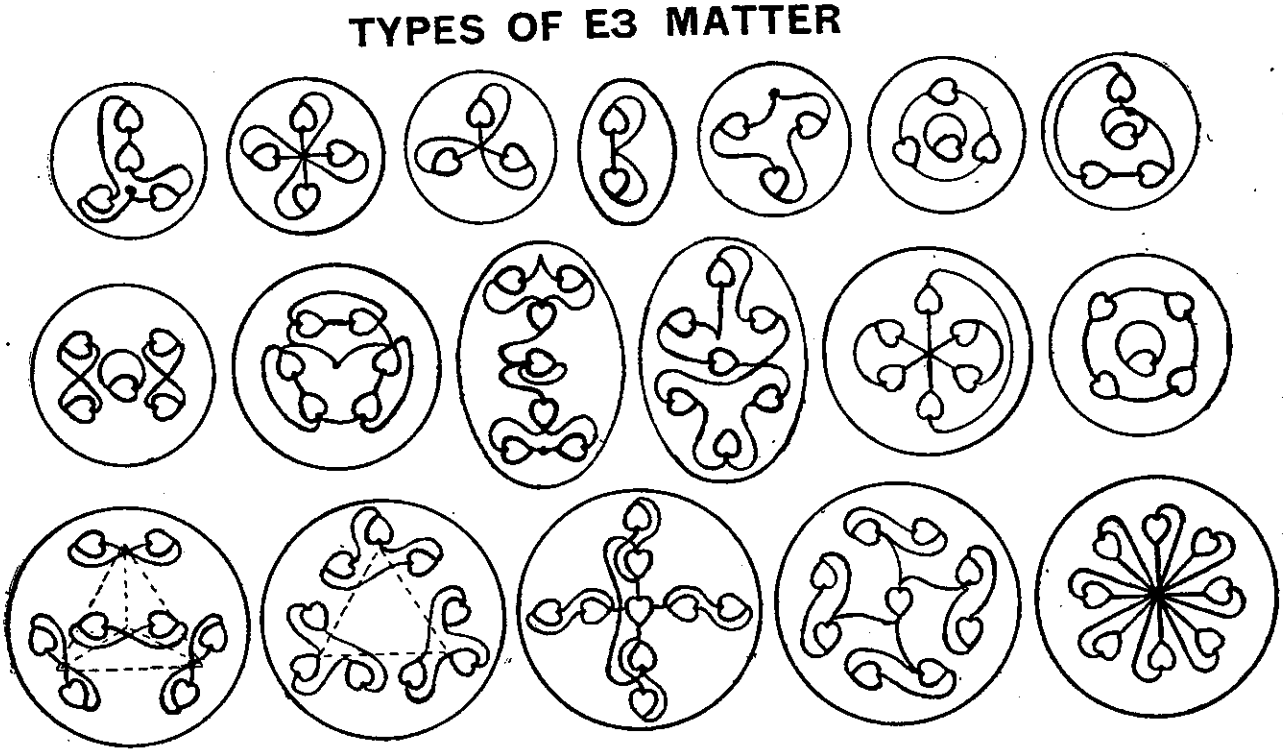


FIG. 8

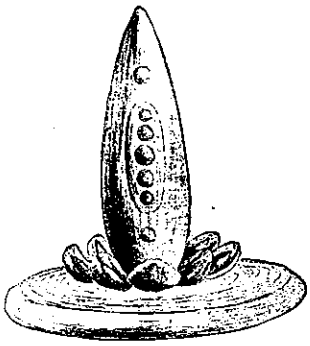
THE CHEMICAL ELEMENTS

The first thing which is noticed by the observer, when he turns his attention to the chemical atoms, is that they show certain definite forms. The main types are not very numerous, and we found that, when we arranged the atoms we had observed according to their external forms, with a few exceptions they fell into seven natural classes. Fig. 10.

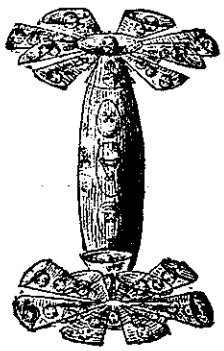
1. The Spike Group
2. The Dumb-bell Group
3. The Tetrahedron Group
4. The Cube Group
5. The Octahedron Group
6. The Crossed Bars Group
7. The Star Group

Each atom has a spherical or oval wall, within which the various groups of Anu move. That wall is drawn as an ovoid in the case of Hydrogen; it must be imagined in the case of every other element. A sphere-wall is a temporary effect, caused by one or more Anu in rotation. Just as a stream of air under pressure will make a hole on the surface of water, by pushing back that water, so is it with the groups. As they revolve, the force of their motion drives back the circumambient medium. That medium thus driven back by the atom element as it moves round its axis is the space around it which is filled with millions of loose Anu; it also drives back denser parts of what is called astral matter. For instance the medium driven back by each separate funnel in Sodium is astral atomic matter.

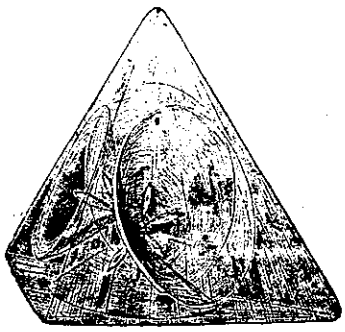
In the seven clearly defined forms it is worthy of notice that in divalent elements *four* funnels open on the faces of a tetrahedron; in trivalent, *six* funnels on the faces of a cube; in tetravalent, *eight* funnels on the faces of an octahedron. Here we have a regular sequence of the platonic solids, and the question suggests itself, will further evolution develop elements shaped to the dodecahedron and the icosahedron?



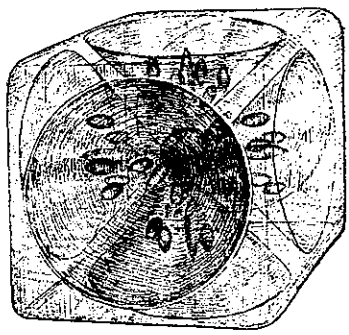
SPIKE



DUMB-BELL

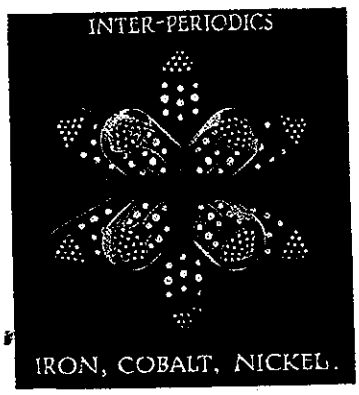


TETRAHEDRON

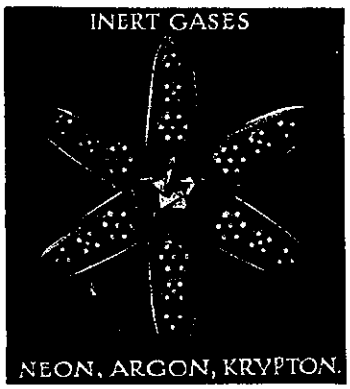


CUBE

OCTAHEDRON

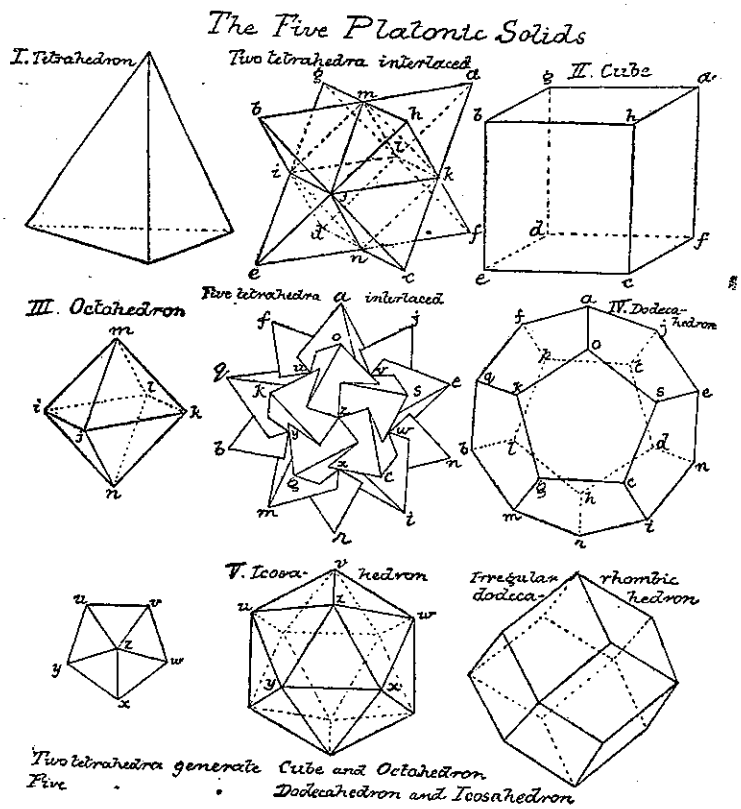


BARS



STAR

FIG. 10. THE SEVEN FUNDAMENTAL FORMS OF THE ELEMENTS



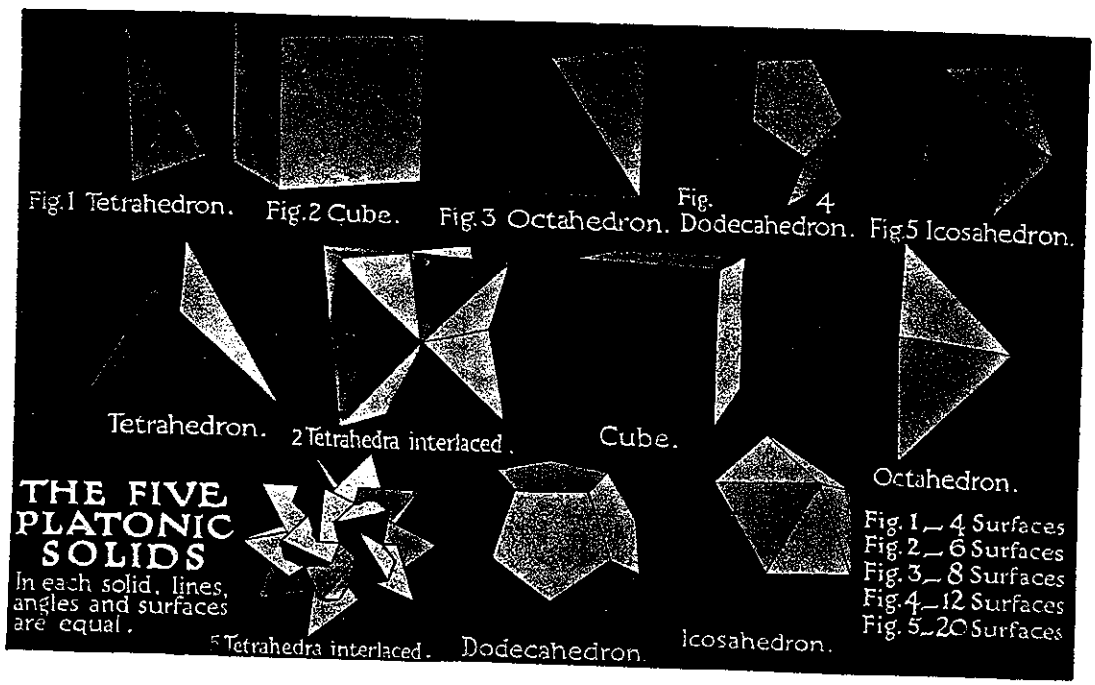


FIG. 11. THE PLATONIC SOLIDS

THE PLATONIC SOLIDS

Fig. 11 shows the five Platonic Solids. It was seen during the investigations at Weisser-Hirsch that all the chemical elements, with the exception of Hydrogen, Oxygen and Nitrogen, appeared to be constructed in a way which suggested the well-known Platonic solids—tetrahedron, cube, octahedron, dodecahedron and icosahedron. No element suggesting the dodecahedron was found, but bodies which made the central nucleus in several elements had groups of six Anu at the twenty corners of the dodecahedron.

A most interesting fact was the discovery by a Spanish Theosophist, Senor Arturo Soria Y Mata, of the relation that exists between the tetrahedron, dodecahedron and icosahedron. He constructed models of five regularly interlaced tetrahedra, and the twenty points of these five tetrahedra, when joined, gave the surface of the twelve-sided dodecahedron, while the intersecting points of the tetrahedron and dodecahedron gave the corners of the icosahedron. He published a monograph, " Genesis," in Madrid in 1913 giving the diagrams and showing how to cut paper to make the various solids. There has never been any difficulty concerning the five solids, but it was he who for the first time gave the diagrams describing how to cut the twenty corners of five tetrahedra and join them together. It was only in 1922, when investigating the structure of Benzene, that the figure of the dodecahedron was found as the central uniting nucleus of Benzene.

IDENTIFYING THE ELEMENTS

One difficulty that faced the investigators was the identification of the forms seen on focusing the sight on gases. It was only possible to proceed tentatively. Thus, a very common form in the air had a sort of Dumb-bell shape. We examined this, comparing our rough sketches, and counted its Anu; these, divided by 18—the number of ultimate atoms in Hydrogen—gave us 23.22 as the atomic weight, and this offered the presumption that the atom observed was Sodium. We then took various substances such as common salt, in which we knew sodium was present, and found the Dumb-bell form in all. In other cases, we took small fragments of metals, as Iron, Tin, Zinc, Silver, Gold; in others, again, pieces of ore, or mineral waters. For the rarest substances, Mr. Leadbeater visited a mineralogical museum.

In counting the number of Anu in a chemical atom, we did not count them throughout, one by one; when, for instance, we counted up the Anu in Sodium, we dictated the number in each convenient group to Mr. Jinarajadasa, and he multiplied out the total, divided by 18, and announced the result. Thus: Sodium is composed of an upper part, divisible into a globe and 12 funnels; a lower part, similarly divided; and a connecting rod. We counted the number in the upper part: globe—10; the number in two or three of the funnels—each 16; the number of funnels—12; the same for the lower part; in the connecting rod—14. Mr. Jinarajadasa reckoned: $10 + (16 \times 12) = 202$; hence: $202+202+14=418$: divided by $18=23.22$ recurring. By this method we guarded our counting from any prepossession, as it was impossible for us to know how the various numbers would result on addition, multiplication and division, and the exciting moment came when we waited to see if our results endorsed or approached any accepted weight. In the heavier elements, such as gold, with 3,546 Anu, it would have been impossible to count each Anu without quite unnecessary waste of time, when making a preliminary investigation. Later, it may be worth while to count each division separately, as in some we noticed that two groups, at first sight alike, differed by 1 or 2 Anu.

THE PERIODIC LAW

The groups into which the elements fall when arranged according to their external forms prove to be very similar to those indicated in Sir William Crookes' classification. The simplest form of presentation of this periodic law is that described by Crookes in a lecture which he gave to the Royal Institution in London on February 18, 1887. Crookes visualizes a cosmic energy at work on cosmic substance which he terms "protyle". We can imagine this energy as of two kinds, one tending as if downwards, from above below, the other as if swinging pendulum-wise from right to left, left to right. The swing of the pendulum slowly narrows. Both forces are rhythmic, and they meet and cross at set places or periods. Where that happens, then "protyle" is affected, and an element is generated.

BUILDING THE HEAVIER ELEMENTS

In considering the heavier elements, especially those belonging to the radio-active group, we find a certain variation from the orderly progress. All the way down we have been in the presence of an evolutionary force steadily pressing downward into matter along a spiral line. At certain points this force encounters the perpendicular lines which represent the various types or tendencies. We can imagine a group of nature spirits, marshalled under the orders of some higher Power, building these atoms according to the plan of the line to which they belong, and then scheming how to introduce the additional atoms which have been gathered since last the force crossed their line, while still retaining the main characteristics of their original plan.

Among the heavier elements it would seem that the power of the distinctive type is becoming less in proportion than that of the evolutionary force, for this latter is beginning to carry on with it certain characteristics from one type into another. Elements show affinity not only with those above it but also with those next before it on the spiral. The results seem in some ways to suggest the idea that an effort is being made to evolve certain features which shall when perfected be imposed upon all types. When we find two different attempts to build the same element it suggests two attempts one of which may be more suitable and therefore ultimately become permanent.

We find the central sphere of the chemical atom always increasing in size and importance until in the Radium group it seems to be the soul of the atom and the reason for which it exists—an active intensely *living* object rotating with wonderful rapidity, ever drawing in and throwing out streams of matter, and actually maintaining by its exertion a temperature higher than that of surrounding objects.

The process of making the elements is not even now concluded; Uranium is the latest and heaviest element so far as we know (1912), but others still more complicated may perhaps be produced in the future.

A list of all the elements with the number of Anu in each, their weights and their characteristic shapes, is given later.

THE PERIODIC LAW (AFTER CROOKES) FIG. 12

In the line depicting a pendulum swinging backwards and forwards, all the elements are marked in their order of weight; the lightest, Hydrogen, beginning the pendulum swing, and the heaviest, Uranium, (and possibly one or more heavier, yet to be discovered) closing the swing. Among the upright lines is a middle one, and there are four on either side. If the middle perpendicular line represents *no* valency, and also interperiodicity, and if the four lines on either side of this median line represent Valency 1, Valency 2, Valency 3, and Valency 4; then, it is found, as the elements are mapped out in the order of their atomic weights, at the intersecting points of the pendulum line and the nine upright lines, that the element appear in order of Valency.

With a few exceptions, elements with similar external forms fall on the same vertical line. This may be seen on reference to Figure 12.

First come 4 elements which are formed before the swing of the pendulum begins. These are *ovoids*.

The Spike Group.—The atoms of each of the elements consist of a number of spikes radiating from a central globe in the centre of a plate-like form.

The Dumb-bell Group.—The atoms of this group consists of a central rod at the ends of which we find a globe. From each of the globes project 12 funnels. The whole making a form like a dumb-bell.

The elements in the dumb-bell and the spike group are those usually considered by chemists as having a characteristic valence of one or seven. They are found to right and left of the central line.

The Tetrahedron Groups.—The atoms of this group have four funnels, containing ovoid bodies, opening on the face of a tetrahedron. The funnels generally, but not always, radiate from a central globe. There are two tetrahedron groups at opposite sides of the central line of the pendulum swing. Their characteristic valence is two or six. The tetrahedron seems to be one of the favourite forms of nature and appears repeatedly in the internal structure. There are two tetrahedron groups, to right and left of the central line.

The Cube Group.—The cube appears to be the form of trivalent elements. It has six funnels containing ovoids and opening on the faces of the cube. There are two cube groups, at the left and right of the central line.

The Octahedron Group.—Here we find eight funnels opening on the eight faces of an octahedron. The elements are tetravalent. The two octahedron groups occur at the extreme left and right of the swing of the pendulum.

The Bars Group.—This is the characteristic shape of sets of three closely allied elements termed interperiodic. Fourteen bars, or seven crossed, radiate from a centre. This group occurs on the central line.

The Star Group.—A flat star, with five interpenetrating tetrahedra at the centre, is characteristic of this group, which comprises the inert gases. This group occurs on the central line.

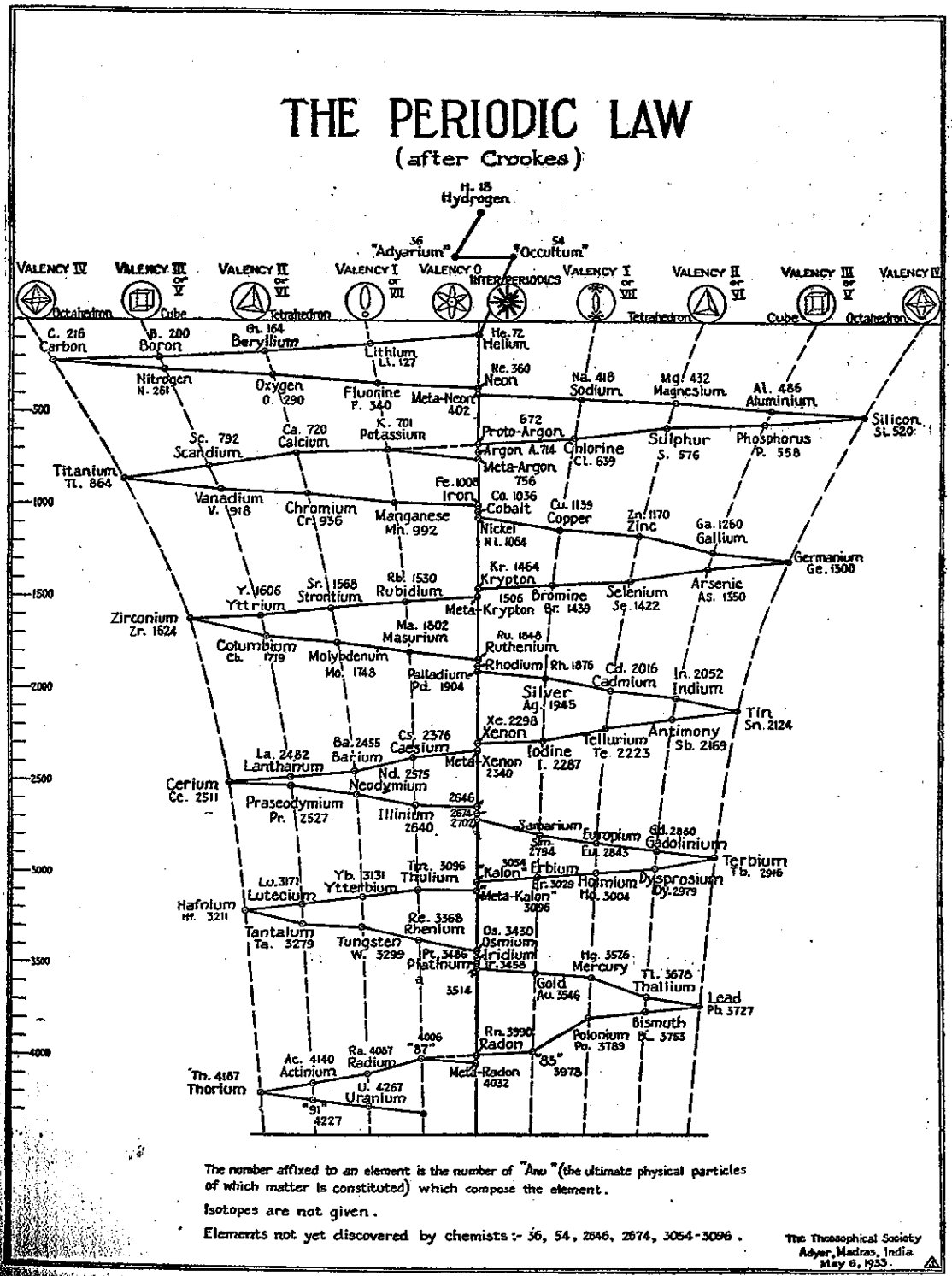

THE PERIODIC LAW
(after Crookes)
H. 1.8
Hydrogen
36
"Adyarium"
54
"Occultum"
VALENCY IV
VALENCY III or V
VALENCY II or VI
VALENCY I or VII
VALENCY 0
INTER-PERIODICS
VALENCY I or VII
VALENCY II or VI
VALENCY III or V
VALENCY IV
Octahedron
Cube
Tetrahedron
Tetrahedron
Cube
Octahedron
C. 216 Carbon
B. 200 Boron
Gl. 164 Beryllium
Lithium Li. 127
He. 72 Helium
Nitrogen N. 261
O. 290 Oxygen
F. 340 Fluorine
Meta-Neon 402
Ne. 360 Neon
Na. 418 Sodium
Mg. 432 Magnesium
Al. 486 Aluminium
Silicon Si. 520
Sc. 792 Scandium
Ca. 720 Calcium
K. 701 Potassium
672 Proto-Argon
Argon A. 714
Meta-Argon 756
Cl. 639 Chlorine
S. 576 Sulphur
P. 558 Phosphorus
Titanium Ti. 864
Fe. 1008 Iron
Co. 1036 Cobalt
Nickel Ni. 1064
Cu. 1139 Copper
Zn. 1170 Zinc
Ga. 1260 Gallium
Germanium Ge. 1500
Vanadium V. 1918
Cr. 936 Chromium
Mn. 992 Manganese
Kr. 1464 Krypton
Y. 1606 Yttrium
Sr. 1568 Strontium
Rb. 1530 Rubidium
1506 Meta-Krypton
Br. 1439 Bromine
Se. 1422 Selenium
As. 1550 Arsenic
Zirconium Zr. 1624
Ma. 1802 Masurium
Columbium Cb. 1719
Mo. 1748 Molybdenum
Ru. 1848 Ruthenium
Rh. 1876 Rhodium
Pd. 1904 Palladium
Ag. 1945 Silver
Cd. 2016 Cadmium
In. 2052 Indium
Tin Sn. 2124
Xe. 2298 Xenon
Ba. 2455 Barium
Cs. 2376 Caesium
Meta-Xenon 2340
I. 2287 Iodine
Te. 2223 Tellurium
Sb. 2169 Antimony
La. 2482 Lanthanum
Cerium Ce. 2511
Nd. 2575 Neodymium
Praseodymium Pr. 2527
2646
Illinium 2640
2674
2702
Samarium Sm. 2794
Europium Eu. 2843
Gd. 2860 Gadolinium
Terbium Tb. 2946
Tm. 3096 Thulium
3054 "Kalon"
Er. 3029 Erbium
Ho. 3004 Holmium
Dy. 2979 Dysprosium
Lu. 3171 Lutecium
Yb. 3131 Ytterbium
"Meta-Kalon" 3096
Hafnium Hf. 3211
Re. 3368 Rhenium
Os. 3430 Osmium
Tantalum Ta. 3279
Tungsten W. 3299
Ir. 3458 Iridium
Pt. 3486 Platinum
Hg. 3576 Mercury
Tl. 3678 Thallium
3514
Gold Au. 3546
Lead Pb. 3727
Bismuth Bi. 3753
Rn. 3990 Radon
4006
"87"
Polonium Po. 3789
"85" 3978
Ac. 4140 Actinium
Ra. 4087 Radium
Meta-Radon 4032
Th. 4187 Thorium
U. 4267 Uranium
"91" 4227
The number affixed to an element is the number of "Anu" (the ultimate physical particles of which matter is constituted) which compose the element.
Isotopes are not given.
Elements not yet discovered by chemists:- 36, 54, 2646, 2674, 3054-3096.
The Theosophical Society
Adyar, Madras, India
May 6, 1933.

FIG. 12

NOTE BY C. JINARĀJADĀSA

In the address presented by Crookes to the Royal Institution in London, on February 18, 1887, he gave a diagram of the pendulum swing, marking the place of each element at certain points in his diagram. Later he made a model of the pendulum swing in three dimensions, with two lemniscates, Fig. 13. It occurred to me that it was possible to make a model of the Periodic Law with four lemniscates. This I did, carefully planning that each rod in the illustration should be pasted with millimetre paper so as to map accurately the elements according to their weights, Fig. 14. My object with this model of four lemniscates is that some day, by careful study of the diagrams of the elements in *Occult Chemistry*, future students would be able to make cross-lines joining one element with another, since the heavier elements particularly have many groups in common. In this model the interperiodic groups and the rare gases appear on the central line. The elements of the octahedron group appear on the four outermost lines. The other groups fall into their places between.

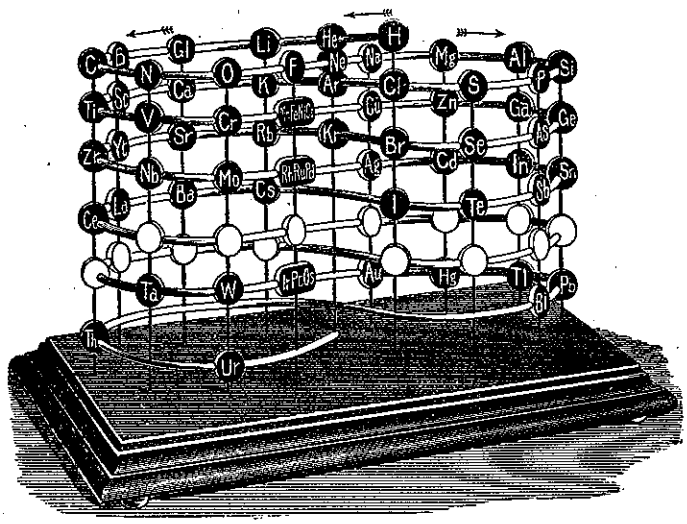


FIG. 13. THE PERIODIC LAW (CROOKES)

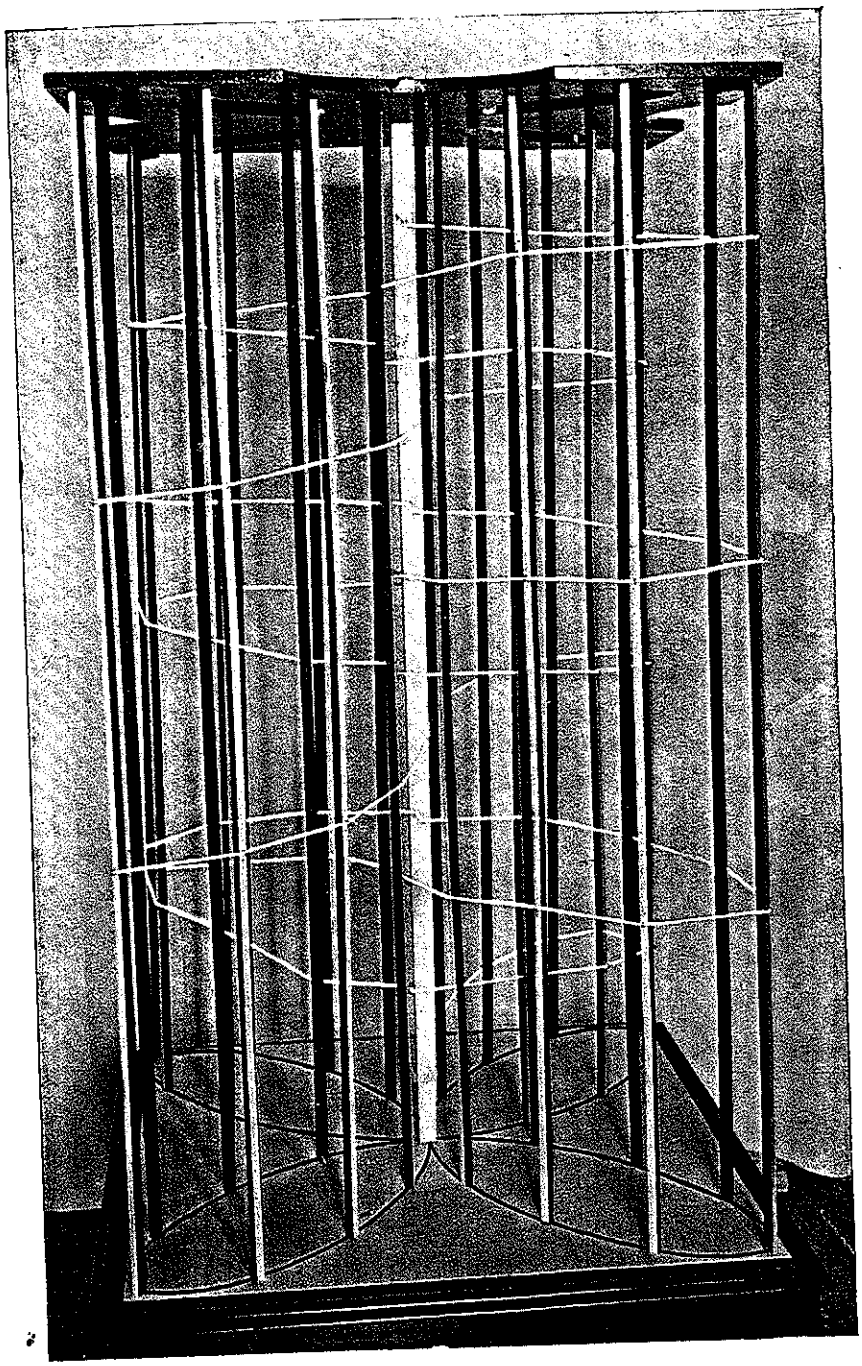


FIG. 14. THE FOUR LEMNISCATES

CHAPTER II

THE HYDROGEN GROUP

INTRODUCTORY

WE come now to the more detailed study of the elements, and shall consider the atoms in their groups according to the Periodic classification, using the pendulum diagram.

As has already been pointed out, the Anu group themselves into seven definite forms or types, though each chemical atom is surrounded by a sphere wall of the surrounding material, forming a sphere of influence. There are a few exceptions which are ovoid in shape.

Into the seven types the Anu are packed in a beautiful and ingenious fashion. On examining the internal structure of the atoms we find more or less complicated groups capable of separate, independent existence on the E4 level. These may be dissociated into yet simpler groups on the E3 level and again into groups at the E2 level until we arrive at the single ultimate physical atom or Anu.

The diagrams can give only a very general idea of the facts they represent. They give groupings and show relationships, but much effort of the imagination is needed to transform the two-dimensional diagram into the three dimensional object. The student should try to visualize the figure from the diagram. Thus the two triangles of Hydrogen are not in one plane; the circles are spheres and the Anu within them, while preserving to each other their relative positions, are in swift movement in three dimensional space.

Where five Anu are seen they are generally arranged with the central Anu above the four, and their motion indicates lines which erect four plane triangles meeting at their apices, on a square base, forming a square-based four-sided pyramid.

It is found that many of the groups in which the Anu are arranged constantly recur and are therefore common to many atoms, forming, as it were, the bricks or fundamental patterns from which their structures are built. The composition of each atom, therefore, can be expressed in terms of these constituent groups.

By this means the relationships between the elements in a given main group, and their similarities with other groups, is brought out. A method has been devised by which all the elements can be expressed in an algebraic formula by which the reader may realize the structure of the atoms as they are built up out of their constituent groups. Each constituent group is named after the first element in which it occurs. The letters indicating the element are followed by a number indicating the number of Anu in the group. Thus the Nitrogen 'balloon' becomes N 110 and the Lithium spike is represented by Li 63.

When the elements are analyzed in this way we can see how they are built up. In some cases alternative nomenclature is possible. We have endeavoured to select those constituent groups which best bring out the relationships. The method is used, too, in the large condensed diagrams and where the heavier elements would require too large a diagram if drawn in full.

From the list of all the elements, given at the end of the book, it can be seen that Hydrogen, Oxygen, Nitrogen and Fluorine, which appeared to be so different from the rest in their external forms, contain characteristic groups which form part of many other elements. From this list, too, we can follow the changes as the elements succeed one another in weight.

Each dot in a diagram represents a single Anu. The enclosing lines indicate the impression of form made on the observer and the groupings of the Anu. The groups will divide along these lines when the element is broken up, so that the lines have significance but they do not exist as stable walls or enclosing films but rather mark limits, not lines, of vibration.

It should be specially noted that the diagrams are *not drawn to scale*, as such drawings would be impossible in the given space. The dot representing the Anu is enormously too large compared with the enclosures, which are absurdly too small; a scale drawing would mean an almost invisible dot on a sheet of many yards square.

So far as a chemical atom is concerned it does not matter whether it be drawn for investigation from a solid, a liquid or a gas; the atom does not alter its constitution by changing its state.

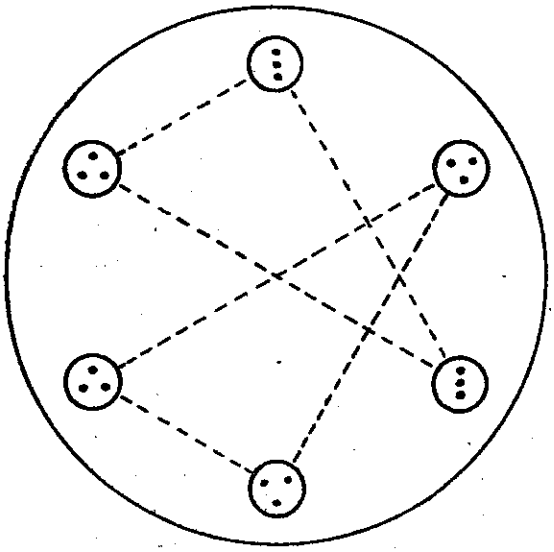
The internal arrangements of the atoms become much more complicated as they become heavier, as can be seen, for instance, in the complex arrangement necessitated by the presence of the 3,546 Anu contained in the chemical atom of Gold, as compared with the simple arrangement of the 18 Anu in Hydrogen.

THE HYDROGEN GROUP

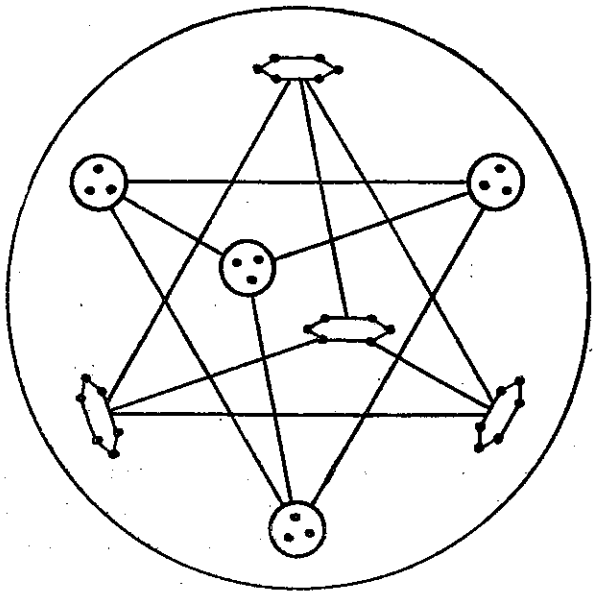
Before the pendulum begins its swing we find four elements; Hydrogen, Adyarium, Occultum and Helium. Hydrogen is the lightest element known to science. Adyarium and Occultum were first observed by clairvoyance. Helium is one of the rare gases and is usually associated with Argon. It does not conform to the shape of the inert gases, however, though it has some constituents in common. It is therefore grouped with the earlier, lighter elements. All four of these are ovoid in external shape.

Atomic No.	Number of Anu	Element	Analysis
1.	18	Hydrogen	(2H3' + H3) + (3H3)
1*a*.	36	Adyarium	4H3 + 4 Ad6
1*b*.	54	Occultum	2H3 + Ad 24 + Oc15 + Oc 9
2.	72	Helium	2H3 + (2H3' + H3) + (3H3) + 2Ad24

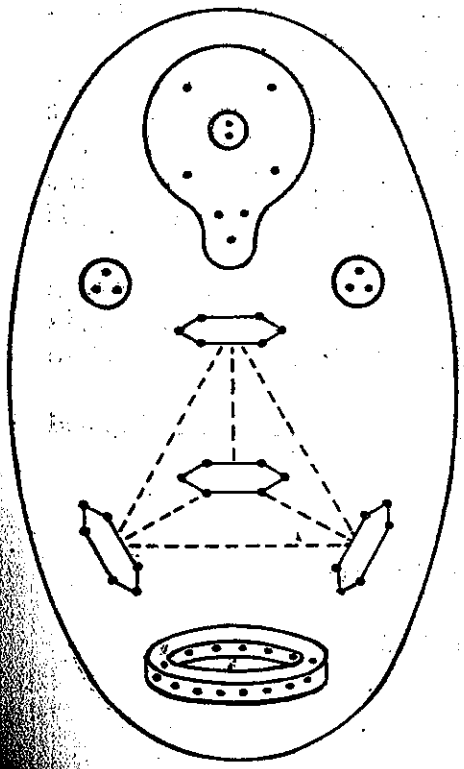
HYDROGEN GROUP



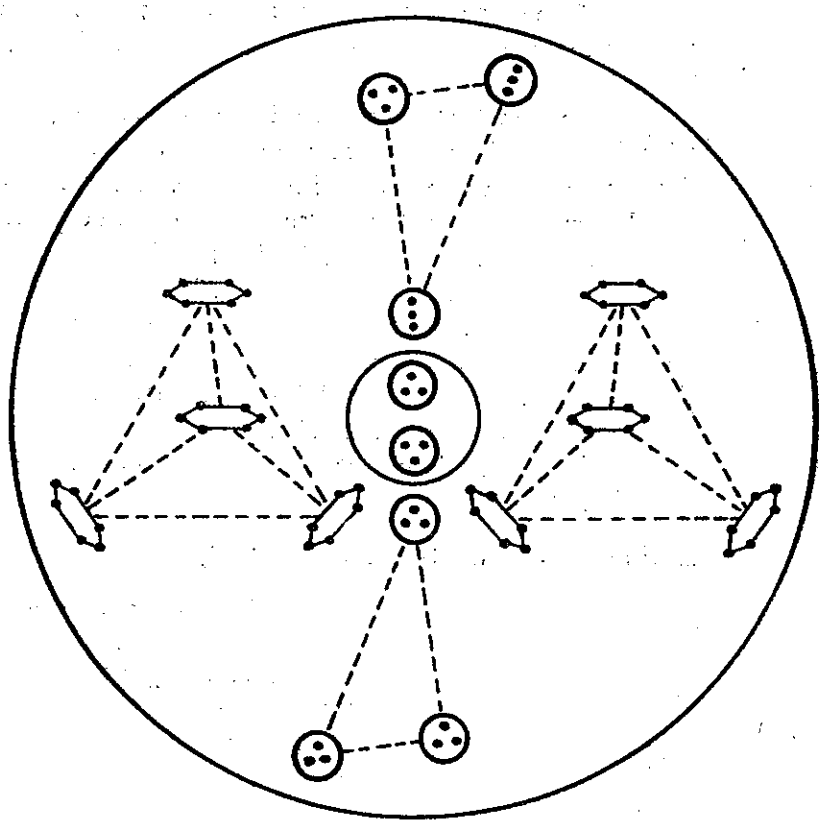
1 HYDROGEN



2 ADYARIUM



3 OCCULTUM



4 HELIUM

FIG. 15

ATOMIC NO. 1.

HYDROGEN

Hydrogen was the first chemical element examined and has already been discussed in Chapter I. The Hydrogen atom consists of 18 Anu arranged in 6 groups, each of 3 Anu, all contained in an oval form. The six groups are at six points in space; each of the three groups making one half of Hydrogen are linked to each other across space by lines of attraction. We have thus the appearance of two interlaced triangles. Figs. 1 and 15 show the details and linking.

Hydrogen atoms were not observed to move in pairs.

In 1908 diagrams were given of the two halves of Hydrogen, but no record was then made of the types of Anu, positive or negative, within each group of three. It was then presumed, from the general appearance of the groups, that all Hydrogen atoms were alike. In 1932, however, during a more detailed examination of the two Hydrogen atoms in a molecule of water, a second variety of Hydrogen was discovered.

Hydrogen Variety 1 is composed of two halves, a positive and a negative. On examining Fig. 16 it will be seen that the positive half or triangle is composed of 5 positive Anu and 4 negative, thus making it preponderatingly positive; and that the negative half or triangle is composed of 5 negative Anu and 4 positive, thus making it preponderatingly negative.

The six groups are not all alike; they each contain three Anu, but in four of the groups the three Anu are arranged in a triangle, and in the remaining two in a line. To these small groups we have given the identifying symbols H3 and H3',

In one large triangle all the three small groups have their Anu in the form of a triangle, while in the other large triangle two of the groups of three Anu are in a straight line and one in the form of a triangle. In the first edition of Occult Chemistry the two linear triplets are shown as being one in each triangle. Fig. 2. This variety was *not* observed by Mr. Leadbeater in 1932 and appears to be rare. The common variety is that described above and shown in Fig. 16.

Hydrogen Variety 2 differs in the number of positive and negative Anu forming the atom. In the first variety there are a total of 9 positive and 9 negative Anu, in the second variety we find 10 positive and 8 negative. This variety is therefore predominatingly positive. Fig. 17.

In the molecule of water, H_2O, one Hydrogen atom is of the first variety and the other of the second variety.

Hydrogen $=$ $(2H3' + H3) + (3H3)$

6 spheres of 3 Anu $=$ 18 Anu

Number weight $\frac{18}{18} = 1.00$

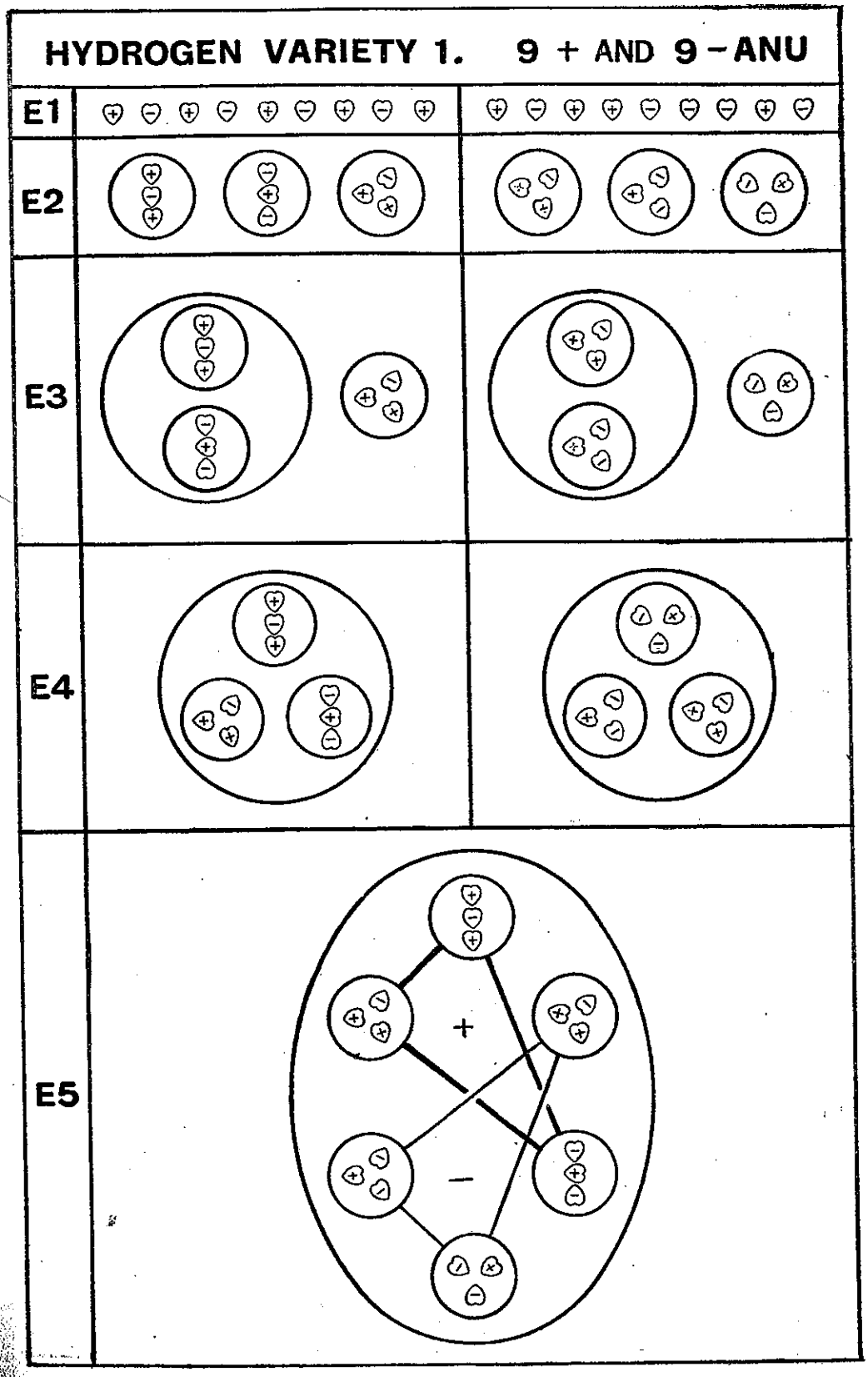


FIG. 16

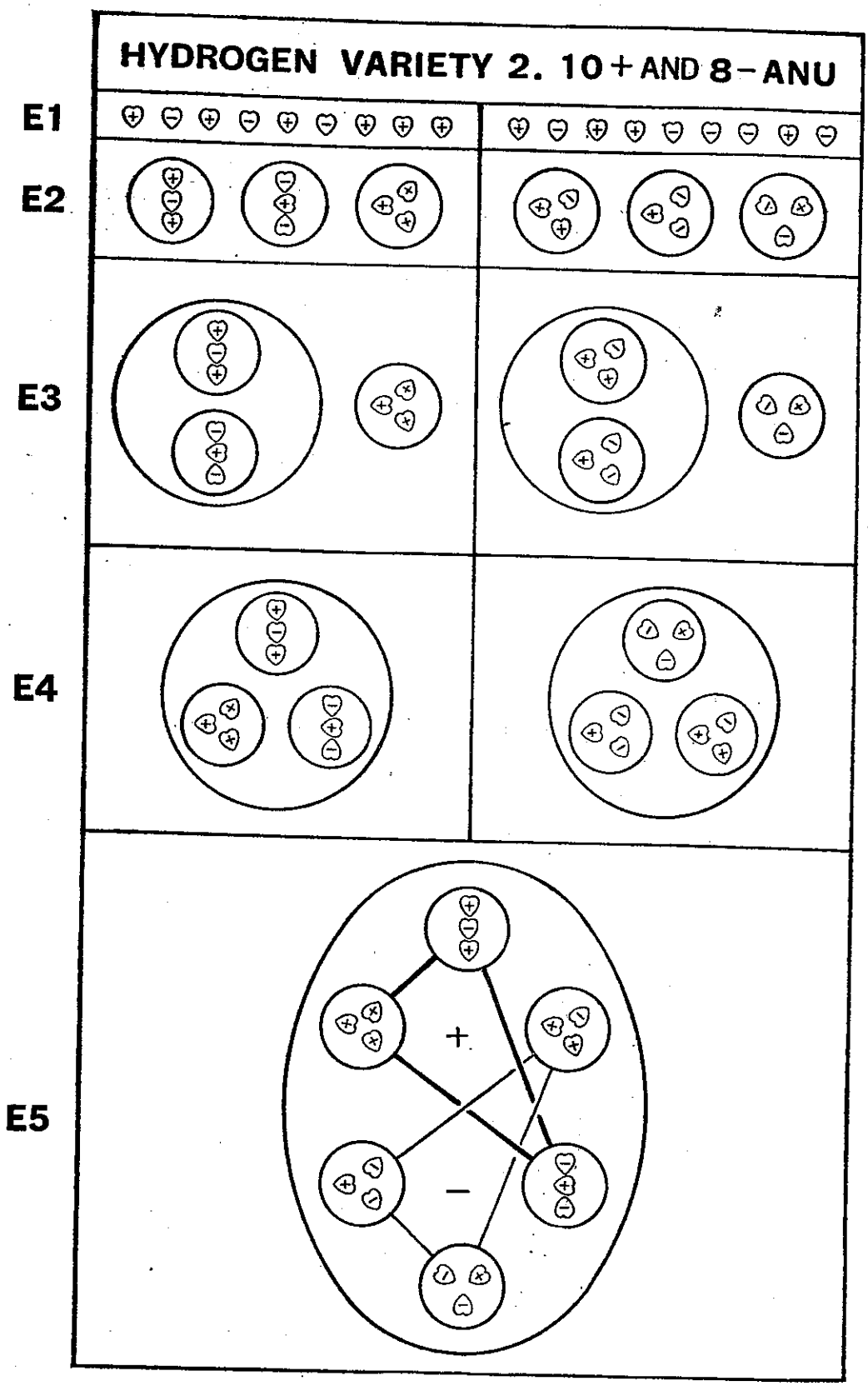


FIG. 17

Deuterium. During observations on the electrolysis of water a very few examples of two Hydrogen atoms united in a temporary alliance were seen. These two atoms were of varieties 1 and 2 and placed themselves at right angles to each other as in Fig. 18. This group of two Hydrogen atoms would have double the weight of ordinary Hydrogen, as is required for Deuterium.

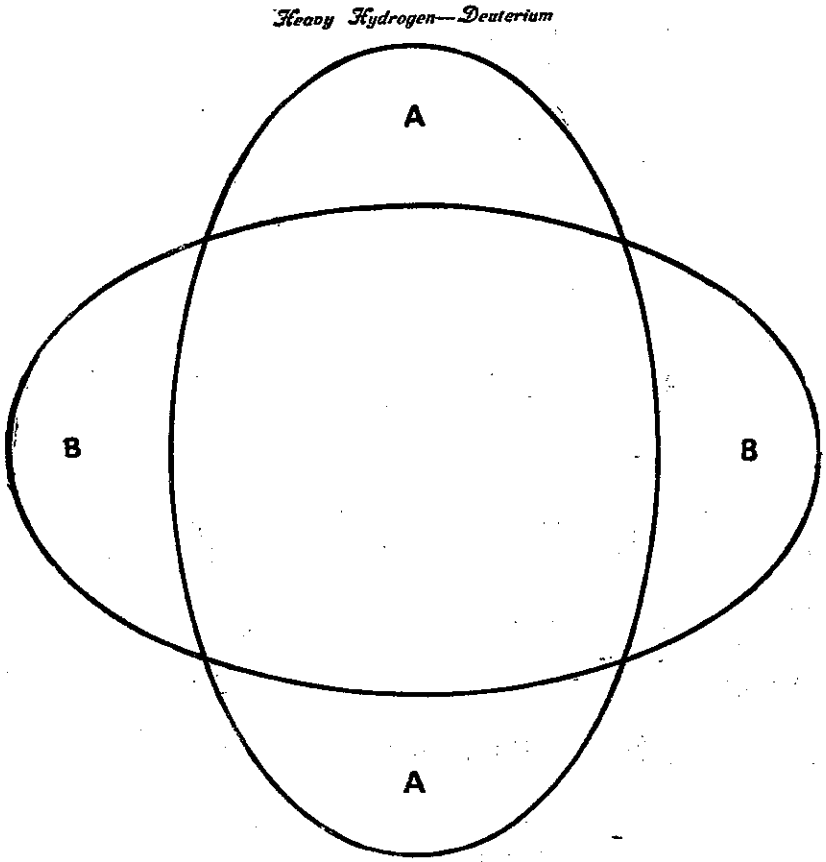


FIG. 18

ATOMIC NO. 1A. ADYARIUM

The discovery of this very light gas of atomic weight 2 (H=I), was announced in *The Theosophist*, December 1932. The external shape of the atom is spherical and it consists of 36 Anu. Twelve of these are divided into four groups of H3, one of which is placed at each of the four corners of a tetrahedron. Interlaced with this tetrahedron is a second containing four groups of six Anu. Fig. 15. Here we meet two forms which occur very often. First the group of six Anu arranged in the shape of a 'cigar' or elongated hexagon or prism. This we distinguish as Ad6. This form revolves with extreme rapidity around its longitudinal axis, and looks like a pencil sharpened at both ends. It appears to be strongly coherent, for, as will be seen later, its six Anu remain attached to each other on the E3 level, and even when divided into triplets on the E2 level these revolve around each other.

In Adyarium four of these prisms are placed at the corners of a tetrahedron, thus forming the larger group which also occurs very often and which is distinguished as Ad 24.

It will be seen that the two groups of four bodies each form tetrahedrons, that is to say, their respective positions in space, as they individually revolve within the sphere-wall of the element, are those marked out by the eight corners of two interlaced tetrahedrons.

Adyarium is rare in the atmosphere at the earth's surface, but it exists in greater quantity in the stratosphere. Like Hydrogen, it is being slowly lost to our atmosphere by radiation during the earth's journey round the Sun. But the rays of light from the Sun are combining sub-elements all the time, and the lost elements are being replaced by the new creations.

As this element was first observed by clairvoyant magnification at Adyar, we have called it Adyarium.

Adyarium = 4 H3 + 4 Ad6 or Ad12 + Ad24

4 H3 = 12 Anu
4 Ad6 = 24 „
Total = 36 Anu

Number weight $\frac{36}{18} = 2.00.$

ATOMIC NO. 1B.

OCCULTUM

Occultum was first observed in 1895 and, finding that it was so light and so simple in its composition, it was thought that it might be Helium, of which it was not possible at that time to obtain a sample. When, however, Helium itself came under observation in 1907, it proved to be quite different from the object previously observed, so the gas observed in 1895 was called Occultum, until orthodox science should find it.

This element consists of 54 Anu and contains groups from Hydrogen and Adyarium. It is ovoid in shape. Fig. 15.

We here meet the tetrahedron, Ad 24, as in Adyarium. Above the tetrahedron is a balloon-shaped figure, Oc9, apparently drawn into shape by the attraction of the tetrahedron. The body below the tetrahedron looks like a coil of rope, and contains fifteen Anu, Oc15. They are arranged on a slanting disc in a flat ring and the force goes in at the top of one Anu, and out of the bottom of it into the top of the next, and so on, making a closed circuit. The two little spheres, each containing a triplet, are like fill-up paragraphs to a compositor—they seem to be kept standing and popped in where wanted.

The constituents of Occultum reappear in Gold and other elements.

Occultum = 2 H3 + Ad 24 + Oc15 + Oc 9.

Tetrahedron	=	24	Anu
Balloon	=	9	„
Triplets	=	6	„
Ring	=	15	„
Total	=	54	Anu
Number weight $\frac{54}{18}$	=	3.00	

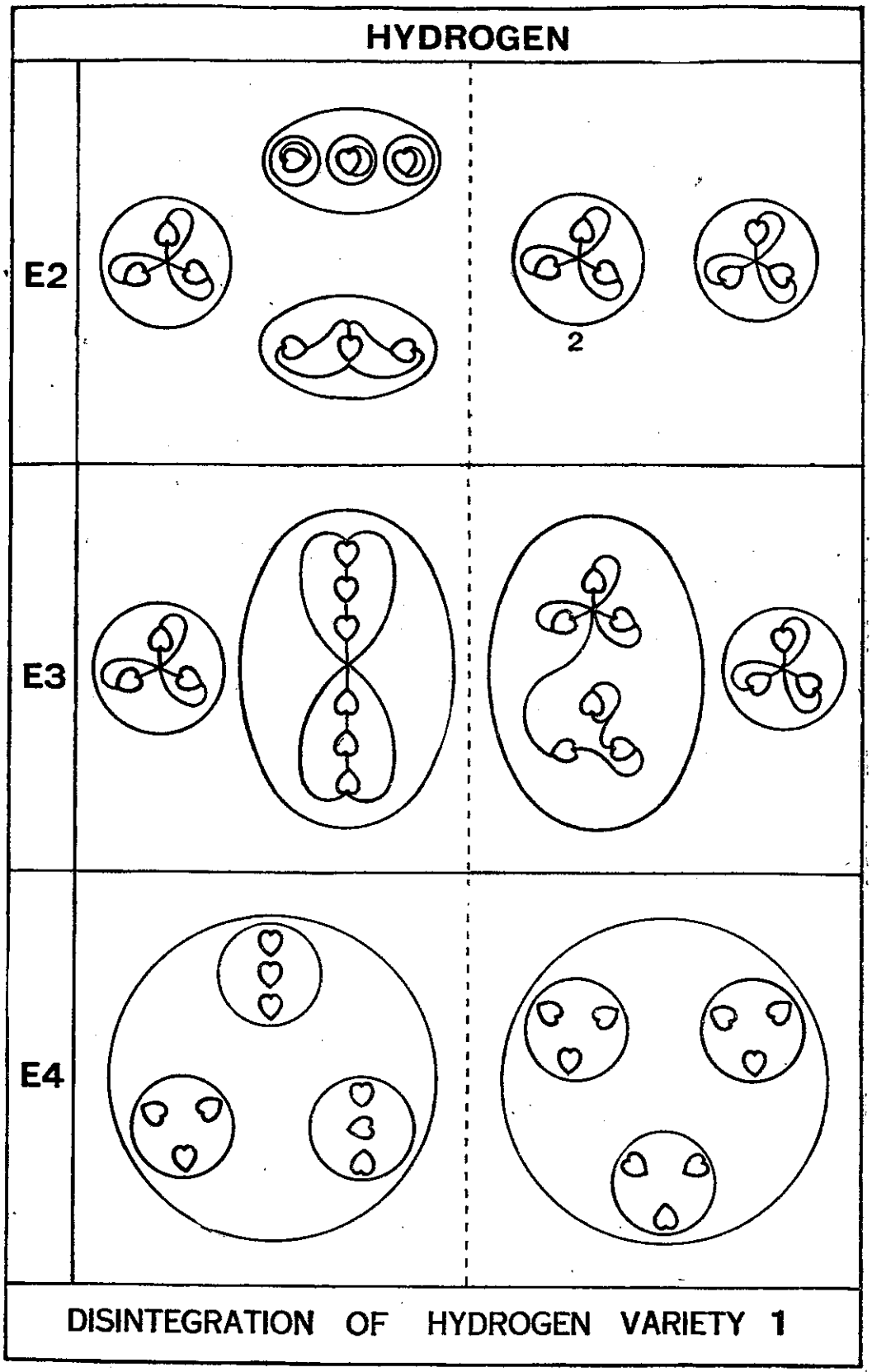


FIG. 19

THE HYDROGEN GROUP

HELIUM

ATOMIC NO. 2.

Helium is different in configuration from the other inert gases. It is made up of the whole of Hydrogen and a good deal from Adyarium. It is ovoid in shape and not in the form of a six-pointed star as are the other inert gases, and it is therefore included in this preliminary group. Fig. 15 shows that the four elements in this group are closely related.

The two triangles of Hydrogen appear in Helium and two Ad 24 tetrahedrons. The tetrahedrons revolve round an egg-shaped central body consisting of two H3 spheres, and the triangles spin on their own axes while performing a similar revolution. Helium is completely balanced, that is to say, it is seemingly self-sufficient; a positive tetrahedron of 4 Ad6 groups is counterbalanced by a similar tetrahedron which is negative. A positive half of Hydrogen is satisfied with a negative half and in the centre of all the two groups of 3 Anu, being positive and negative, satisfy each other.

The whole has an attractive airy appearance, as of a fairy element.

Helium = 2H3 + 2 Ad24 + (2H3' + H3) + (3H3)

Centre	= 6	Anu
2Ad24	= 48	„
2 Triangles	= 18	„
Total	= 72	Anu

Number weight $\frac{72}{18} = 4.00$

THE DISINTEGRATION OF THE HYDROGEN GROUP

HYDROGEN

On the E4 level the six bodies contained in the gaseous atom instantaneously re-arrange themselves within two spheres; the two linear triplets unite with one triangular triplet, holding to each other relative positions which, if connected by three straight lines, would form a triangle with a triplet at each angle; the remaining three triangular triplets similarly arrange themselves in the second sphere. These form the E4 compounds of Hydrogen.

In the dissociation of these to *the E3 level*, each sphere breaks up into two, the two linear triplets joining each other and setting free their triangular comrade. Two of the triangular triplets similarly remain together, casting out the third, so that Hydrogen yields four E3 compounds.

On the E2 level, the connexion between the double triplets is broken, and they become four independent groups, two remaining linear, but rearranging their internal relations; the two remaining groups are triplets.

The final dissociation sets all the Anu free. Figs. 16 and 19.

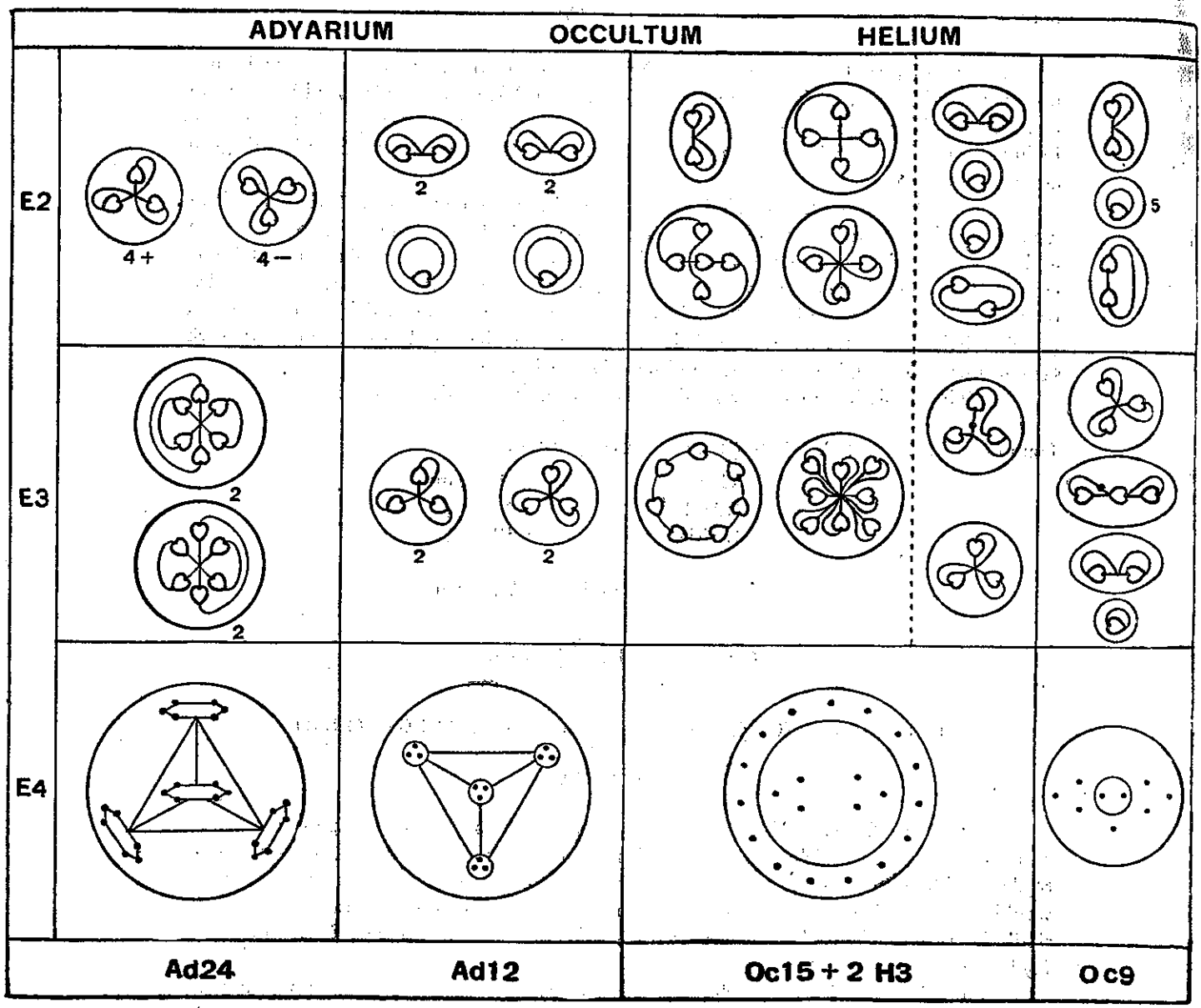


FIG. 20. DISINTEGRATION OF ADYARIUM, OCCULTUM AND HELIUM

DISINTEGRATION OF ADYARIUM

On the E4 level Adyarium sets free the two tetrahedrons Ad24 and Ad12.

On the E3 level the Ad24 gives 4 sextets, 4 Ad6, two positive and two negative ; while the Ad12 gives 4 triplets.

On the E2 level each Ad6 gives two triplets, making 8 triplets in all.

The triplets from the Ad12 each give a duad and a unit, thus liberating four duads and four units.

DISINTEGRATION OF OCCULTUM

The tetrahedron, Ad24, acts as in Adyarium *on the E4 level* and separates as a whole, with its 4Ad6, flattening itself out within its hole. Two of the Ad6 are positive and two negative.

On further dissociation to the E3 level, the Ad6 go off independently, showing two types. These again divide into triplets on the E2 level.

The ring, Oc15, becomes a ring within a sphere and the two triads 2H3, which are loose in the gaseous atom, come within this ring. On the E3 level the ring casts out the two triads, which become independent triplets, and the ring breaks into two, a close ring of seven Anu and a double cross of eight.

These subdivide again to form E2 compounds, the ring yielding a quintet and a pair, and the double cross separating into its two parts.

The two triplets each cast out an Anu on dissociation to E2 and form two pairs and two units.

The balloon, Oc9. On the E4 level the balloon becomes a sphere. On the E3 level it is much divided, the cohesion of its parts being slight. It forms two triplets, a pair and a unit. On the E2 level these set free, on further dissociation, no less than five separate Anu and two duads.

DISINTEGRATION OF HELIUM

Helium, being composed of the constituents of Hydrogen, Adyarium and Occultum, breaks up as do these elements.

On the E4 level we find two spheres each containing three triplets as in Hydrogen and two tetrahedrons, Ad24. In addition there is a globe containing two small spheres, 2 H3.

On the E3 level the Hydrogen triplets break up as in Fig. 19 and the two Ad24 as shown in Fig. 20. The globe containing the two H3 liberates the two triplets on the E3 level.

On the E2 level the disintegration proceeds as shown in Figs. 19 and 20.

CHAPTER III

THE SPIKE GROUP

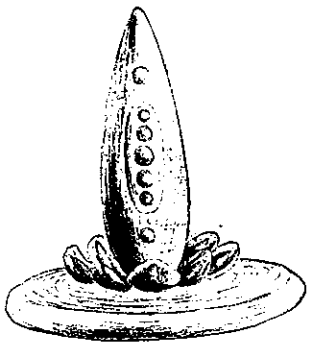
ALL the eleven elements in this group occur on the left-hand swing of the pendulum. They are all of the spike type, somewhat similar to the diagram in Fig. 21, which is that of Lithium. In most cases, however, there are a number of spikes of equal size, instead of one large spike and a number of smaller petals as in Lithium. Fluorine does not conform to the type since its spikes are reversed.

From Potassium onwards the constituent group N 110 appears as the centre from which the spikes radiate. The most striking component in all the elements of this groups is that termed the Lithium spike, Li 63.

How, with this Li 63 and N 110 as units, the elements of this family are generated can be studied from the diagrams. Of course, additional smaller bodies are brought in but a wonderful symmetry appears, as if a Grand Geometrician were indeed the Builder.

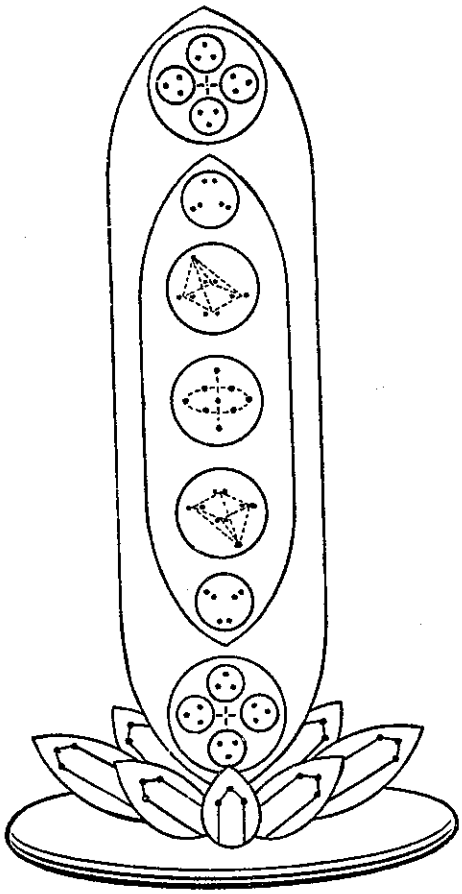
THE SPIKE GROUP

ATOMIC NO.	ANU	ELEMENT	CENTRE	SPIKES
3	127	Lithium	4 Li 4	1 (Li 63) + 8 Ad 6
9	340	Fluorine	2 N 110	8 (2 Be 4 + H 3^{1} + Li 4)
19	701	Potassium	N 110+6 Li 4	9 (Li 63)
25	992	Manganese	N 110	14 (Li 63)
37	1,530	Rubidium	3 N 110	16 (Li 63 + Rb 12)
43	1,802	Masurium	3 N 110	16 (Li 63 + Ma 29 (a or b)
55	2,376	Caesium	4 N 110	16 (Li 63 + 2 Ma 29 a)
61	2,640	Illinium	4 N 110	16 (2 Li 63 + Il 9 or Il 14)
	2,736	Il. Isotope	4 N 110	16 (2 Li 63 + Il 17 or Il 18)
69	3,096	Thulium	4 N 110	16 (2 Li 63 + Tm 40)
73	3,368	Rhenium	4 N 110	16 (2 Li 63 + Re 57)
87	4,006	87	5 N 110	16 (3 Li 63 + 87.27)



LITHIUM

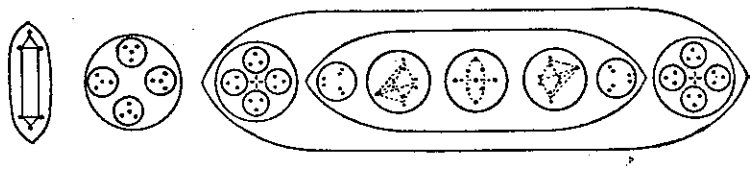
FLUORINE



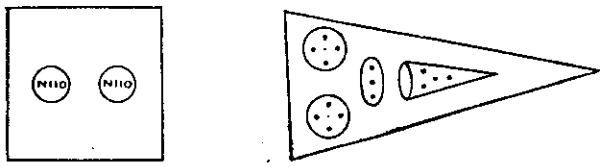
LITHIUM

FIG. 21. ELEMENTS SPIKE GROUP

LITHIUM



FLUORINE



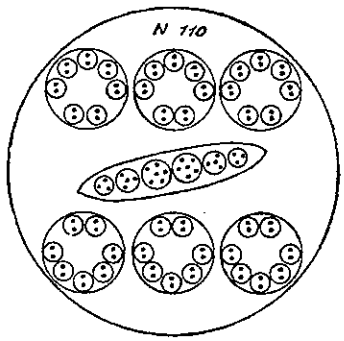


FIG. 22. LITHIUM, FLUORINE

ATOMIC NO. 3.

LITHIUM

Lithium is a striking and beautiful form, with its upright cone, or spike, its eight radiating petals at the base of the spike, and the plate-like support, in the centre of which is a globe on which the spike rests. The spike revolves swiftly on its axis, carrying the petals with it: the plate revolves equally swiftly in the opposite direction.

The central globe contains four small spheres, each of 4 Anu. These spheres are identified as Li4.

The spike contains two globes and a long ovoid; the spheres within the globe revolve as a cross. Within the ovoid are five spheres. In four of these the Anu are arranged as a tetrahedron. The central sphere has an axis of three Anu surrounded by a spinning wheel of six. This spike occurs in all the members of this family and since it contains 63 Anu in all, has been distinguished in our diagrams and for purposes of reference, as Li63.

Lithium = 4Li4 + 1Li63 + 8Ad6

Central globe	=	16	Anu
Spike of 63 Anu	=	63	„
8 petals of 6 Anu	=	48	„
Total	=	127	Anu

Number weight $\frac{127}{18}$ = 7.06

ATOMIC NO. 9.

FLUORINE

Fluorine is a most peculiar object like a projectile. The 8 spikes, reversed funnels coming to a point, are partly responsible for this warlike appearance.

Each spike contains four small groups, three tetrads and a triplet.

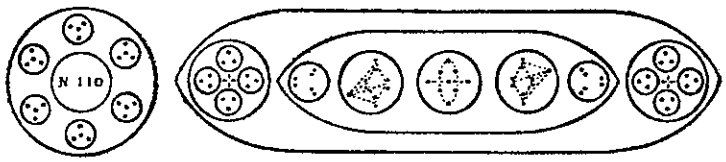
The cylindrical body is occupied by two spheres each containing 110 Anu. As this group occurs first in Nitrogen it is identified as N110. Fig. 22.

Fluorine = 2N110 + 8 (2Be4 + H3^{1} + Li4)

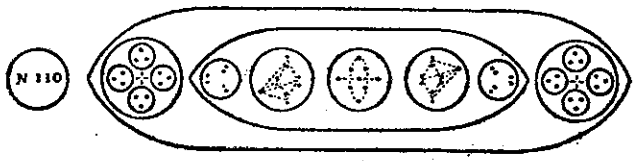
2 N 110 spheres	=	220	Anu
8 spikes of 15 A	=	120	„
Total	=	340	Anu

Number weight $\frac{340}{18}$ = 18.88

POTASSIUM



MANGANESE



RUBIDIUM

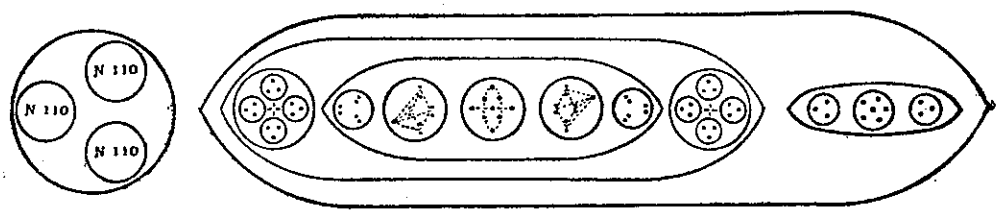


FIG. 23. POTASSIUM, MANGANESE, RUBIDIUM

NO. 19.

POTASSIUM

Potassium resembles Lithium in its arrangement except that it has 9 Li63 spikes ! of 1 spike and 8 petals. Its *central globe* is larger and consists of a central sphere, encircled by 6 small spheres of 4 Anu.

um = (N110 + 6Li4) + 9Li63

Central globe	=	134	Anu
9 Spikes of 63 Anu	=	567	„
Total	=	701	Anu

Number weight $\frac{701}{18}$ = 38.94

C NO. 25.

MANGANESE

Manganese resembles Potassium but it consists of 14Li63 spikes radiating from *al globe* N110.

nese = N110 + 14Li63

Central globe	=	110	Anu
14 Spikes of 63 Anu	=	882	„
Total	=	992	Anu

Number weight $\frac{992}{18}$ = 55.11

C NO. 37.

RUBIDIUM

Rubidium is built on the same pattern as Manganese but contains 16 spikes.

Each spike consists of the Li63 group and a smaller ovoid containing two triplets sextet.

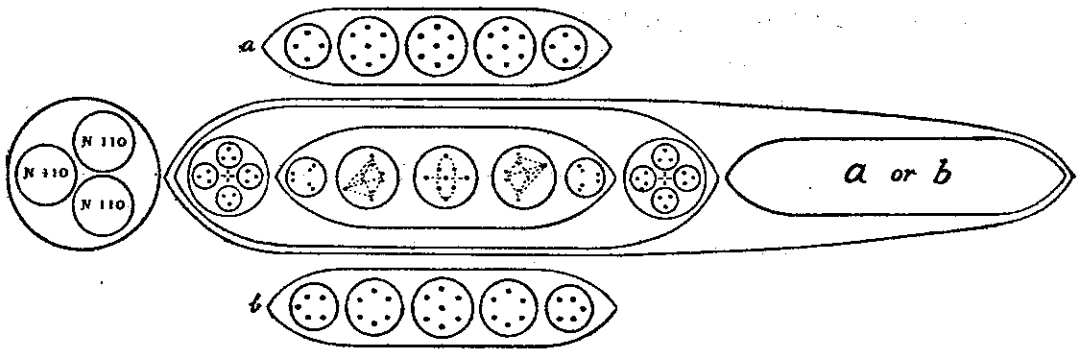
The central globe of Rubidium is composed of three N110 spheres.

lium = 3N110 + 16(Li63 + Rb12)

Central globe	=	330	Anu
16 Spikes of 75 Anu	=	1200	„
Total	=	1530	Anu

Number weight $\frac{1530}{18}$ = 85.00

MASURIUM



CAESIUM

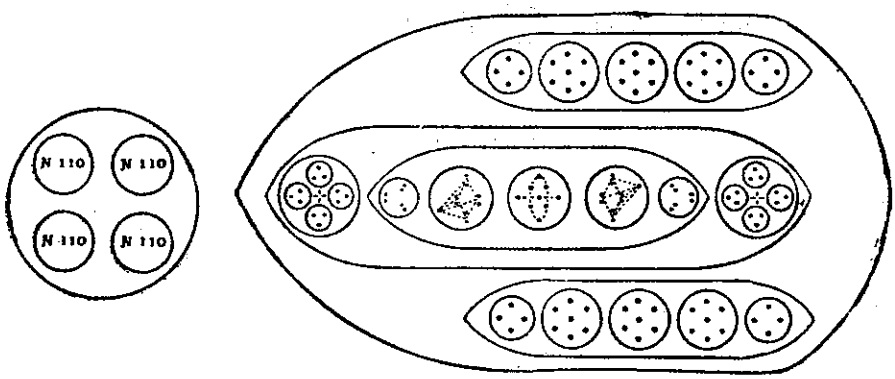


FIG. 24. MASURIUM, CAESIUM

ATOMIC NO. 43.

MASURIUM

Masurium was recorded by clairvoyant observation in 1909 and discovered spectroscopically in 1931. There are two varieties, each containing the same total number of Anu.

Like Rubidium, Masurium, has sixteen spikes. *Each spike* contains the Li63 group and an ovoid. The ovoids each contain 29 Anu, but in different atoms these vary in their arrangements, as shown in Fig. 24.

The central globe contains three N110.

Masurium = 3N110 + 16 [Li63 + Ma29 (a or b)]

Central globe	=	330	Anu
16 Spikes of 92 Anu	=	1472	„
Total	=	1802	Anu

Number weight $\frac{1802}{18}$ = 100.11

ATOMIC NO. 55.

CAESIUM

Caesium is in many ways similar to its predecessors. It contains sixteen *spikes*, each consisting of one Li63 and two smaller ovoids of 29 Anu similar to those in the *a* variety of Masurium.

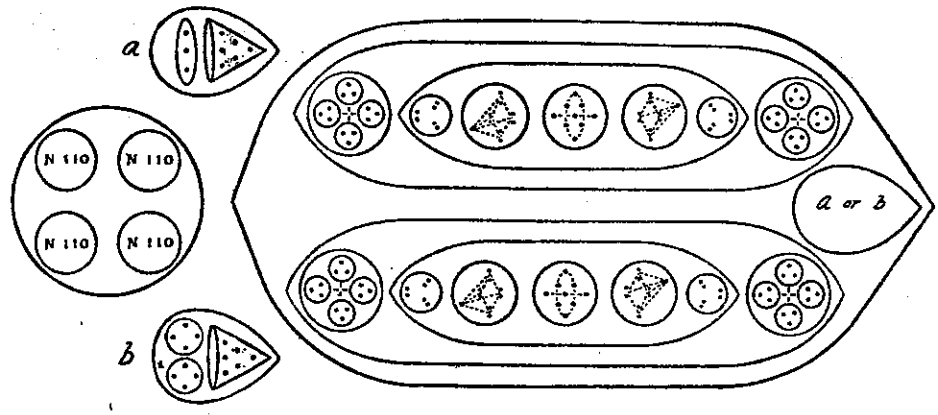
The central globe consists of four N110 groups.

Caesium = 4N110 + 16 (Li63 + 2 Ma29a)

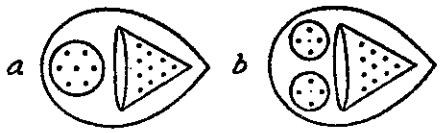
Central globe	=	440	Anu
16 Spikes of 121 Anu	=	1936	„
Total	=	2376	Anu

Number weight $\frac{2376}{18}$ = 132.00

ILLINIUM



ISOTOPE



THULIUM

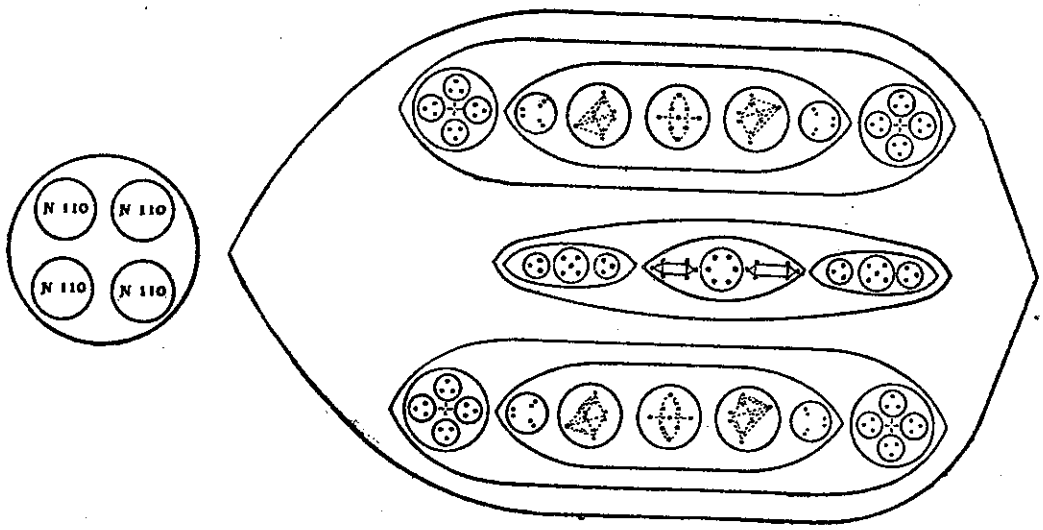


FIG. 25. ILLINIUM, THULIUM

ATOMIC NO. 61.

ILLINIUM

Illinium also contains sixteen *spikes*, but each contains two Li63 groups and a tiny floating cap. Alternate spikes have caps of nine and fourteen Anu respectively.

The *central globe* contains four N110 groups.

Illinium = 4N110 + 16 (2Li63 + Il.9 or Il.14)

Central globe	=	440	Anu
8 spikes of 135 Anu	=	1080	„
8 „ „ 140 Anu	=	1120	„
Total	=	2640	Anu

Number weight $\frac{2640}{18}$ = 146.66

ISOTOPE OF ILLINIUM

A curious fact is that a single atom of Illinium was found which appears to be a variant of Illinium; an absolutely unique specimen, identical with Illinium except that the two little caps contain seventeen and eighteen Anu respectively, instead of nine and fourteen. This gives a total of 2736 Anu which would give a number weight of 152.

Illinium b = 4N110 + 16 (2Li63 + Il.17 or Il.18)

Central globe	=	440	Anu
8 spikes of 143 Anu	=	1144	„
8 „ „ 144 Auu	=	1152	„
Total	=	2736	Anu

Number weight $\frac{2736}{18}$ = 152.00

ATOMIC NO. 69.

THULIUM

Thulium is another sixteen spike element.

Each *spike* consists of two Li63 groups revolving round a smaller central column of 40 Anu. This central column contains three ovoids.

The central globe contains four N110 groups.

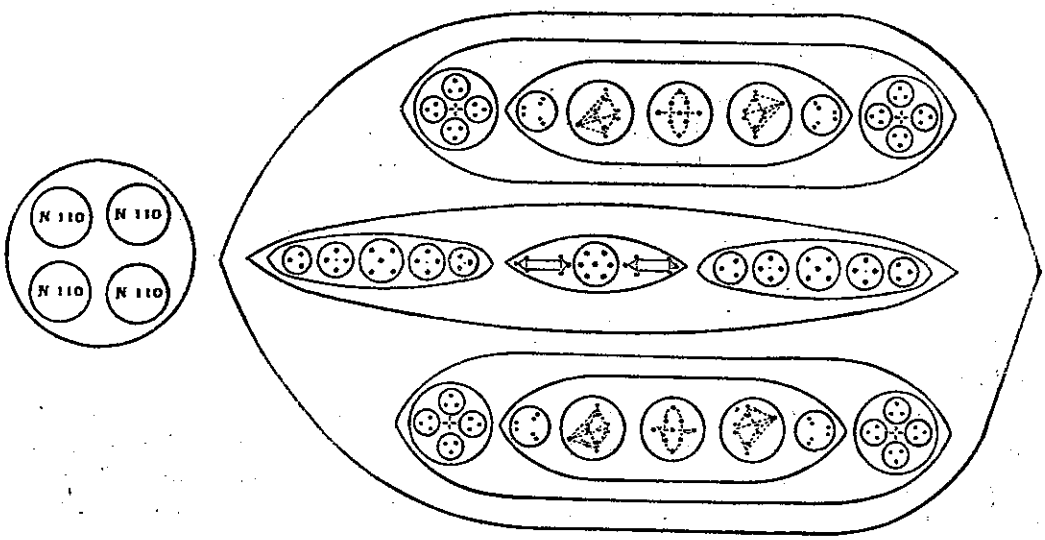
It is noteworthy that Thulium contains exactly the same number of Anu as the isotope of Kalon, Meta-Kalon.

Thulium = 4N110 + 16 (2Li63 + Tm40).

Central globe	=	440	Anu
16 spikes of 166 Ann	=	2656	„
Total	=	3096	Anu

Number weight $\frac{3096}{18}$ = 172

RHENIUM



87

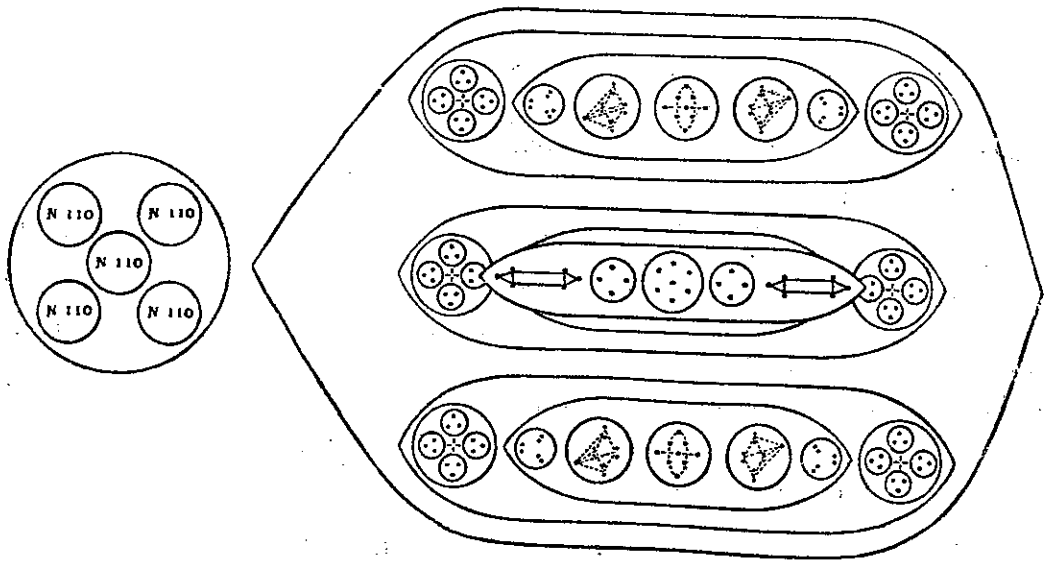


FIG. 26. RHENIUM, NO. 87

ATOMIC NO. 75.

RHENIUM

Rhenium was examined in 1931, having been isolated by science in 1922.

It contains sixteen spikes. Each *spike* is composed of two Li63 groups and a third ovoid containing 57 Anu.

The central globe is composed of four N110 groups.

Rhenium = 4N110 + 16 (2Li63 + Re57)

Central globe	=	440	Anu
16 spikes of 183 Anu	=	2928	„
Total	=	3368	Anu

Number weight $\frac{3368}{18}$ = 187.11

ATOMIC NO. 87.

87

This element, with atomic number 87, was reported by science in 1930. It is very unstable.

It contains sixteen spikes, each *spike* being composed of three Li63 groups and a fourth ovoid containing 27 Anu.

The central globe contains 5N110.

87 = 5N110 + 16 (3Li63 + 87.27)

Central globe	=	550	Anu
16 spikes of 216 Anu	=	3456	„
Total	=	4006	Anu

Number weight $\frac{4006}{18}$ = 222.55

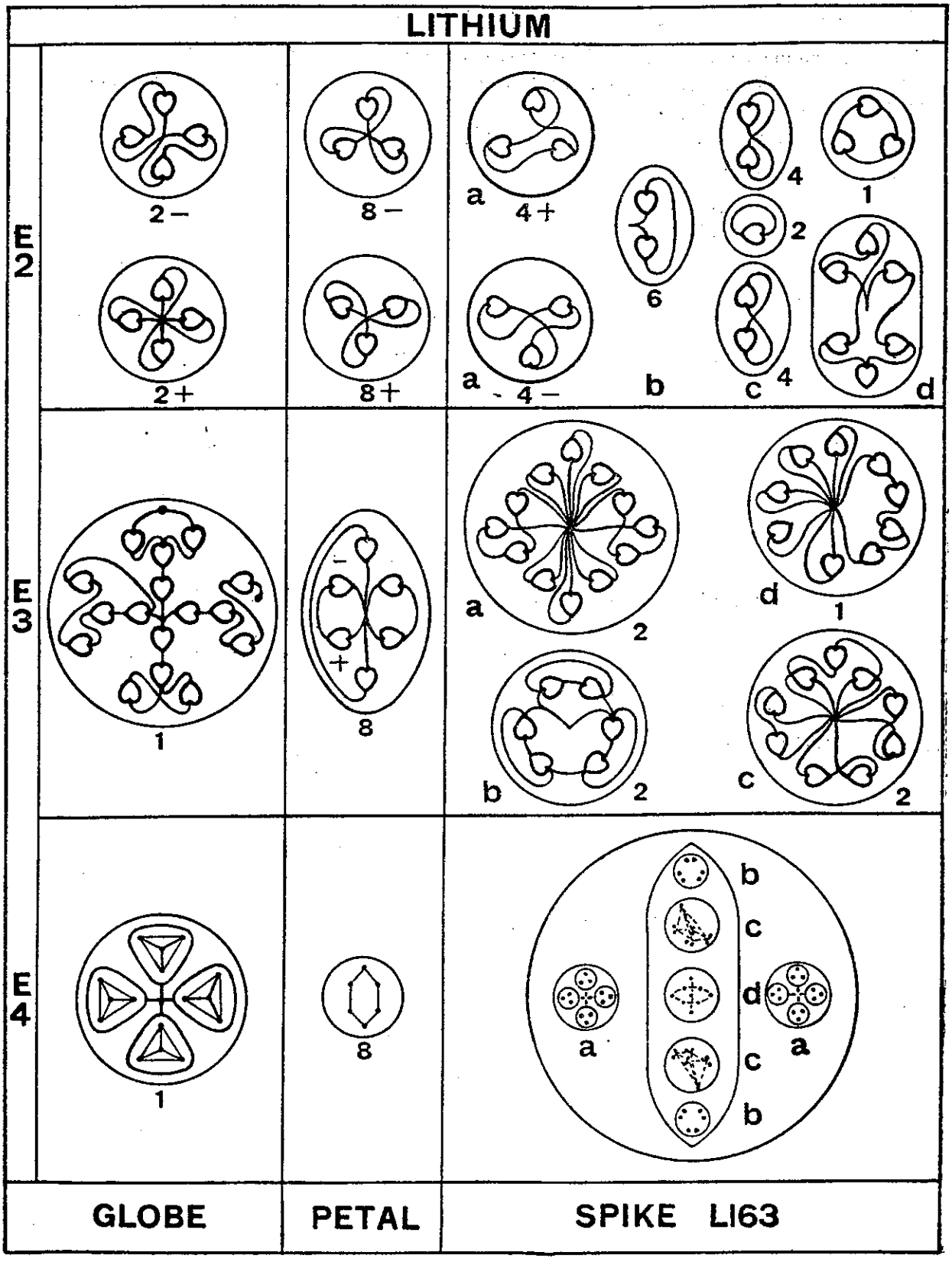


FIG. 27. DISINTEGRATION OF LITHIUM

DISINTEGRATION OF ELEMENTS OF THE SPIKE GROUP

Lithium, Fluorine, Potassium and Rubidium are the only elements in this group dealt with in detail.

DISINTEGRATION OF LITHIUM

The Lithium atom first breaks up on the E4 level into a globe, eight petals and one spike. Fig. 27.

The Globe. 4Li4. On the E4 level this forms a sphere containing 16 Anu arranged as four tetrahedrons.

On the E3 level these become a group of sixteen Anu.

On the E2 level four quartets are liberated, two positive and two negative.

The Petal. Ad6. This group is identical with the Ad6 'cigar' or prism already dealt with under Adyarium. On the E4 level eight of these are liberated.

On the E3 level they give positive and negative sextets.

On the E2 level each sextet gives two triads, one positive and one negative.

The Spike. Li63. On the E4 level the spike rearranges itself so as to form a sphere, having the ovoid in the centre and the small spheres to left and right of it.

On the E3 level the spike breaks up into seven bodies.

(*a*) Two groups, each of 12 Anu
(*b*) Two groups, „ of 6 „
(*c*) Two groups, „ of 9 „
(*d*) One group, of 9 „

On the E2 level further disintegration occurs.

Each (*a*)	gives 4 triads, 4 positive and 4 negative,	8	groups in all
„ (*b*)	„ 3 duads	6	„ in all
„ (*c*)	„ 4 duads and a unit . . .	10	„ in all
„ (*d*)	„ a sextet and a triplet . . .	2	„ in all

Thus the total number of bodies on the E2 level is twenty-six.

On the E1 level all break up into single Anu.

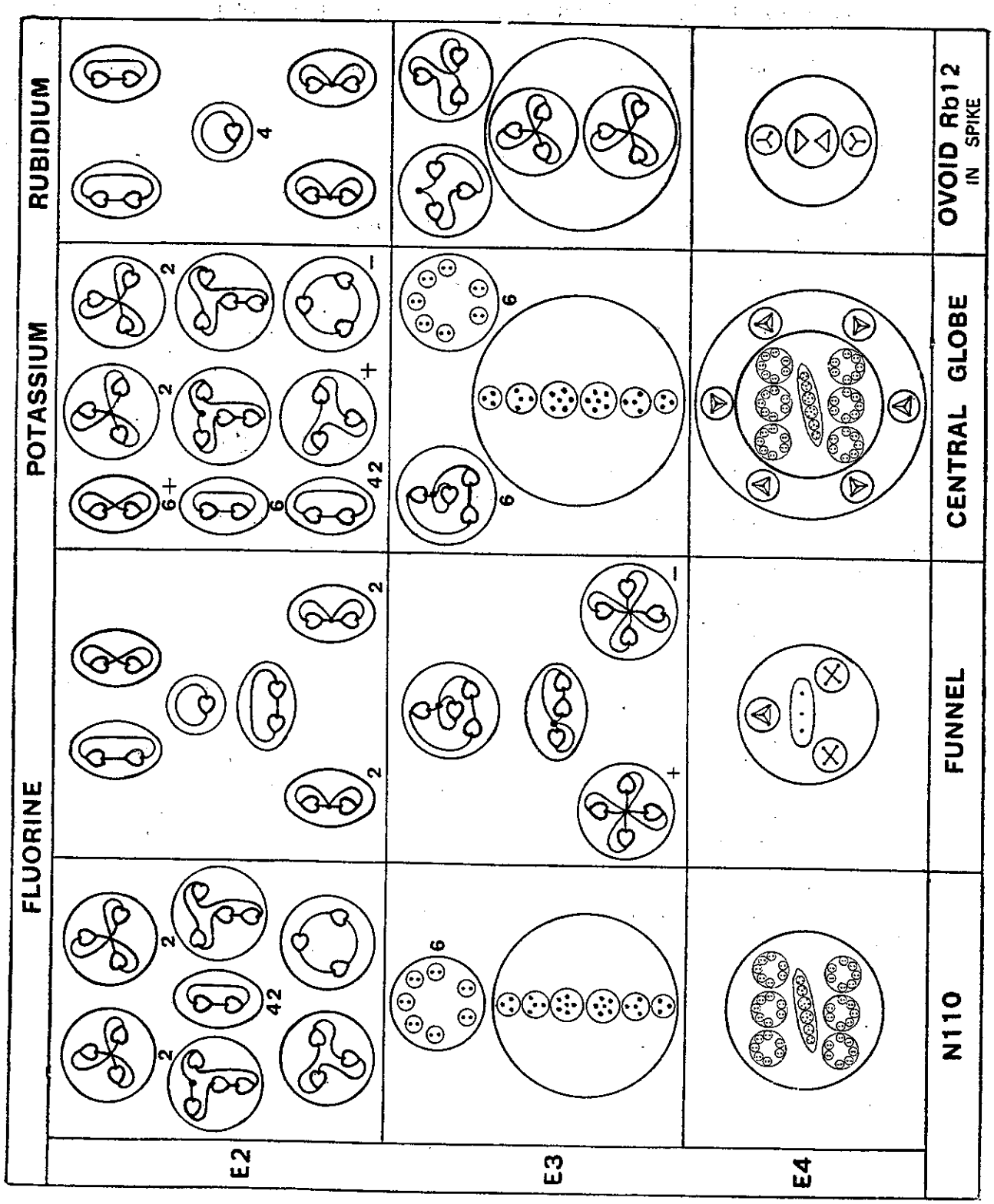


FIG. 28. DISINTEGRATION OF FLUORINE, POTASSIUM AND RUBIDIUM

DISINTEGRATION OF FLUORINE, POTASSIUM AND RUBIDIUM

FLUORINE

The main body of this element is formed by two N110 groups. Fig. 28.

On the E4 level they float off independently.

On the E3 level the central ellipse forms a sphere while the six spheres of seven duads, N14, are liberated.

On the E2 level the ellipse gives six triplets and two quartets and each N14 gives seven duads.

The funnels of Fluorine separate on the E4 level and are set free, becoming spheres.

On the E3 level the funnels set free their contained bodies, each funnel giving three quartets and a triad.

On the E2 level seven duads and a unit are formed.

POTASSIUM

On the E4 level one globe and nine spikes are liberated.

The globe. The central part of the globe is the N110 group. Fig. 28.

On the E4 level this forms a sphere surrounded by the six little tetrahedrons, 6Li4.

On the E3 level the N110 disintegrates into a sphere and six N14, as already described under Fluorine, while the Li4 tetrahedrons are liberated as quartets. Thirteen bodies are thus liberated on this level.

On the E2 level the quartets Li4 each give two duads while the N14 each give seven duads and the ellipse six triplets and two quartets. Half of these are positive and half negative.

The Spikes. The spikes Li63 are identical with those in Lithium and their behaviour is as shown under that element. Fig. 27.

RUBIDIUM

Rubidium gives sixteen spikes and three N110 on the E4 level.

The Globe. The central globe has three N110. Each of these is liberated on the E4 level and its disintegration proceeds as in the previous elements. Figs. 27, 28.

The Spikes. The spikes are more complicated than those of Lithium as they contain an extra ovoid Rb12. The Li63 group from the spike forms a sphere and behaves as in Lithium at all levels, as shown in Fig. 27. The ovoid Rb12 has a somewhat unusual form.

On the E4 level the triangles of the sextet revolve round each other.

On the E3 level the ovoid gives two triads and a sextet with two distinct triads.

On the E2 level the triads give duads and units.

Figure 29 shows in a condensed form all the elements of the spike group. The relationships and the way each atom is built up from a few constituents can be easily observed.

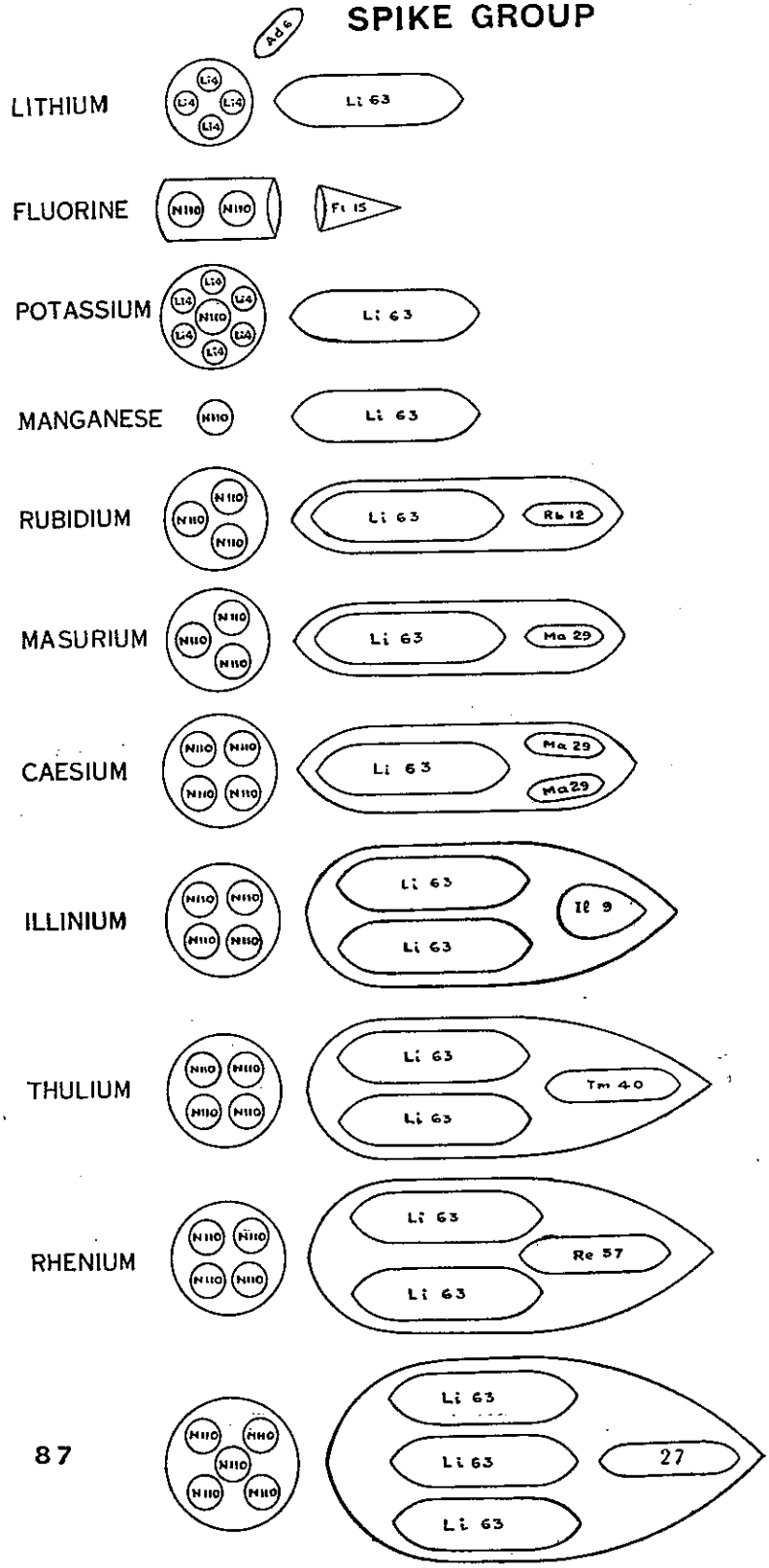
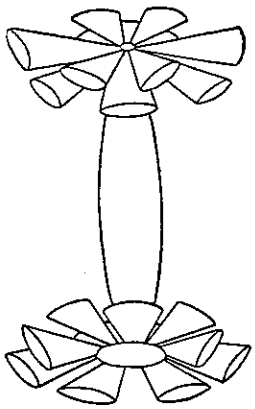
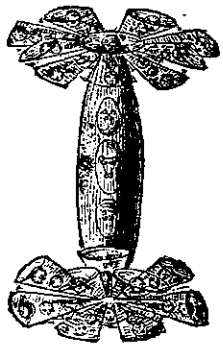

SPIKE GROUP
Ad 6
LITHIUM
Li 4
Li 63
FLUORINE
N110
Fl 15
POTASSIUM
Li 4
N110
Li 63
MANGANESE
N110
Li 63
RUBIDIUM
N110
Li 63
Rb 12
MASURIUM
N110
Li 63
Ma 29
CAESIUM
N110
Li 63
Ma 29
Ma29
ILLINIUM
N110
Li 63
Il 9
THULIUM
N110
Li 63
Tm 40
RHENIUM
N110
Li 63
Re 57
87
N110
Li 63
27

FIG. 29

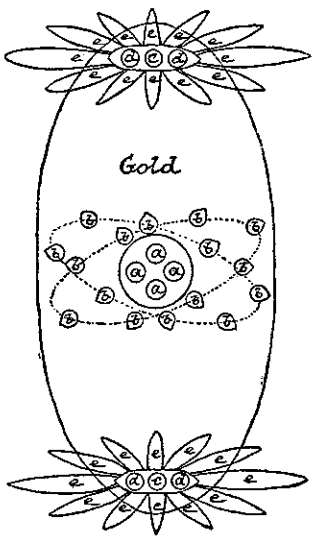


DUMB-BELL



SODIUM

GOLD



GOLD

FIG. 30. TYPES OF THE DUMB-BELL GROUP

CHAPTER IV

THE DUMB-BELL GROUP

THE ten elements in this group are all of one type. What the type is will be seen from Fig. 30 : the general shape was called a dumb-bell, as the best word to describe these elements. Each dumb-bell is composed of :

1. A connecting rod.
2. An upper part, or head, composed of twelve funnels revolving round a central globe. The twelve funnels, as they radiate outwards from the globe, point slightly upwards or downwards alternately.
3. An exactly similar lower part, composed of twelve funnels, radiating from a similar globe.

Each element is surrounded by a sphere wall.

These elements occur to the right of the central line in the pendulum diagram. Their characteristic valence is one.

In the diagrams we give the connecting rod, the globe and one funnel. It will be seen that here, as in the spike group, we find certain characteristic groups which are built into many of the elements.

The connecting rod in five elements is the same, and to this group we have given the distinguishing name of Cl.19. The rod in the last four elements steadily increases in size. The constituents of the Occultum atom appear frequently in Samarium, Erbium, Gold and 85. In the connecting rod, whenever there are two columns, as in Samarium, they revolve perpendicularly round a common centre. When there are three columns, as in Erbium, they revolve round a centre which is the connecting rod Cl.19, the three columns being at the corners of a triangle. When there are four columns, as in 85, they revolve round a common centre, being at the corners of a square. The connecting rod of gold is exceptional as it does not contain columns.

The globes increase steadily in size as the weight increases. The analysis shows how these are built up.

The funnels also increase in size. One very important group, Cl.25, occurs in all the elements of this group from chlorine onwards.

One isotope, that of chlorine was observed.

THE DUMB-BELL GROUP

ATOMIC NO.	ANU	ELEMENT	ROD	GLOBES	FUNNELS
11	418	Sodium	Na14	2Na10	24 (Na16)
17	639	Chlorine	Cl.19	2Na10	24 (Na16+N9) = 24 Cl.25
29	1,139	Copper	Cl.19	2 (2Be4+2Ad6)	24 (Cl.25+2B5+Cu10)
35	1,439	Bromine	Cl.19	2 (Be4+2H3+2N2)	24 (Cl.25+3Ge11)
47	1,945	Silver	Cl.19	2 (m-Ne5+2H3+2N2)	24 (Cl.25+3 Ge11+Ag21)
53	2,287	Iodine	Cl.19	2 (3Be4+2H3)	24 (Cl.25+3 Ge11+5.I.7)
62	2,794	Samarium	(2Sm84+4Sm66)	2Sm101	24 (Cl.25+4 Ge11+Ag21)
68	3,029	Erbium	(Cl.19+3Sm84+6Sm66)	2Sm101	24 (Cl.25+4 Ge11+Ag21)
79	3,546	Gold	(4Sm84+16Au33 = Au864)	2 (Sm101+2Au38)	24 (Cl.25+4Ge11+Fe28)
85	3,978	85	Au864	2 (Sm101+2Au38)	24 (Cl.25+2+4.85.15+Fe28

ATOMIC NO. 11.

SODIUM

Sodium is the simplest of the Dumb-bell group. It consists of a central rod, the bar of the dumb-bell, at each end of which is a globe from which radiate twelve funnels.

Rod. The rod consists of fourteen Anu arranged in three spheres of four, six and four Anu respectively.

Globe. The globe from which the funnels radiate consists of two concentric spheres. In the inner one are four Anu, while six Anu are found in the outer circle.

Funnel. Each funnel shows four enclosed bodies, chiefly made up of duads, as shown in Fig. 31.

Sodium = Na14 + 2 Na10 + 24 Na16.

Connecting rod	=	14	Anu
Upper part, 12 funnels of 16 Anu	=	192	„
Central globe	=	10	„
Lower part, 12 funnels of 16 Anu	=	192	„
Central globe	=	10	„
Total	=	418	Anu

Number weight $\frac{418}{18}$ = 23.22

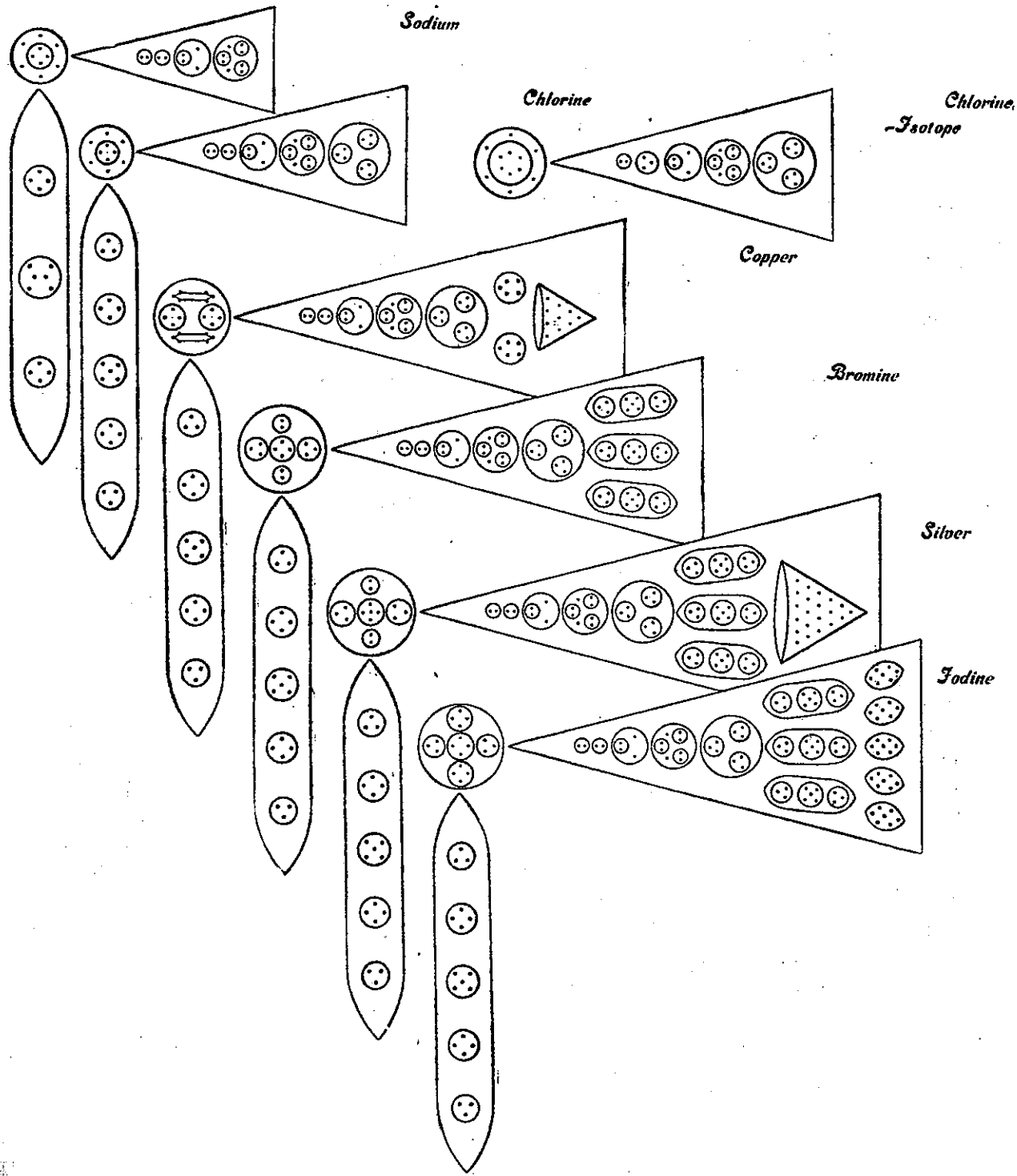


FIG. 31. SODIUM, CHLORINE, COPPER, BROMINE, SILVER, IODINE

ATOMIC NO. 17. CHLORINE

Chlorine contains some of the fundamental patterns used in this group. Fig. 31.

Rod. In the rod we find an arrangement of five small spheres, containing three, four, five, four and three Anu respectively. This makes up the characteristic group Cl.19 which occurs again in a number of elements in the group.

Globe. The globes are the same as those in Sodium.

Funnel. The funnel, shown flat as an isosceles triangle, is a somewhat complicated structure, of the same type as that in Sodium, the difference consisting in the addition of one more sphere containing nine Anu. The whole funnel forms the characteristic group Cl.25, which occurs in all the succeeding elements in the group.

These close similarities point to some real relation between these elements.

Chlorine = Cl.19 + 2Na10 + 24Cl.25.

Connecting rod	=	19	Anu
Upper part, 12 funnels of 25 Anu	=	300	„
Central globe	=	10	„
Lower part, 12 funnels of 25 Anu	=	300	„
Central globe	=	10	„
Total	=	639	Anu

Number weight $\frac{639}{18} = 35.50$

ISOTOPE OF CHLORINE

This was specially looked for in sea water and found. The difference consists in the addition of one Anu to each of the 24 funnels, and of two Anu to each of the two globes round which the funnels revolve. A funnel of Chlorine consists of five spheres containing respectively 2, 2, 4, 8, and 9 Anu. In the isotope, the arrangement is 2, 3, 4, 8, and 9. Each central globe of Chlorine contains ten Anu, an inner sphere of four Anu surrounded by an outer of six. In the isotope the central globe contains twelve Anu, an inner sphere of six Anu at the points of an octohedron, and an outer sphere of six. Fig. 31.

The isotope is less common than the normal variety of Chlorine. Though a thorough investigation was not made of the difference between Chlorine and its isotope, nevertheless the impression gained was that the isotope was more positive than Chlorine.

Chlorine *a* = Cl.19 + 2 (Na10 + 2) + 24 Cl.26

Connecting rod	=	19	Anu
Upper part, 12 funnels of 26 Anu	=	312	„
Central globe	=	12	„
Lower part, 12 funnels of 26 Anu	=	312	„
Central globe	=	12	„
Total	=	667	Anu

Number weight $\frac{667}{18} = 37.06$

ATOMIC NO. 29. COPPER

Rod. The connecting rod in Copper is exactly the same as that in Chlorine, Cl.19.

Globe. The central globe contains two spheres of four Anu and a prism-shaped group containing six Anu. This is the Ad6 group, which is one of the most common of the constituent groups.

Funnel. The main portion of the funnel is that of Chlorine, Cl.25. The funnel also contains additional bodies, notably a triangular cone containing ten Anu. Such a cone, built of varying numbers of Anu, occurs in other elements, such as Gold, Iron and Platinum. There are also two quintets, 2B5. Fig. 31.

Copper = Cl.19 + 2 (2Be4 + 2Ad6) + 24 (Cl.25 + 2B5 + Cu10)

Connecting rod	=	19	Anu
Upper part, 12 funnels of 45 Anu	=	540	„
Central globe	=	20	„
Lower part, 12 funnels of 45 Anu	=	540	„
Central globe	=	20	„
Total	=	1139	Anu

Number weight $\frac{1139}{18} = 63.28$

ATOMIC NO. 35. BROMINE

Rod. In Bromine the connecting rod remains unchanged, Cl.19.

Globe. The globe seems to be formed from that of Chlorine. Two pairs of Anu are added and a rearrangement is effected by drawing together and lessening the swing of the pairs of triplets, thus making room for the newcomers.

Funnel. Each funnel consists of the Cl.25 and three additional groups, Ge11, ovoid in shape, and each containing eleven Anu. Thus thirty-three Anu are added without any disturbance of form. The total number of Anu is here raised to 1,439. Fig. 31.

Over and over again, in these investigations, were we reminded of Tyndall's fascinating description of crystal building, and his fancy of the tiny, ingenious builders busied therein. Truly are there such builders, and the ingenuity and effectiveness of their devices are delightful to see. Theosophists call them Nature-spirits, and often use the mediaeval term elementals. Beings concerned with the elements truly are they, even with chemical elements.

Bromine = Cl.19 + 2 (Be4 + 2H3 + 2N2) + 24(Cl.25 + 3Ge11)

Connecting rod	=	19	Anu
Upper part, 12 funnels of 58 Anu	=	696	„
Central globe	=	14	„
Lower part, 12 funnels of 58 Anu	=	696	„
Central globe	=	14	„
Total	=	1439	Anu

Number weight $\frac{1439}{18} = 79.94$

ATOMIC NO. 47.

SILVER

Rod. The connecting rod in Silver is the Cl.19.

Globe. The globe is similar to that in Bromine, except that the small central sphere has five Anu instead of four.

Funnel. The funnel contains the Cl.25 and the three Ge11, as in Bromine, but it adds a triangular group of 21 Anu. In this it resembles copper and other metals. Fig. 31.

Silver = Cl.19 + 2 (m-Ne5 + 2H3 + 2N2) + 24 (Cl.25 + 3 Ge11 + Ag21)

Connecting rod	=	19	Anu
Upper part, 12 funnels of 79 Anu	=	948	,,
Central globe	=	15	,,
Lower part, 12 funnels of 79 Anu	=	948	,,
Central globe	=	15	,,
Total	=	1945	Anu

Number weight $\frac{1945}{18} = 108.06$

ATOMIC NO. 53.

IODINE

Rod. The connecting rod is the Cl.19.

Globe. The central globe contains three quartets and two triplets.

Funnel. The funnel contains the Cl.25 and three Ge11, as in Bromine, and adds five ovoids, I.7, each containing seven Anu. Fig. 31.

Iodine = Cl.19 + 2 (3Be4 + 2H3) + 24 (Cl.25 + 3Ge11 + 5 I.7)

Connecting rod	=	19	Anu
Upper part, 12 funnels of 93 Anu	=	1116	,,
Central globe	=	18	,,
Lower part, 12 funnels of 93 Anu	=	1116	,,
Central globe	=	18	,,
Total	=	2287	Anu

Number weight $\frac{2287}{18} = 127.06$

ATOMIC NO. 62.

SAMARIUM

This element seems to be an intermediate stage between Silver and Gold. Fig. 32.

Rod. The connecting rod is yet in embryo, for it has not the wonderful solar system which makes so splendid an appearance in Gold. It has evolved already the curious form, Sm84, with its four rope-like rings, Oc. 15., borrowed from Occultum. Two of these Sm84 groups appear in Samarium and four in Gold. The Au33 groups, also derived from Occultum, which rotate round the central sphere in the rod of Gold, appear in this element but are curiously doubled.

The rod contains, in all, six bodies, forming two columns which revolve round a common centre. The rod will be found on close examination to be constructed from the constituents of eight atoms of Occultum.

Globe. The globes at the top and bottom of the dumb-bell have now become a complex body which may be distinguished as Sm101. Each globe consists of a central small sphere of five Anu, surrounded by a ring of six duads. These are again surrounded by a ring of twelve L7 groups.

Funnel. The funnels are identical with those of Silver, except that the Cl.25 is slightly rearranged and there are four Ge11 instead of three. It contains the triangular-shaped body containing 21Anu, Ag21.

There is some reason to believe that this element is the Aurichalcum of the Atlanteans, as described by Plato. If so, it probably exists in much greater quantity than is yet known.

Samarium is considered to be one of the Rare Earths and chemists are undecided how best to assign places in the Periodic Table to these elements. It will be seen that the arrangement suggested in this book, and confirmed by the sequence of characteristic shapes, gives a scheme whereby all these elements fall naturally into the groups.

Samarium = (2Sm84 + 4Sm66) + 2Sm101 + 24 (Cl.25 + 4Ge11 + Ag21)

Connecting rod	=	432	Anu
Upper part, 12 funnels of 90 Anu	=	1080	„
Central globe	=	101	„
Lower part, 12 funnels of 90 Anu	=	1080	„
Central globe	=	101	„
Total	=	2794	Anu

Number weight $\frac{2794}{18} = 155.22$

ATOMIC NO. 68.

ERBIUM

Rod. The connecting rod follows the pattern of Samarium, but it contains three columns instead of two and these columns contain the constituents of twelve Occultum atoms. In addition there is the group Cl.19 which appears as the connecting rod in the earlier elements. The three columns are placed at the corners of a triangle and revolve round the Cl.19.

Globe. The globe is the Sm101 group which forms the globe of Samarium.

Funnel. The funnels are identical with those of Samarium. Fig. 32.

Erbium = (Cl.19 + 3Sm84 + 6Sm66) + 2Sm101 + 24 (Cl.25 + 4 Ge11 + Ag21)

Connecting rod	=	667	Anu
Upper part, 12 funnels of 90 Anu	=	1080	,,
Central globe	=	101	,,
Lower part, 12 funnels of 90 Anu	=	1080	,,
Central globe	=	101	,,
Total	=	3029	Anu

Number weight $\frac{3029}{18} = 168.27$

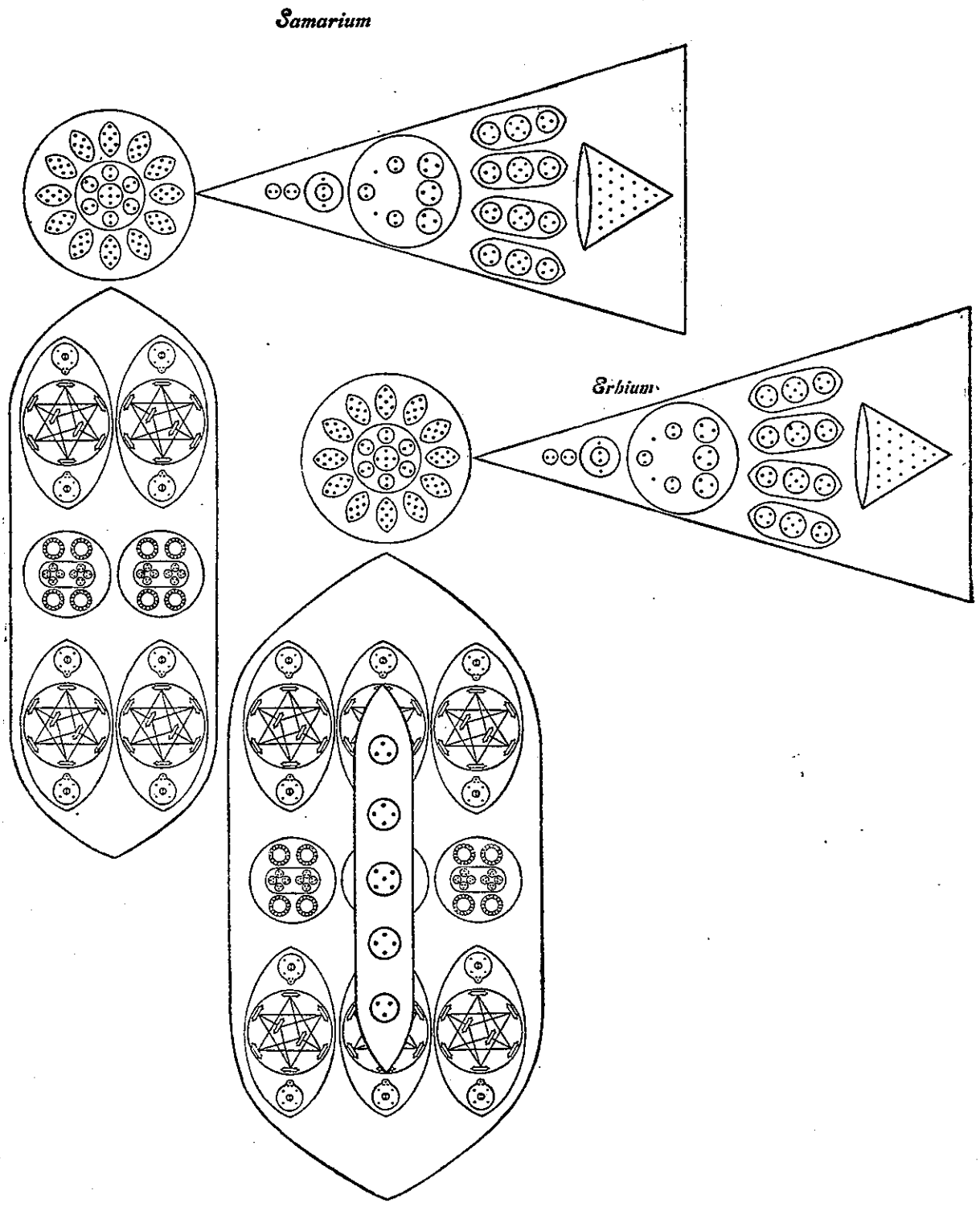


FIG. 32. SAMARIUM, ERBIUM

ATOMIC NO. 79.

GOLD

Gold is so complicated that it is difficult to recognise the familiar dumb-bell in this elongated egg, but when we come to examine it the characteristic groupings appear. The egg is the enormously swollen connecting rod, and the upper and lower funnels with their central globes are the almond-like projections radiating from an ovoid. Round each almond is a shadowy funnel (not drawn in the diagram) and within the almond is the collection of bodies shown in the diagram of the funnel. Figs. 30 and 33.

Rod. The rod contains four groups, Sm84, in the centre, and sixteen Au33 groups circling round them. These sixteen groups are arranged in two planes inclined to one another. The whole rod is made from the constituents of sixteen atoms of Occultum.

Globe. The central globe here becomes an ovoid and is made up of one sphere, as in Samarium, Sm101, and two new spheres, Au38.

Funnel. The funnels are exactly like those of Samarium and Erbium except that the triangular body has twenty-eight Anu, as in Iron.

Gold = (4Sm84 + 16Au33) + 2 (Sm101 + 2Au38) + 24 (Cl.25 + 4Ge11 + Fe28).

Connecting rod	=	864	Anu
Upper part, 12 funnels of 97 Anu	=	1164	,,
Central globe	=	177	,,
Lower part, 12 funnels of 97 Anu	=	1164	,,
Central globe	=	177	,,
Total	=	3546	Anu

Number weight $\frac{3546}{18} = 197.00$

Gold

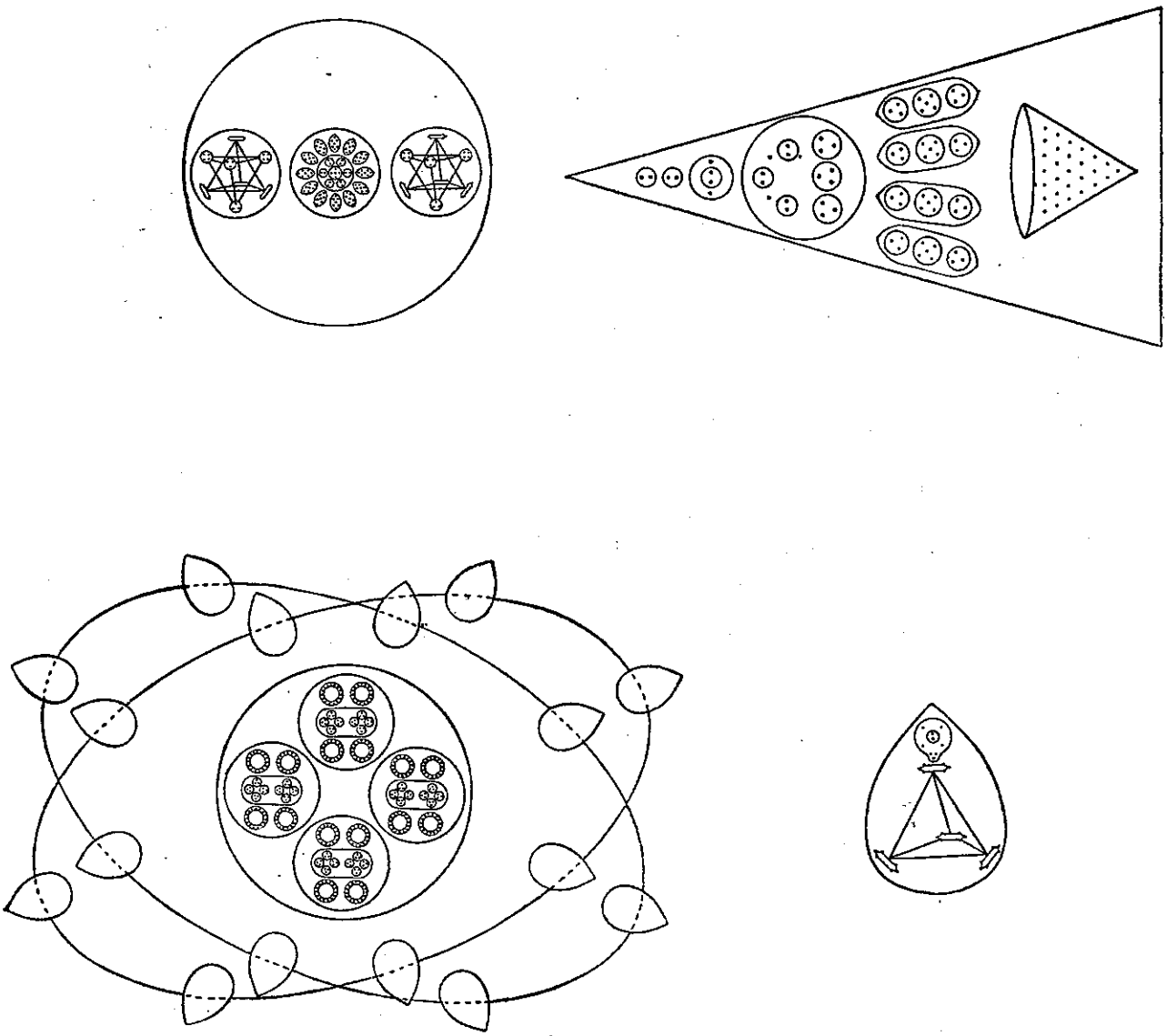


FIG. 33. GOLD

ATOMIC NO. 85.

85

This element follows the pattern of Samarium and Erbium. Figs. 32 and 34.

Rod. The rod is very large and, like that of gold, contains the constituents of sixteen Occultum atoms. In No. 85, however, these groups are arranged in columns as in Samarium, though here we have four columns instead of two. The four columns are arranged at the corners of a square and rotate round a centre.

Globe. The globe is as in gold and contains one Sm101 and two Au38 spheres.

Funnel. The funnel is like that of Gold but there are 18 extra Anu packed in. This is done, first by adding two Anu to the Cl.25 unit, two of the upper duads becoming triplets. Then instead of the four Ge11 groups we have four groups made up of two spheres of four Anu and one sphere of seven Anu. So we have four groups of fifteen Anu instead of four of eleven. The Fe28 cone comes at the mouth of the funnel.

$$85 = Au864 + 2\,(Sm101 + 2\,Au38) + 24\,(Cl.\,25{+}2 + 4.\,85.\,15 + Fe28)$$

Connecting rod	=	864	Anu
Upper part, 12 funnels of 115 Anu	=	1380	„
Central globe	=	177	„
Lower part, 12 funnels of 115 Anu	=	1380	„
Central globe	=	177	„
Total	=	3978	Anu

Number weight $\frac{3978}{18} = 221.00$

NO. 85.

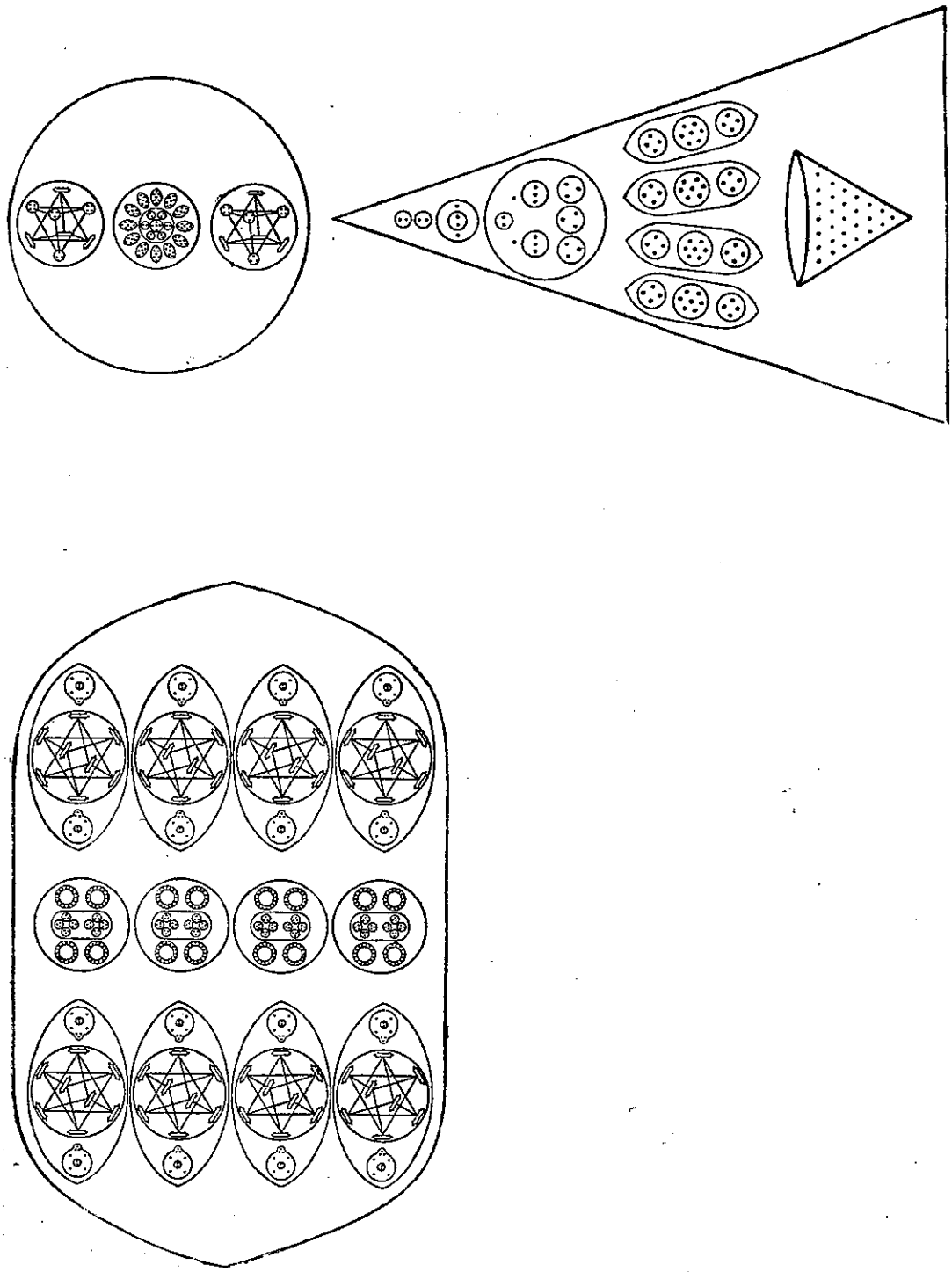


FIG. 34. NO. 85

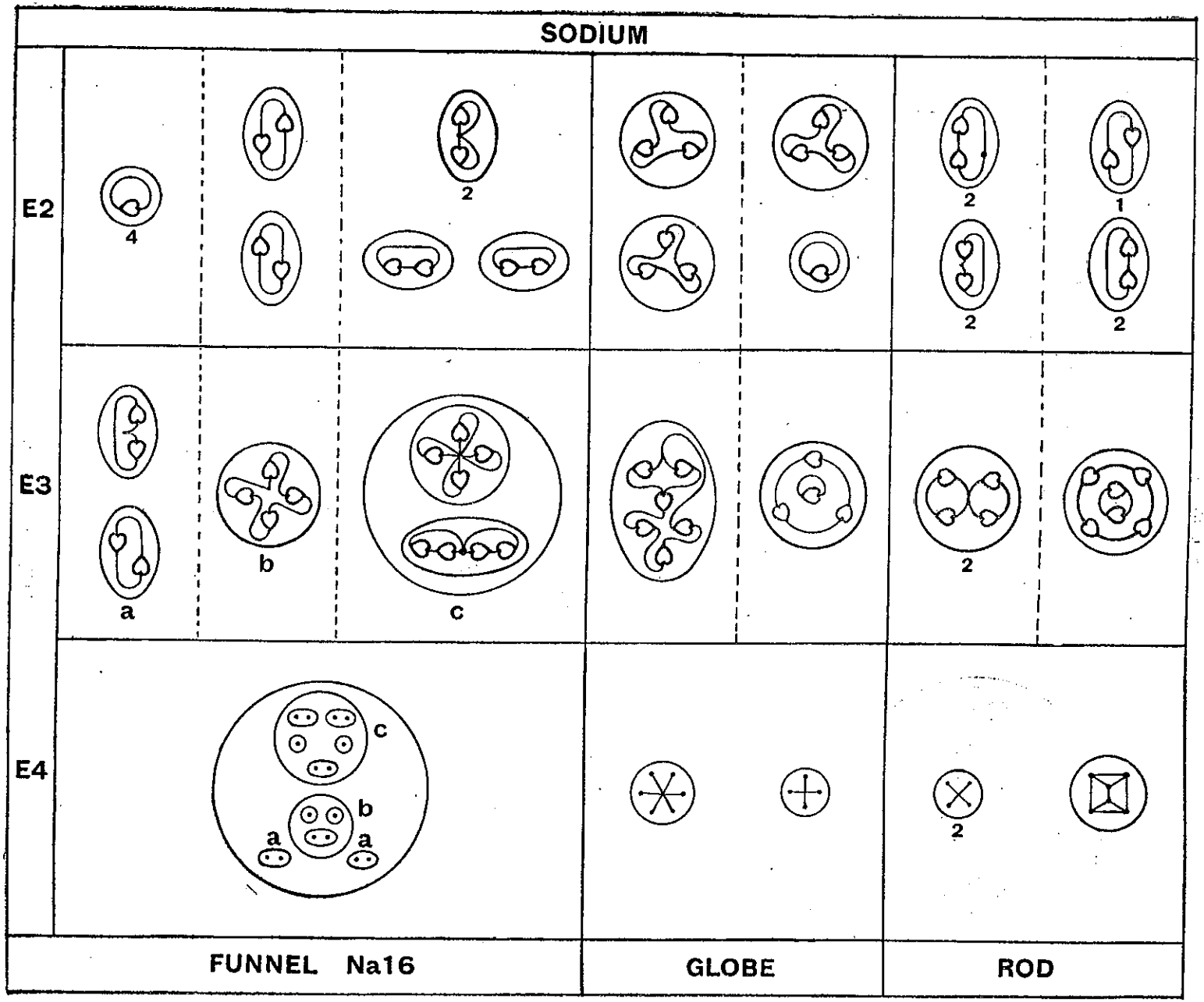


FIG. 35. DISINTEGRATION OF SODIUM

DISINTEGRATION OF THE DUMB-BELL GROUP

SODIUM

Sodium gives the basic pattern of disintegration for the whole group. Fig. 35. When Sodium is set free from its gaseous condition it divides up into 31 bodies; twenty-four separate funnels, four bodies derived from the two globes and three from the connecting rod, each with more or less complex contents.

Funnels. On the E4 level each funnel becomes a sphere containing four bodies, 2*a*, 1*b* and 1*c*.

On the E3 level the two duads *a* become entirely independent and on the E2 level the four Anu break off from each other and gyrate in independent solitude.

The contents of the *b* group unite into a quartet which, on the E2 level, yields two duads.

The contents of the group *c* are re-arranged on the E3 level, giving two groups of four within a common sphere. On the E2 level the sphere yields four duads.

Globes. Each globe yields a sextet and a quartet on the E4 level. On the E3 level the sextet, with its six Anu whirling round a common centre, becomes grouped into two triplets, preparing for the complete separation of these on the E2 level.

The quartet, a whirling cross with an Anu at each point, becomes a quartet on the E3 level, in which three Anu revolve round a fourth. In the E2 state the central Anu is set free, resulting in a triplet and a unit.

Rod. On the E4 level the rod sets free two quartets and a peculiarly formed sextet. Each of the quartets liberated from the Rod shows four Anu whirling round a common centre, exactly resembling in appearance the quartet from the globe. But there must be some difference of inner relation for, in the E3 state, they act differently. Those from the Rod re-arrange themselves as two pairs and divide into two duads on the E2 level.

The sextet is a four-sided pyramid with two closely joined Anu at its apex. These still cling to each other in mutual revolution as an E3 body, encircled by a ring of four. On further disintegration to the E2 level this leads to three duads.

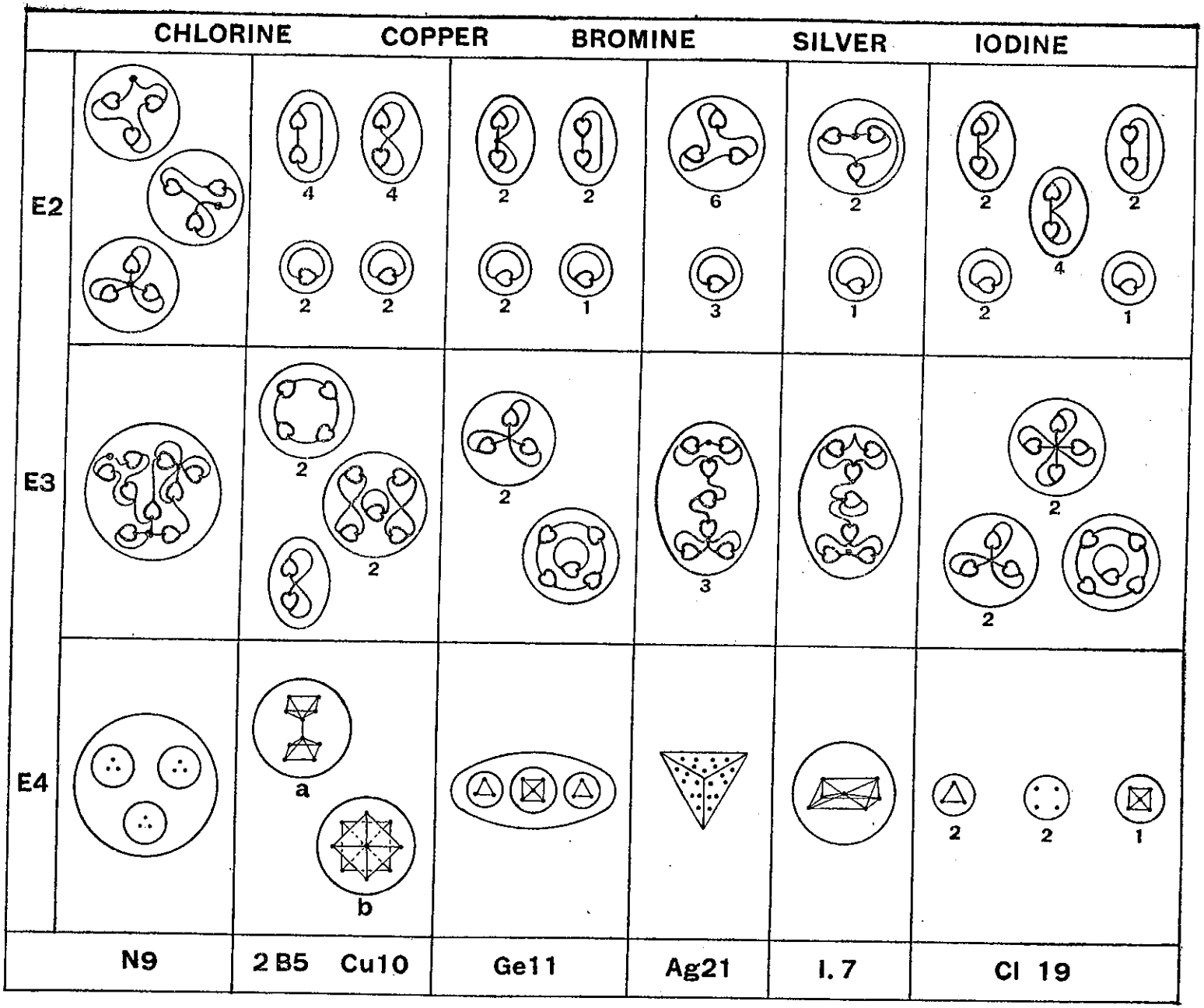


FIG. 36. DISINTEGRATION OF FUNNELS OF COPPER, BROMINE, SILVER, IODINE

DISINTEGRATION OF CHLORINE

Funnels. On the E4 level the 24 funnels, Cl.25, form spheres as do those of Sodium. The small additional sphere, N9, containing three groups of three Anu, remains within this funnel-sphere. Figs. 35 and 36.

Globes. The globes are identical with those of Sodium and disintegrate in the same way. Fig. 35.

Rod. The connecting rod, Cl.19, is common to a number of elements. Fig. 36. On the E4 level it sets free 5 bodies, two triplets, two tetrads and a quintet, the latter in the form of a four-sided pyramid. On the E3 level we find the two triplets and the two quartets. The quintet has become a ring of 4 Anu whirling round a central unit. On the E2 level these further disintegrate yielding 8 duads and 3 units.

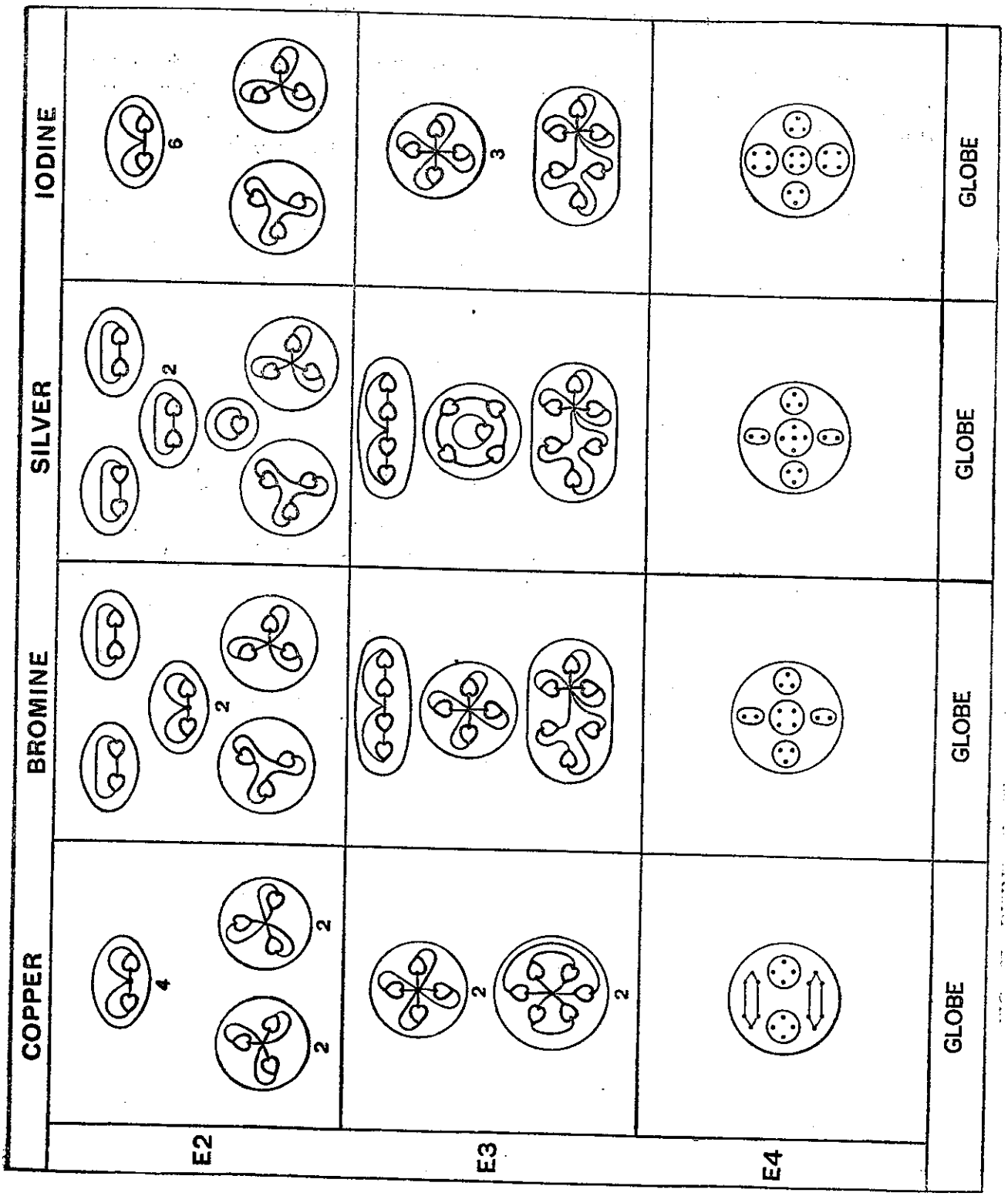
DISINTEGRATION OF COPPER

Funnels. Each funnel in Copper contains a lower part which is identical with the funnel of Chlorine, Cl.25. This lower part disintegrates as shown in Figs. 35 and 36. The upper part of the funnel provides us with new types, the two spheres of ten Anu. The Anu in these spheres are curiously arranged. One sphere, *a*, consists of two square-based pyramids, 2B5, turned so as to meet at their apices. It breaks up into two quartet-rings and a duad on the E3 level. On the E2 level it forms 4 duads and 2 units. The sphere, *b*, also contains two four-sided pyramids but their bases are in contact and set at right angles to each other; the second apex is not seen in the diagram as it is directly below the first. The pyramids separate as E3 bodies and the Anu assume the peculiar arrangement indicated. On the E2 level, they break up into four pairs and two units.

Globe. Fig. 37. Each globe contains two spheres of 4 Anu and two Ad6 groups. The globe is set free on the E4 level but does not break up. On the E3 level it forms two quartets and two sextets.

On the E2 level we find 8 smaller bodies, four triads and 4 duads.

Rod. Cl.19 disintegrates as in Chlorine. Fig. 36.


COPPER
BROMINE
SILVER
IODINE
E2
E3
E4
GLOBE
GLOBE
GLOBE
GLOBE

DISINTEGRATION OF BROMINE

Funnels. The funnels of Bromine act similarly to those of Chlorine. Fig. 36. There are, however, three extra ovoids, Ge11, each containing two triplets and a quintet. This ovoid, which is shown in Fig. 36, gives, on the E3 level, two triplets and a ring of four Anu with another in the centre. On the E2 level we find four duads and two units.

Globes. The globes are set free on the E4 level. Fig. 37. The quartets and the two triplets whirl in a plane vertical to the paper and the two duads on a plane at right angles to this.

On the E3 level the two duads together form a linear quartet. The central quartet gives a whirling cross and the two triplets a single sextet.

On the E2 level these dissociate into four duads and two triplets.

Rod. Cl.19 disintegrates as does that of Chlorine. Fig. 36.

DISINTEGRATION OF SILVER

Funnels. The funnels of Silver are very similar to those of Bromine. On the E4 level we find the sphere-funnel of Chlorine. Figs. 36 and 37. Then we come to the three ovoids, Ge11, each containing two triplets and a quintet. Their disintegrations are shown under Bromine. Fig. 36. Finally we find the triangular-shaped body, Ag21, at the apex of the funnel. On the E4 level this forms three triangles joined at their apices, in fact a tetrahedron in which no Anu are distributed on the fourth face. On the E3 level these three faces separate and give three septets. On the E2 level each of the septets gives two triplets and a unit.

Globes. These are set free at the E4 level. Fig. 37. Each contains two triplets and two duads revolving round a central group of five. The pentad and the two triplets whirl in a plane vertical to the paper and the two duads in a plane at right angles to this. The pentad is a four-sided pyramid on a square base.

On disintegration to the E3 level they form a linear quartet, a sextet and a body of five Anu. On the E2 level they disintegrate as shown in Fig. 37, giving two triplets, four duads and a unit.

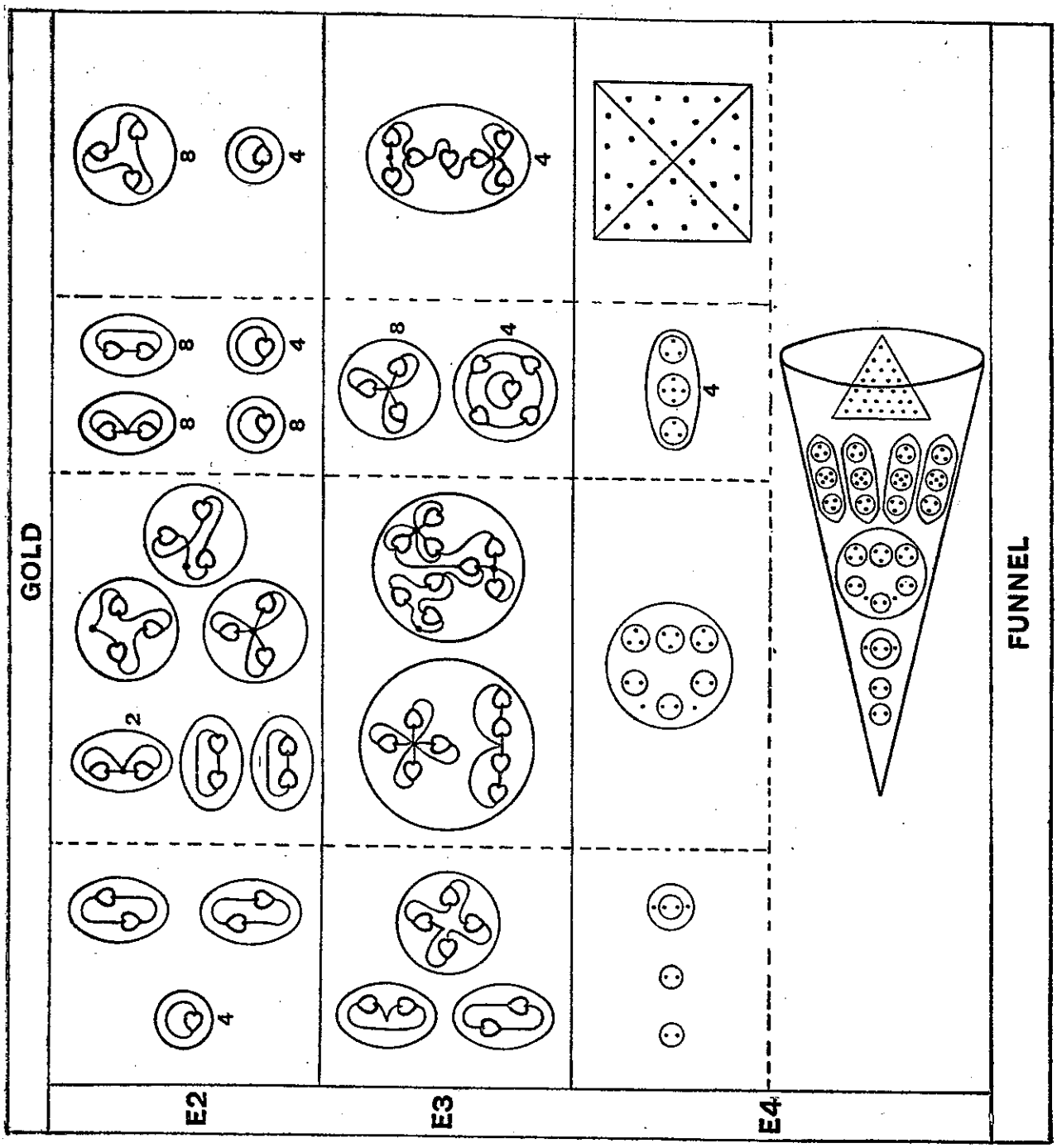
Rod. The rod behaves as in Chlorine.

DISINTEGRATION OF IODINE

Funnels. These funnels are like those of Bromine, with the addition of 5 ovoid bodies, 5.I.7, at the top of each. The disintegration of the funnels is shown in Figs. 36, 37. The lower part of the funnel acts as in Chlorine and the 3 ovoids, Ge11, as in Bromine. On the E4 level the ovoids, I.7, become spheres when the funnels are thrown off, and a crystalline form is indicated within the sphere. The Anu are arranged in two tetrahedrons with a common apex, and the relationship is maintained in the E3 body, a septet. This latter breaks up into two triplets and a unit on the E2 level. Fig. 36.

Globes. The globes resemble those of Bromine save that they each contain two quartets instead of two duads on the E4 level. These disintegrate as usual on the E3 level, giving three quartets and also one sextet as in Bromine. On the E2 level we get two triplets and six duads.

Rod. The rod is similar to that in Chlorine and dissociates in the same way.


GOLD
FUNNEL
E2
E3
E4
8
4
8
4
8
4
8
4
4
2
4

DISINTEGRATION OF GOLD

Funnels. Fig. 38. On the E4 level the 24 funnels first separate as complete funnels, but this condition does not last. The motion of the funnels changes and they finally cease to exist, setting free their contents.

At stage two on the E4 level, therefore, we have each funnel liberating nine independent bodies. The whole arrangement is very similar to that of Silver, and we find here also a four-sided pyramid, but it contains 28 Anu instead of 21 and is similar to that in Iron.

On the E3 and E2 levels all these break up into the simple bodies with which we are already familiar in Chlorine, Bromine and Silver.

Globes. Fig. 39. The globes each contain three bodies, Sm101 and 2 Au38, and these are first liberated on the E4 level.

The Sm101 gives 13 bodies at the second stage of the E4 level.

The 12 septets form prisms as in Iodine and pursue the same course on the E3 and E2 levels. The central body, a four-sided pyramid with six attendants, remains as a single unit on the E4 level. On the E3 level we find these as six duads revolving round a ring of four with a central Anu; while on the E2 level these duads go off independently and the ring breaks up.

In the Au38 the tetrahedron, Ad24, follows its course as shown, breaking up into positive and negative groups of six at the E3 level and into triplets at the E2 level.

The other tetrahedron in Au38 sets free two quartets and two triplets on the E3 level, yielding six duads and two units as E2 compounds.

Rod. Fig. 40. At the first stage the 16 bodies, Au33, on the central inclined planes break away, the central globe with its four contained globes, Sm84, remaining unchanged. This is not permanent however.

At the second stage of E4 the sixteen Au33 separate into two groups and disintegrate on the E3 level as in Adyarum and Occultum. The cigars, Ad6, form four sextets, two negative and two positive. On the E2 level they give 8 triplets.

The balloon, Oc9, gives on E4 a body with re-arranged Anu and on the E3 level two triplets, a duad and a single Anu. On the E2 level we find five single Anu and two duads.

The sphere, Sm84, forms four rings of 15 Anu at the second stage of E4, and an ovoid containing 24 Anu.

On the E3 level each ring forms two bodies of 7 and 8 Anu respectively. On the E2 level these form a quintet, two quartets, and a duad.

The central ovoid with its two contained bodies breaks up into eight triangles on the E3 level and each of these on the E2 level into a duad and a unit.

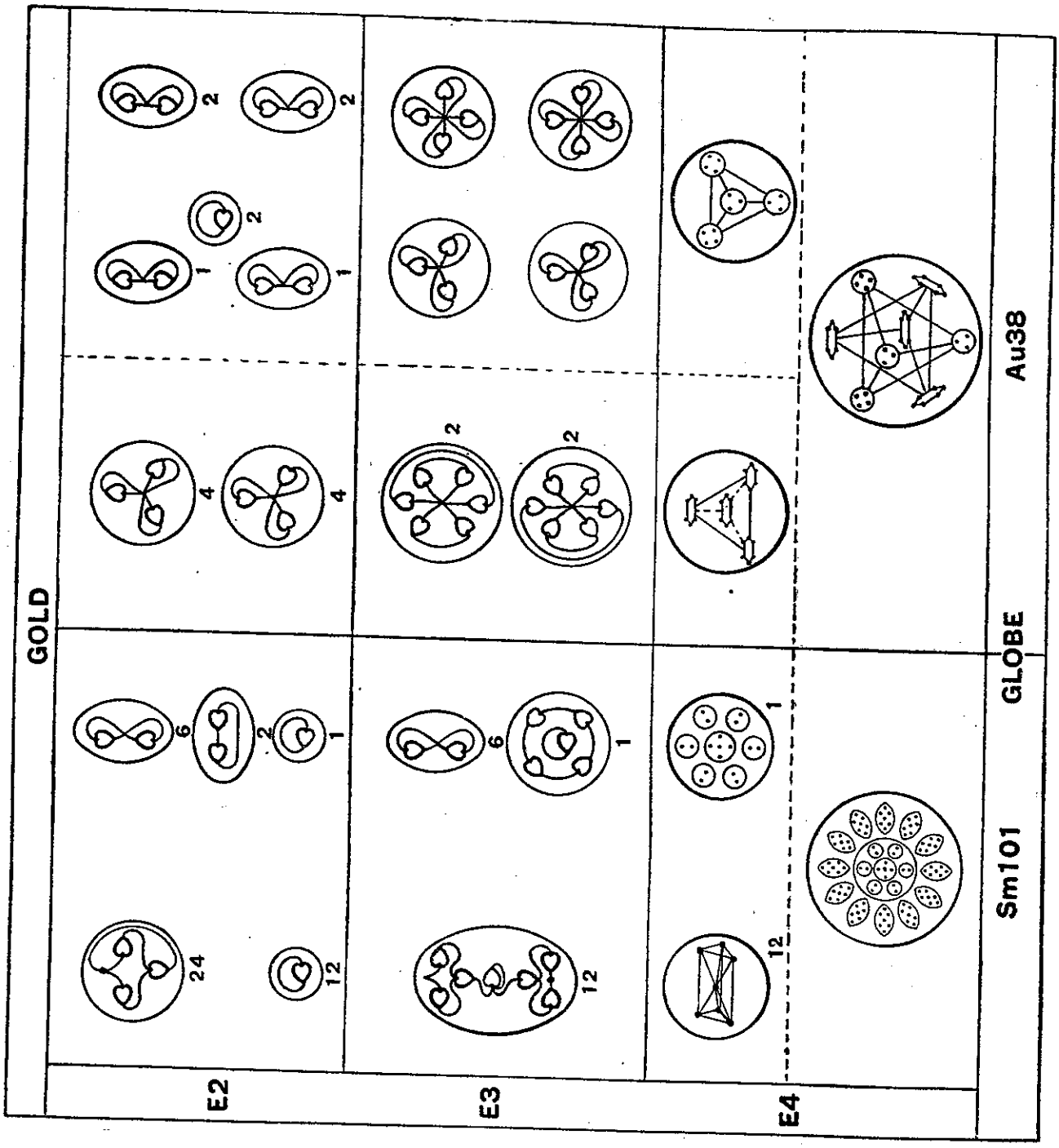


FIG. 39. DISINTEGRATION OF THE GLOBES OF GOLD

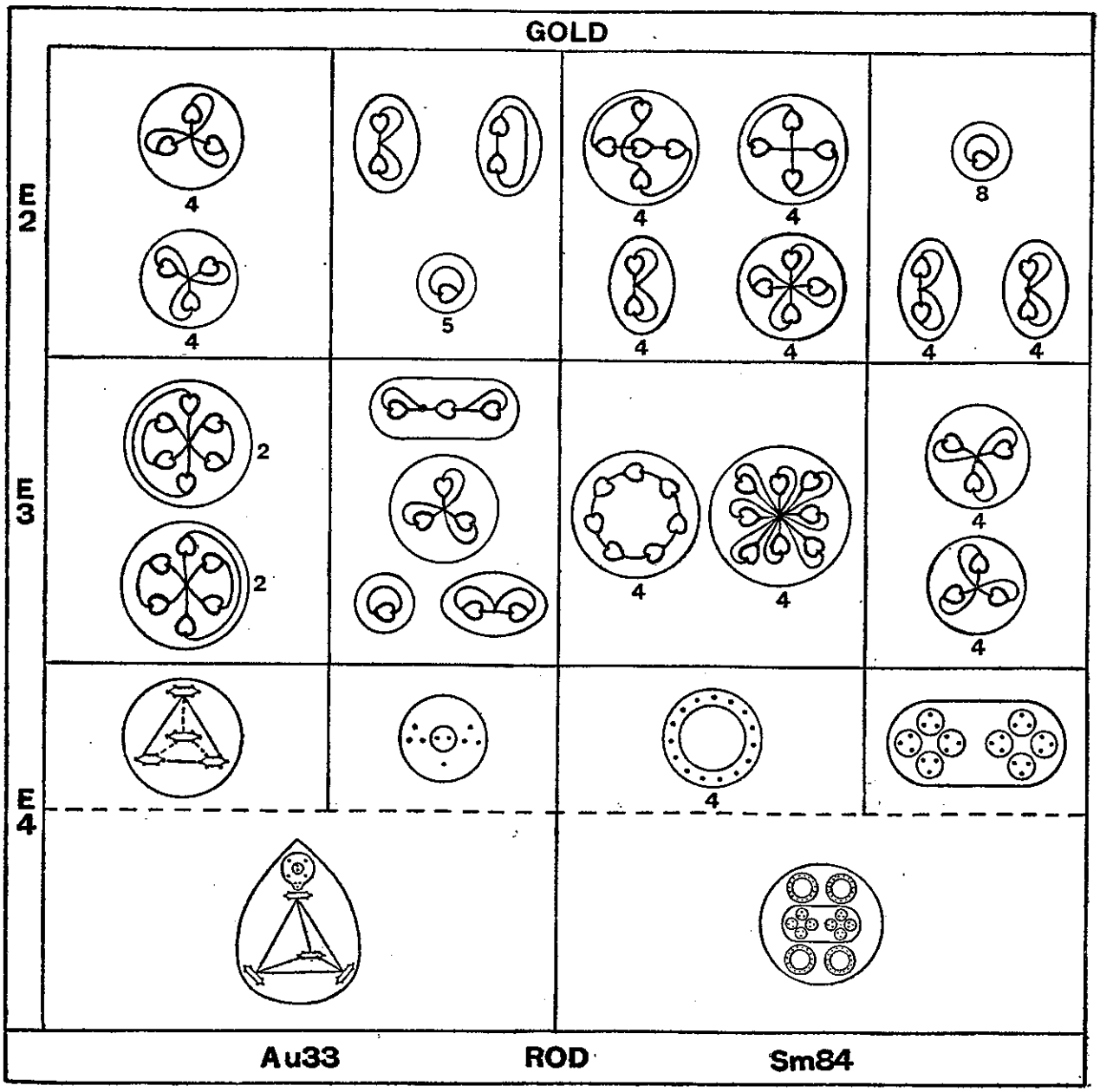


FIG. 40. DISINTEGRATION OF THE ROD OF GOLD

Fig. 41 shows the Dumb-bell group in a condensed form, from which the relationships in this group may be studied.

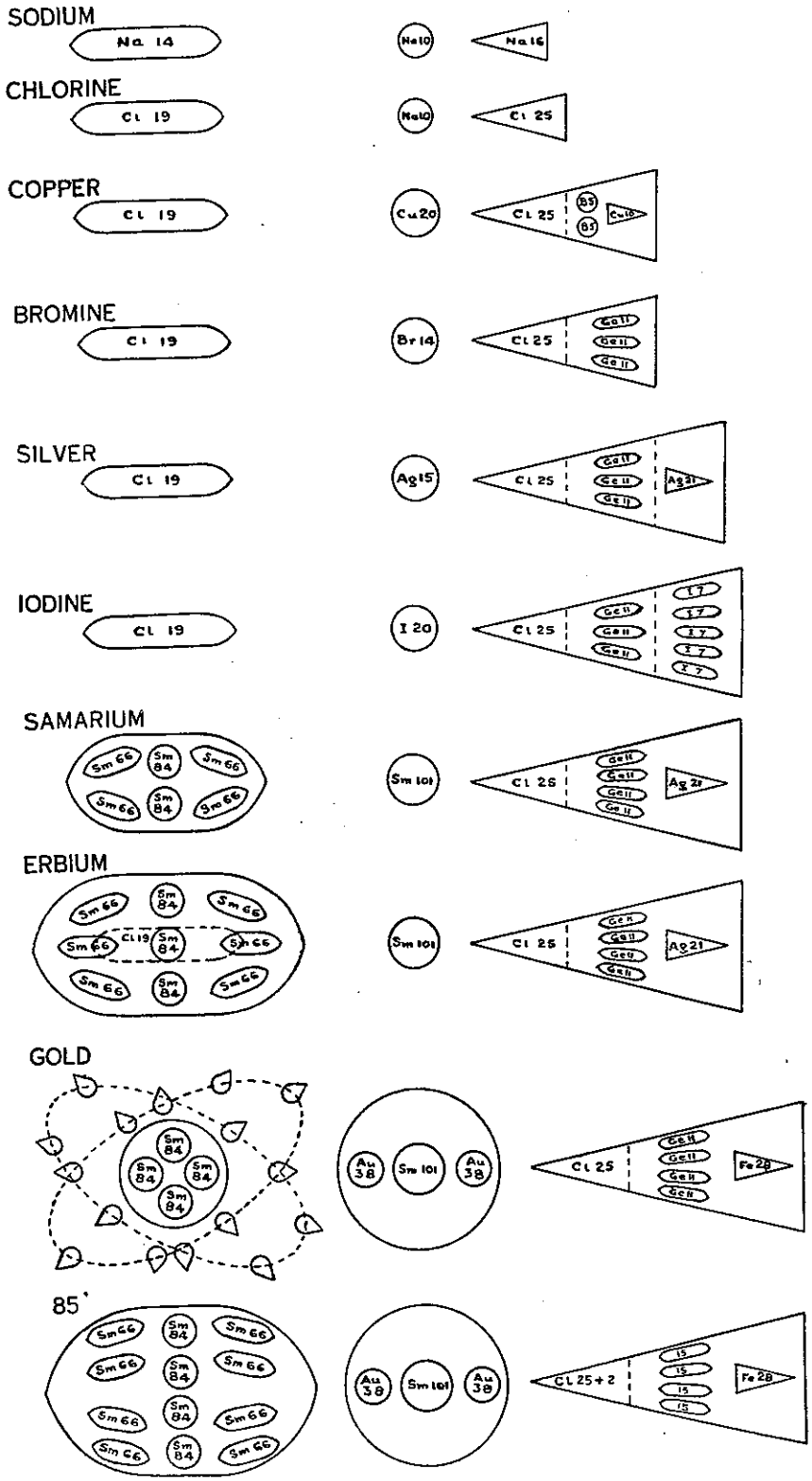
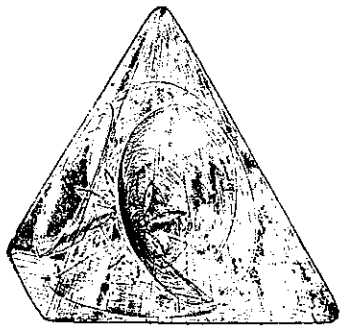
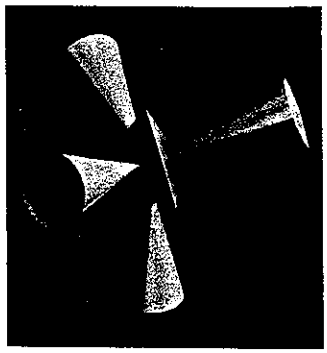
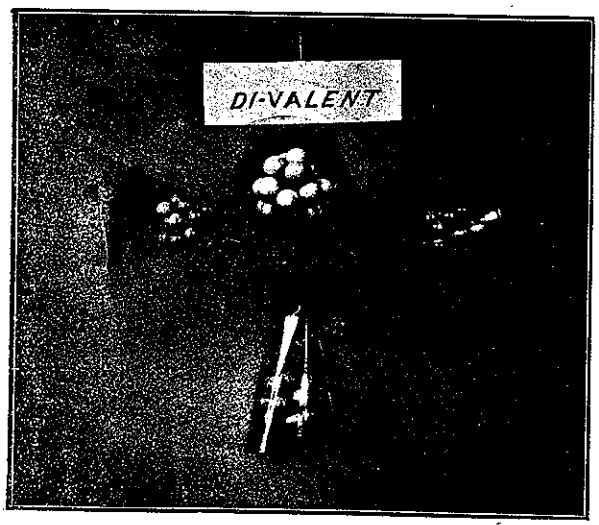


FIG. 41. THE DUMB-BELL GROUP







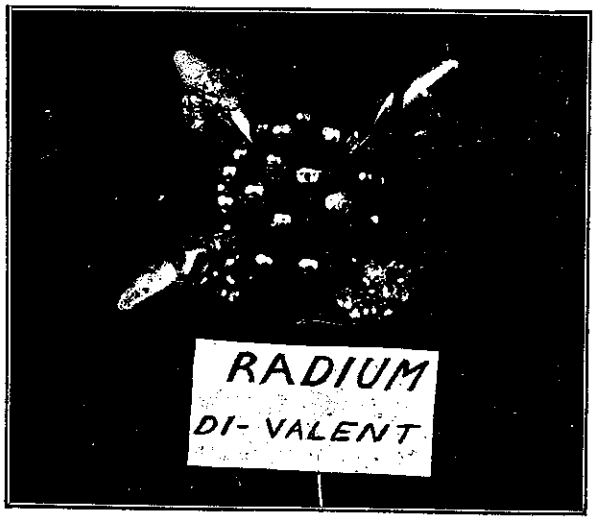


FIG. 42. TYPES OF THE TETRAHEDRON GROUP

CHAPTER V

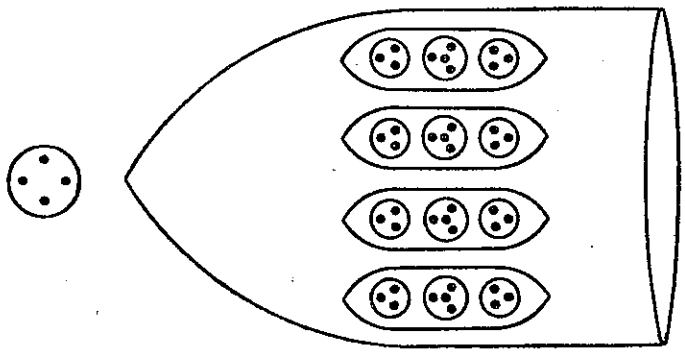
THE TETRAHEDRON GROUP A

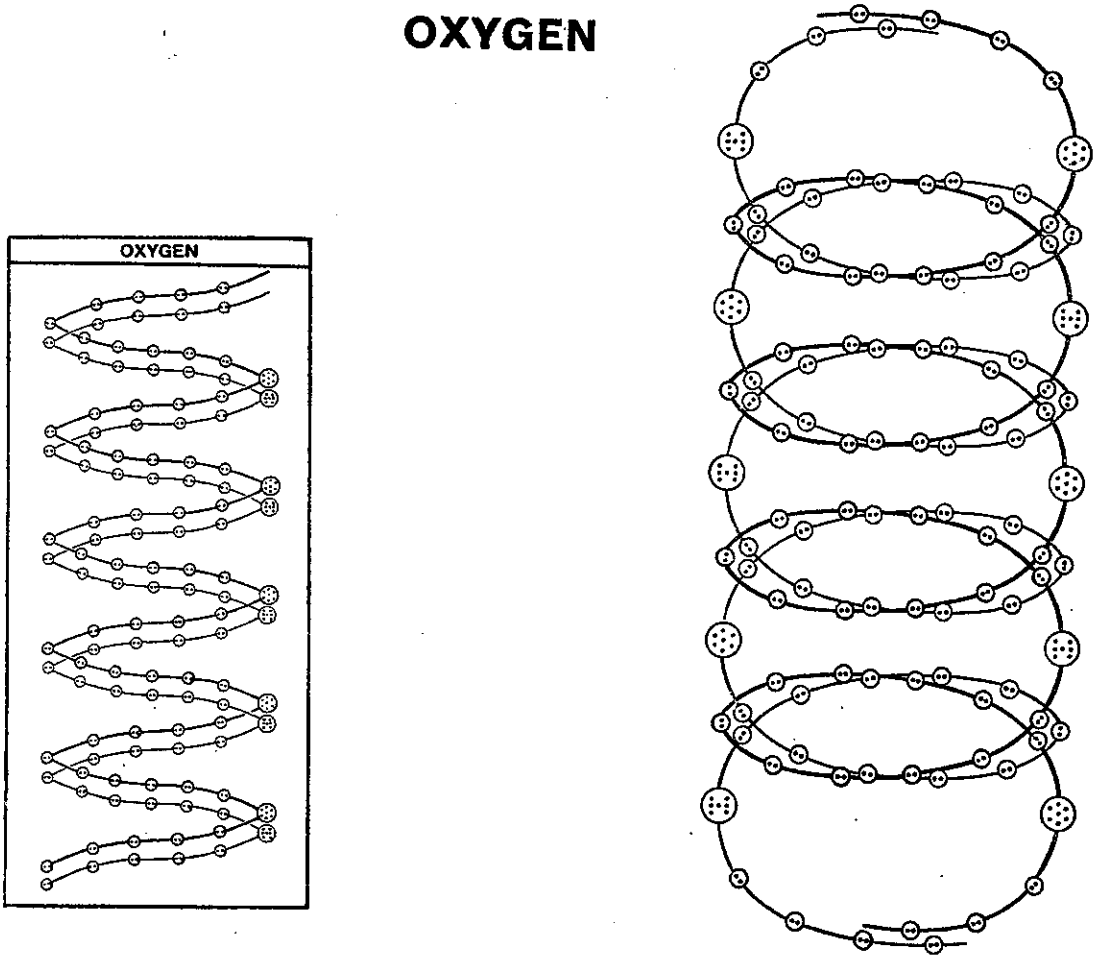
THE twelve elements in this group occur on the swing of the pendulum to the left of the central line.

They are all tetrahedrons in shape, with the exception of Oxygen, which is ovoid. Their characteristic valence is 2. Each element has four funnels of which two are positive and two negative. The last two elements add 4 spikes directed to the corners of the tetrahedron. Fig. 42.

As we proceed with this study we shall find how continual are the repetitions, and how Nature, with a limited number of fundamental methods, creates by varied combinations her infinite variety of forms.

ATOMIC NO.	ANU	ELEMENT	CENTRE	4 FUNNELS	4 SPIKES
4	164	Beryllium	Be4	4 (Be10)	—
8	290	Oxygen	(55N2+5.0.7) +(55N2+5.0.7')		—
20	720	Calcium	(8Li4+8Ad6) =Ca80	4 (Ca45+Ca70+Ca45) =4Ca160	—
24	936	Chromium	(8N6+8Ad6)	4 (Ca160+2Cr25)	—
38	1,568	Strontium	(8B5+8.I.7) =Sr96	4 (2Ca160+2Sr24)	—
42	1,746	Molybdenum	(N2+Sr96)	4 (2Ca160+2Mo46)	—
56	2,455	Barium	(I.7+Sr96)	4 (2Ca160+2Mo46+Ba33 +Li63b+Ba80)	—
60	2,575	Neodymium	(Ce667)	4 (2Ca160+2Mo46+Nd65)	—
70	3,131	Ytterbium	(Yb651)	4 (2Ca160+2Mo46+Ca160 +Yb48)=4Yb620	—
74	3,299	Tungsten	(Lu819)	4 (Yb620)	—
88	4,087	Radium	(Lu819)	4 (3Ca160+3Mo46)	4 (3Li63+Cu10)
92	4,267	Uranium	(Lu819)	4 (3Ca160+3Mo46)	4 (3Li63+Ur36 +Ur19)





a *b*

FIG. 43. BERYLLIUM, OXYGEN

ATOMIC NO. 4.

BERYLLIUM

Beryllium is the simplest member of this group. It consists of four funnels radiating from a central globe, each funnel opening in the face of a tetrahedron. Fig. 43.

Globe. The globe contains four Anu only. Be4.

Funnels. Each funnel contains four ovoids. These ovoids are composed of ten Anu arranged as two triplets and a quartet.

Beryllium = Be4 + 4 (4Be10)

Central Globe	=	4	Anu
4 funnels of 40 Anu	=	160	„
Total	=	164	Anu

Number weight $\frac{164}{18} = 9.11$

ATOMIC NO. 8.

OXYGEN

It was very early noted that Hydrogen, Oxygen and Nitrogen were quite different in structure from the general run of the elements. Nearly all the elements are built on the model of the regular solids, tetrahedron, cube and octahedron, but Hydrogen, Oxygen and Nitrogen seem totally distinct. An interesting suggestion has been made that these three may in reality belong to quite another scheme of elements.

The gaseous atom of Oxygen is an ovoid within which a spirally-coiled, snake-like body, with five brilliant points of light shining on each of the coils, revolves at a high velocity. The snake-like body is really double, one half being negative and one positive.

Fig. 43*a* shows diagramatically this double spiral. Oxygen, however, has an appearance of solidity due to the fact that the two spirals spin round a common axis, in opposite directions, and so present a continuous surface. The brilliant bodies seen in the atom are on the crests of the waves in the positive snake, and in the hollows in the negative one; small bead-like bodies interpose between the larger brilliant spheres. These smaller bodies making up the spirals are very simple, being tiny spheres of two Anu, N2. The larger spheres have seven Anu, but are of two types, O.7 and O.7'.

Fig. 43*b* is that of the Oxygen atom, showing the two spirals revolving in opposite directions producing the correct effect of a rounded body. One spiral is positive and the other negative, and each represents therefore one half of Oxygen. We shall call each ½ O. At first sight, the two halves seem alike, except for the difference in their twist; there is however a fundamental difference.

Each ½ O contains five large spheres of seven Anu. These are different in configuration according as they belong to the positive ½ O, or to the negative ½ O. Fig. 44.

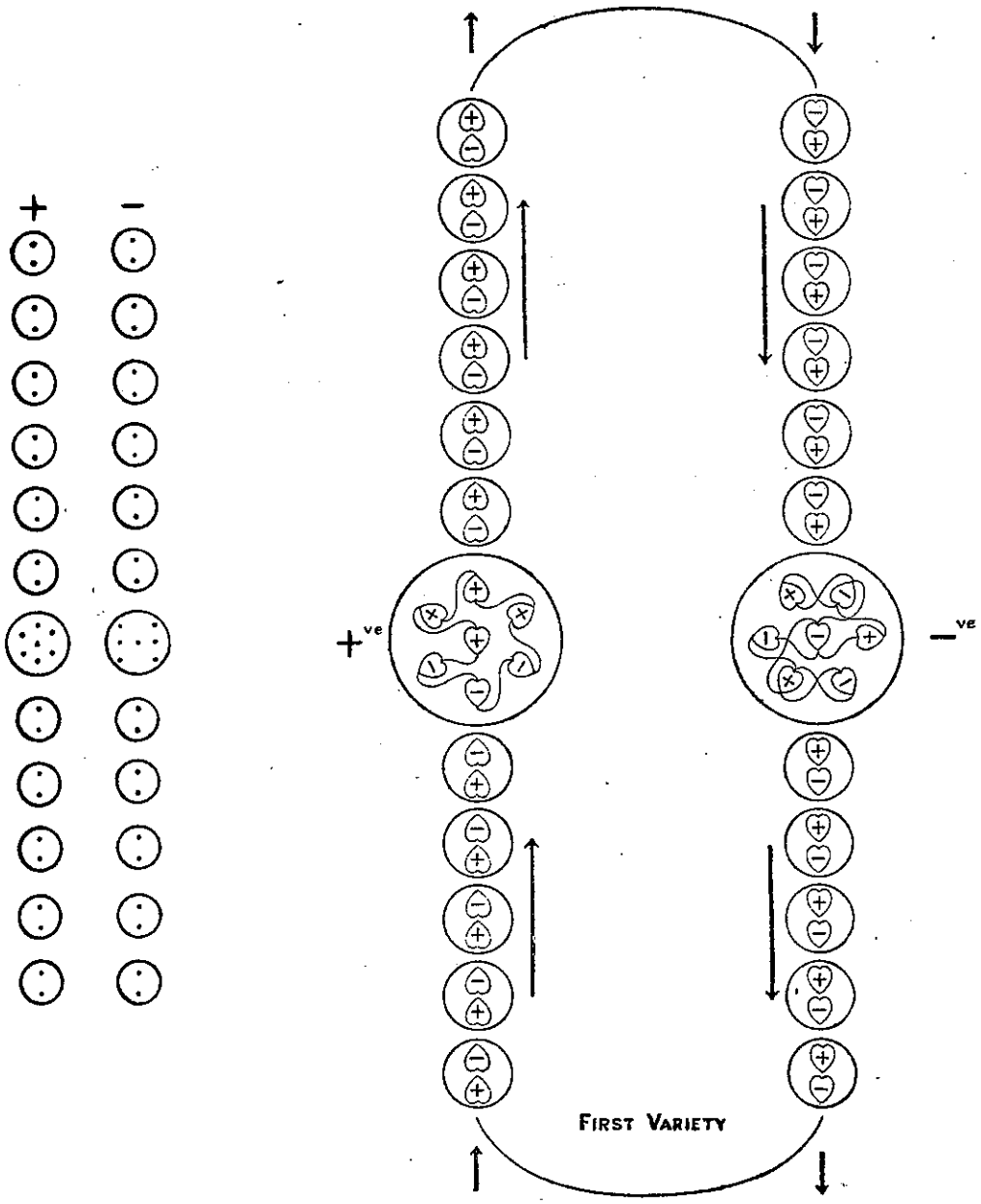


FIG. 44. PART OF OXYGEN, VARIETY 1.

Each ½ O is composed of five sections, which are all alike. A section consists of a group of 7 Anu, having above it 6 groups of N2, and below it 5 groups of N2. The five sections join together into one long string of beads, and then the whole string turns into a spiral.

From Fig. 44 we can note at once the principal difference in the two halves of the atom; it is in the group of 7 Anu. In the positive ½ O the O.7 is arranged in a particular way; in the centre is one positive Anu; 6 other Anu, 3 of them positive and 3 negative, are placed at the 6 points represented by the centres of the 6 sides of a cube. In the group of 7 Anu in the negative ½ O, there is a different arrangement; the centre is formed by one negative Anu; 6 other Anu, 3 positive and 3 negative, are arranged in pairs on three levels, one pair on a line with the centre, the other two pairs above and below at right angles to each other. The median line, however, is not at right angles to either, but somewhat aslant. To each group of 7 Anu there are attached 11 groups of 2 Anu, and the arrangement is shown in Fig. 44.

All this description, however, gives no real idea of the extraordinarily powerful nature of the forces which make Oxygen. How many types of force are involved is not yet known; three however have been noted. The operation of the first force appears to begin at the central positive Anu of the positive group of seven. That Anu gets charged by the Sun in a special way. The force, which is like blinding light, radiates out in all directions through the whorls of the Anu, and draws towards it 6 other Anu, 3 of them positive and 3 negative.

Then there wells up from the central Anu a second force. From the central Anu the force flows as indicated by the lines, following always this law, that a force always flows out from the bottom of an Anu, that is from its pointed end, and enters in at the top of it, at its heart-shaped depression. In the positive group of 7 Anu, the force flowing from the central Anu traverses the other six Anu and *re-enters* the central Anu at its heart-shaped depression. A complete circuit is thus made.

In so completing the circuit, the force causes a third force to manifest, as if by a kind of induction. It enters from the fourth dimension through the central Anu, and its operation is dual: first, it charges the group as a whole and then shoots upwards, and through each duad. It not only shoots up through them, it brings them into their position as a string of 6 duads. When it reaches the topmost duad, it shoots upwards still, if another section of the ½ O is above it; if there is no section above, the force curves over and enters the topmost duad of the negative ½ O, and shoots downwards through the 6 duads. If there were not then a group of 7 Anu the force would rush downwards gathering more duads as pearls on a string. But on the descent, after the 6 duads, it meets a stream of force coming to it at right angles.

This third force also issues from the central Anu of the positive 7; it shoots out at right angles to the ascending force. When the upward force in its descent meets this force at right angles, a vortex is created, whose effect is to bring first a negative Anu, and then round it 6 other Anu, three negative and three positive. When so brought into being this predominantly negative group of 7 Anu exercises a curious effect on the positive group. It is as if it existed in order to step down the tremendous energy welling in the positive seven, so as to make it utilizable for work. The flow of the force

within the negative 7 is as drawn in Fig. 44. But whereas, in the case of the positive group, the force issues at the bottom of the central Anu in one stream, here, in the negative group, that force as it issues at the bottom divides into two streams, each stream traversing three Anu, and then returning back to the central Anu from which it originated. If the diagram is carefully examined, it will be noted that one stream, for instance that drawn as going to the right, as it issues from the point of the central negative Anu, enters into a positive Anu, then enters a negative Anu, then enters a positive Anu, and then *returns* to the negative Anu, from which it enters into the central Anu. Similarly, the stream marked on the diagram as flowing from the point of the central Anu to the left enters into a negative Anu, then enters a positive Anu, then enters a negative Anu, and then *returns* to the positive Anu, from which it enters into the central Anu. A complete circuit is thus made.

The descending force continues to rush down the 5 duads, and then on to the 6 upper duads of the next section. When the last section is reached, the force curves over to the positive ½ O and enters it.

The spirally-coiled snake-like body which is Oxygen appears as a snake of white light; but when the snake is separated into its two constituents, the positive ½ O and the negative ½ O, the former is rose-red in colour, and the latter blue.

Oxygen=(55N2+5.O.7)+(55N2+5.O.7')

Positive half	55 spheres of 2 Anu			
	+ 5 discs of 7 Anu	=	145	Anu
Negative half	55 spheres of 2 Anu			
	+ 5 discs of 7 Anu	=	145	„
	Total	=	290	Anu

$$\text{Number weight } \frac{290}{18} = 16.11$$

Second Variety of Oxygen

It is mentioned above that from the positive 7 a force shoots out at right angles. After the negative 7 is made there is an interaction between the two. In some Oxygen atoms this interaction produces a kind of stress, and there arises between them a force which flows in from the fourth dimension and holds 4 Anu, two positive and two negative. Fig. 45. These 4 Anu are not encircled by any sphere wall; the force enters all four simultaneously, and does not go out of them. Why this body of 4 Anu exists is not known; of course it makes a heavier variety of Oxygen.

Positive section: 7+(11×2) Anu	=	29	Anu
Negative section „ „	=	29	„
New group of 4 Anu	=	4	„
Total	=	62	Anu

Since there are five such pairs making up Oxygen the new variety contains 5×62 Anu=310 Anu.

$$\text{Number weight } \frac{310}{18} = 17.22$$

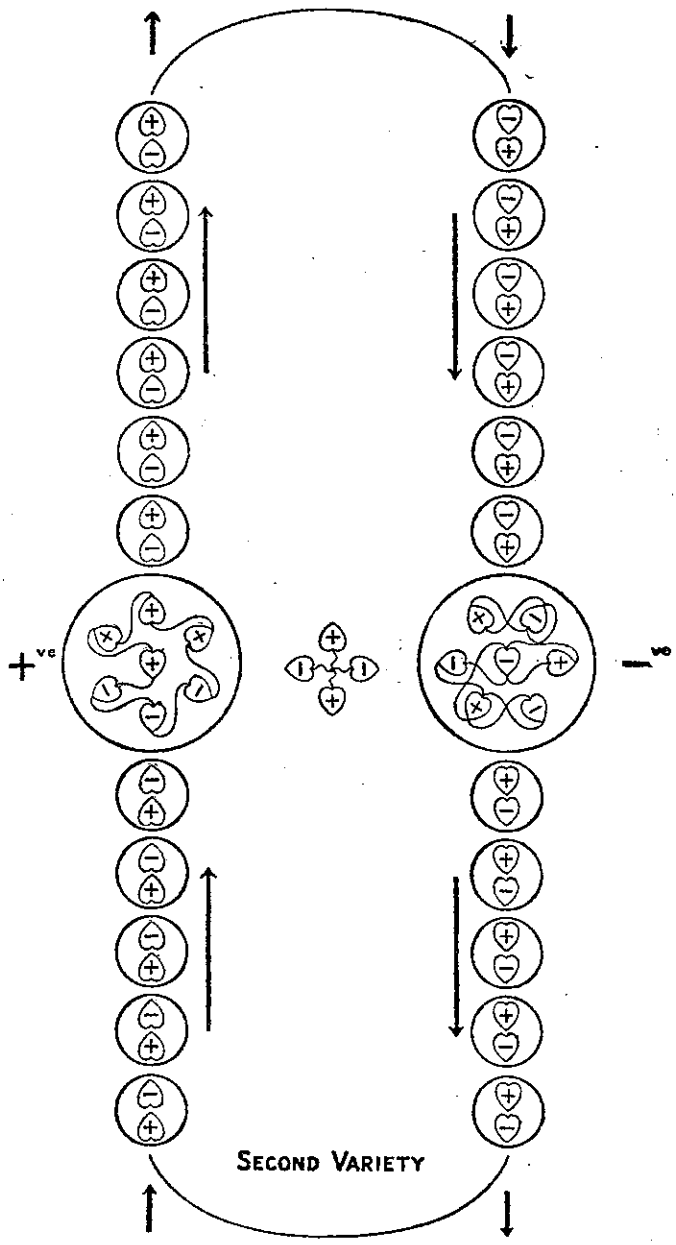


FIG. 45. PART OF OXYGEN, VARIETY 2.

Even of this second variety, there are two variants. One is as shown in Fig. 45, where in the group of four the two positive Anu are vertical. But there is a second variant, where the two positive Anu are horizontal. In this position they are farther apart than when vertical. This gives rise to two shapes of this second variety. Each Oxygen has its sphere wall, which is ovoid. The ovoid of the second variety is naturally fatter round the middle than the ordinary variety. But of the second variety there is one which is fatter than the other, this being the case when the two positive Anu are horizontal.

Third Variety of Oxygen

This is probably not a natural variety, that is, it is not to be found in the atmosphere. It was artificially constructed, by tacking on to each ½ O, to the positive and to the negative, another pair of sections. This produced a very elongated Oxygen. How long this variety persists is not known, probably not very long.

Five pairs of sections of 58 Anu each	=	290	Anu
New pair of sections	=	58	„
Total	=	348	Anu

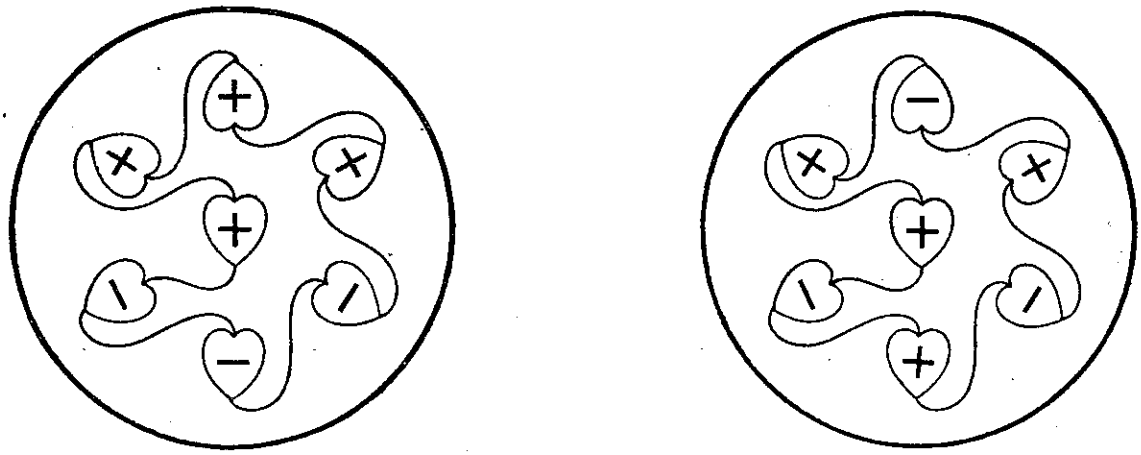
Number weight $\frac{348}{18} = 19.33$

In the few oxides so far examined, the Oxygen is of the normal Variety 1.

The Vitality Globule

In connection with quite a different series of investigations dealing with the problem of *Prana* or Vitality, an apparently similar group of 7 Anu to that in Oxygen was noted.

But later investigations showed that the conclusion arrived at that the Vitality Globule was the same as the brilliant 7 in Oxygen was erroneous, though the error is easily accounted for. The 7 in Oxygen and the 7 in the Vitality Globule appear so similar that it is only on close examination that the very slight difference between them is noted.



POSITIVE GROUP O.7 THE VITALITY GLOBULE

FIG. 46

At first glance the two groups in Fig. 46 seem to be the same, but closer examination will show the difference. In both, six of the seven Anu are arranged at the six points in space—north, south, east and west, zenith and nadir—and the seventh is in the centre. In both, the force flows from the bottom of the central Anu, which is positive, and it circulates as shown in the diagram. But there is a difference in the two Anu which make the zenith and nadir. In Oxygen, the Anu at the zenith is positive; that in the Vitality Globule is negative. This makes the Anu at the nadir in Oxygen 7 negative, while that in the Vitality Globule is positive.

This slight difference in arrangement makes, however, a great difference in the behaviour of the two groups. It will be seen, in looking at the diagram of Oxygen 7, that the upper part of the group has three positive Anu, showing that, at a certain stage of the flow of force, the force passes into three positive Anu *in succession*, and then back again into the central Anu. On the other hand, in the Vitality Globule, the force flows alternatively from positive to negative, except of course at the end when the force flows back into the central positive Anu. The fact that there are 3 positive Anu in the upper part of Oxygen brings about a rigidity in the group. It therefore stands upright, as it spins round its axis, with the positive Anu at the zenith.

In the Vitality Globule, however, owing to the fact that the force flows alternatively into positive and negative, the group, though spinning round its axis, is not held rigidly in an upright position. It turns head over heels, or in any direction according to the influence of other forces. Yet both globules are intensely brilliant and not to be distinguished one from the other at a casual glance. Nevertheless, the difference between them is fundamental, as the Vitality group is charged with a force from the Sun which is called Prana or Vitality, which emanates from the Second Aspect of the Logos, while the Oxygen group is charged with a similar force which also comes from the Sun, but from the Third Aspect of the Logos. One group cannot be transformed into the other, because there is a fundamental difference in the forces which play through each. Though no research has been made into the matter, probably the Vitality Globule does *not* enter into chemical combination with other groups.

OZONE

The appearance of Ozone is indicated in Fig. 47. It is composed of three Oxygen snakes, that is, of one Oxygen atom of two snakes, and a third extra snake of half Oxygen. These three snakes are at the points of an equilateral triangle. They are on one plane, so that as they revolve, the large bodies within each snake come together at the nodes. Ozone being thus ½ (O), it is found that there are two varieties of Ozone. Fig. 47 shows one variety made of two positive snakes and one negative. The second variety of Ozone is composed of two negative snakes and one positive.

A surprising fact was noted, that the first variety of Ozone, *i.e.*, two positive and one negative, always rose in the air. It cannot be lighter, because the number of Anu in both varieties of Ozone are the same, that is 435. No investigation was made to decide whether positive Ozone rose because of some repulsion to gravity, or because there was some force of a positive electrical quality radiating from the earth from which positive Ozone rebounded. At the height of the Blue Mountains near Sydney, about 3,000 feet above sea level, all the specimens examined of Ozone were positive. Compared with negative Ozone, the positive variety gave a specially clean impression, suggesting that perhaps the sense of cleanness of the air in mountain regions may be due less to the absence of dust particles and more to the presence of positive Ozone.

It was noted that Ozone ½ (O_3) has a tendency to revert to Oxygen, leaving one snake to go and find a mate for itself. It was also noted that electrical action breaks up Oxygen into its two constituent halves.

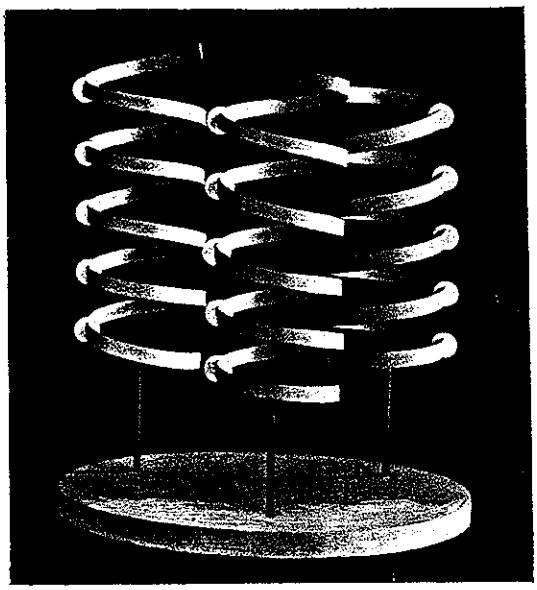


FIG. 47. OZONE

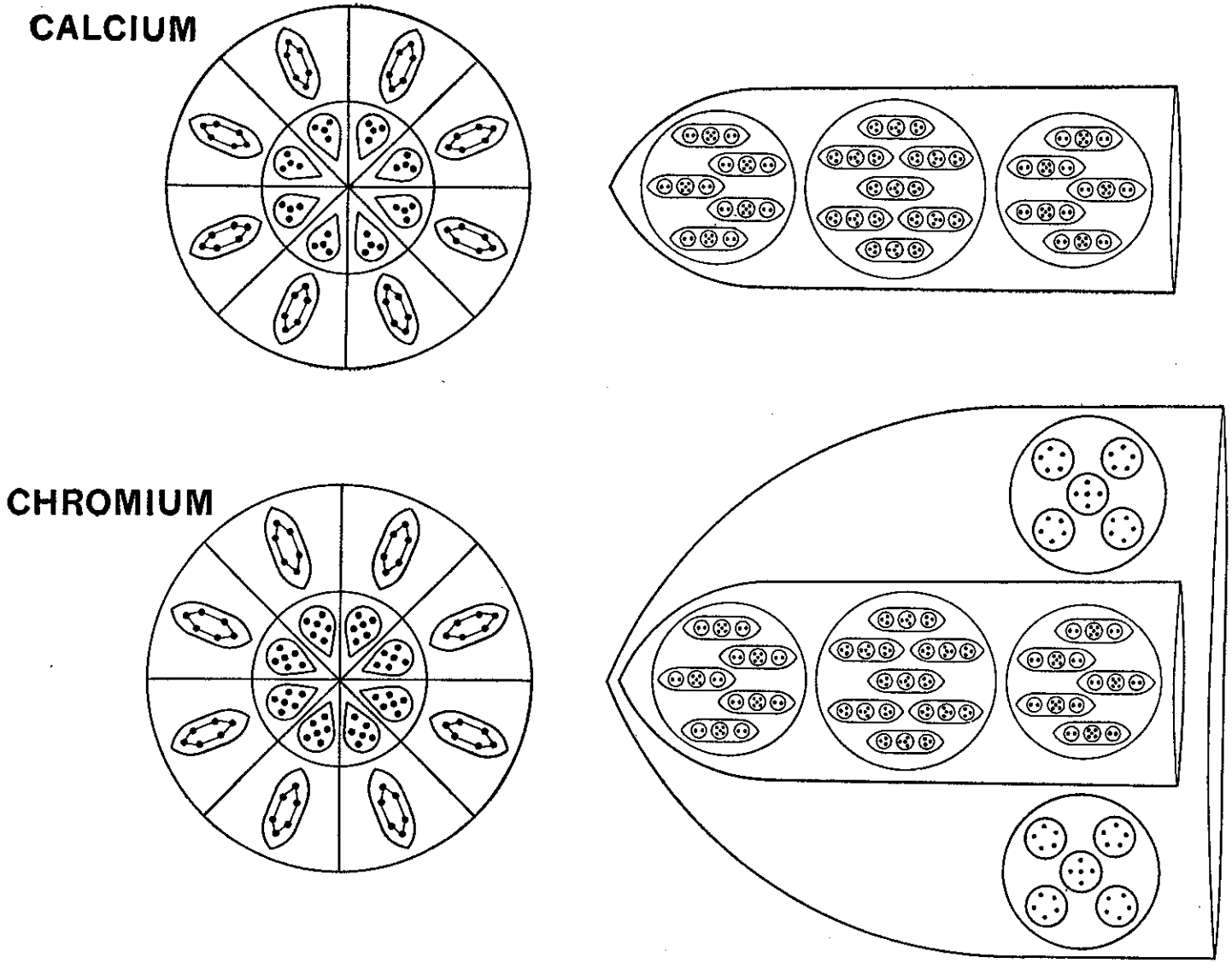


FIG. 48. CALCIUM, CHROMIUM

ATOMIC NO. 20.

CALCIUM

Calcium follows the pattern of Beryllium, but 720 Anu are packed into the simple Beryllium form. Fig. 48.

Central globe. The central globe is double, globe within globe, and is divided into eight segments radiating from the centre like an orange; the internal part of the segment, that belonging to the inner globe, has a triangular body within it containing four Anu, Li4. The external part, belonging to the encircling globe, shows the familiar Ad6.

Funnels. Calcium contains in each funnel three spheres, of which the central one, Ca70, has within it seven ovoids, Be10, identical with those of Beryllium. The spheres, Ca45, above and below the central sphere, each contain five ovoids each of 9 Anu. The funnels thus contain 160 Anu and may be distinguished as Ca160. The spheres Ca70 and Ca45 occur frequently.

Calcium = (8Li4+8Ad6)+4 (5Al.9'+7Be10+5Al.9')
= Ca80 +4 (Ca45+Ca70+Ca45)
= Ca80 +4 (Ca160)

Central globe	=	80	Anu
4 funnels of 160 Anu	=	640	„
Total	=	720	Anu

Number weight $\frac{720}{18} = 40.00$

ATOMIC NO. 24.

CHROMIUM

Central globe. The globe is identical with that of Calcium as regards its external segments. In the internal segments the group N6 is substituted for the Li4. Fig. 48.

Funnels. The funnels are very similar to those of Calcium save that two extra spheres are added, the funnels being widened to accommodate them. Each funnel contains the three spheres which form the Calcium funnel, Ca160, and two extra spheres, Cr25. These two extra spheres contain five quintets of which two pairs are to each other as object and image.

Chromium = (8N6+8Ad6)+4 (Ca160+2Cr25)

Central globe	=	96	Anu
4 funnels each 210 Anu	=	840	„
Total	=	936	Anu

Number weight $\frac{936}{18} = 52.00$

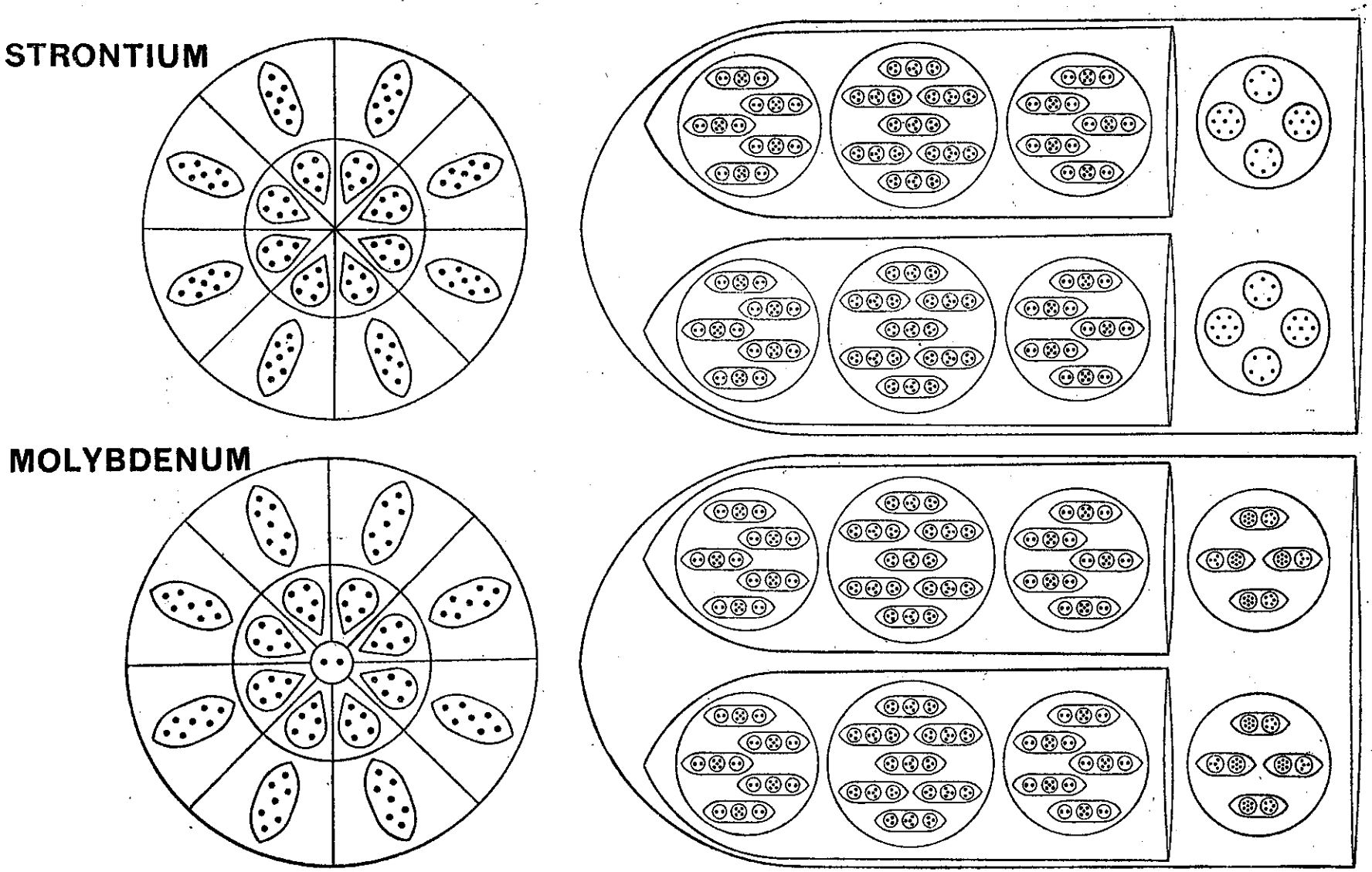


FIG. 49. STRONTIUM, MOLYBDENUM

ATOMIC NO. 38. STRONTIUM

Central globe. The number of the divisions of the double sphere of the central globe is the same as in Calcium, but the contents differ. The cigars, Ad6, in the external segments are replaced by ovoids containing seven Anu, I.7. The internal segments contain triangles with five Anu. The whole makes up Sr96. Fig. 49.

Funnels. Within the funnel there are eight spheres. The six lower spheres are identical with those in Calcium and make up two Calcium funnels, *i.e.* 2Ca160. Each of the highest pair of spheres, Sr24, contains four subsidiary spheres, with groups of 5, 7, 7 and 5 Anu respectively. These are B5, I.7, I.7 and B5. The I.7 groups are identical with those in Gold, but the difference of pressure in Gold makes the containing body spherical instead of ovoid; similar groups are seen in the top ring of the Iodine funnel, where also the group is oval in form.

Strontium = Sr96+4 (2Ca160+2Sr24)

Central globe	=	96	Anu
4 funnels of 368 Anu	=	1472	„
Total	=	1568	Anu

Number weight $\frac{1568}{18} = 87.11$

ATOMIC NO. 42. MOLYBDENUM

This element closely resembles Calcium and Strontium. It differs from Strontium only in the composition of the highest pair of spheres in the funnel, and in the presence of a little sphere containing two Anu in the middle of the central globe. Fig. 49.

Central globe. The outer sections of the central globe contain the group I.7, and the inner sections contain the groups B5, exactly as in Strontium. In addition we find a sphere of two Anu, N2, in the centre of the globe.

Funnels. Each funnel contains two complete Calcium funnels, 2Ca160, as in Strontium. The two topmost spheres in the funnel each contain eight smaller spheres. Two of these are Li4, two B5 and four I.7, making 46 Anu in all, Mo46. The total in one funnel is thus 2Ca160+2 Mo46, making 412 Anu.

Molybdenum = (Sr 96+2)+4 (2Ca160+2Mo46)

Central globe	=	98	Anu
4 funnels of 412 Anu	=	1648	„
Total	=	1746	Anu

Number weight $\frac{1746}{18} = 97.00$

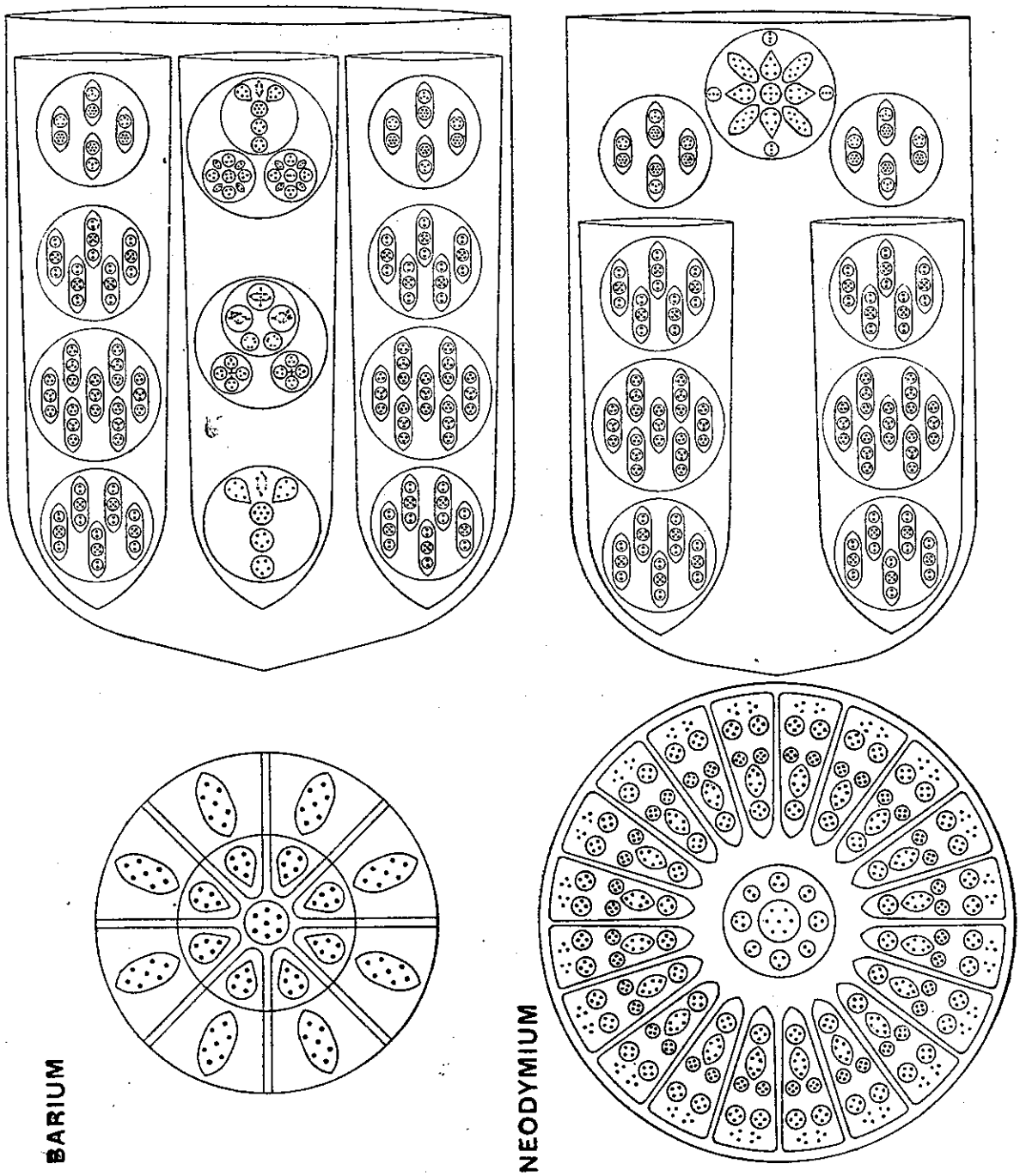


FIG. 50. BARIUM, NEODYMIUM

ATOMIC NO. 56.

BARIUM

This element closely resembles Calcium and Strontium but introduces some new bodies into its funnels and globe. Fig. 50.

The Central globe is exactly similar to that of Strontium, save that it has an I.7 in the centre.

Funnels. In the funnels we find two Calcium funnels, 2Ca160, at the head of each of which appears the sphere Mo46. Within the funnels appears also a third rather complex segment. It contains first a new body Ba33, consisting of four fives and a seven, and an Ad6 group round which two of the fives revolve. This body, Ba33, is destined to play a prominent part in the powerful central globe of Radium.

We find next, in this central segment in the funnel of Barium the material of the Lithium spike, Li63, re-arranged as a sphere. This may have been borrowed from the adjacent element Caesium. The third sphere, Ba80, in this segment, contains the group Ba33, with two attendant spheres of 24 and 23 Anu respectively, which suggest in their arrangement the centre of the globe of Lutecium and Radium.

Barium = (Sr96+I.7)+4 (2Ca160+2Mo46+Ba33+Li63b+Ba 80)

Central globe	=	103	Anu
4 funnels of 588 Anu	=	2352	„
Total	=	2455	Anu

Number weight $\frac{2455}{18}$ = 136.4

ATOMIC NO. 60.

NEODYMIUM

This element much resembles Molybdenum in respect of its funnels, but has a much larger central globe. Fig. 50.

Central globe. The globe has a central portion of 27 Anu, which is also found in Cerium, as well as in the later members of the group, Tungsten and Uranium.

Round this centre we find 20 segments, each containing a group of 32 Anu very similar to the group Ba33 found in Barium and Radium. The whole is similar to that of Cerium, Ce667.

Funnels. In each funnel we find first two complete Calcium funnels, 2Ca160, then two spheres Mo46, and finally a completely new sphere. It is composed of a quintet M-Ne5, then 4 quintets B5, then four I.7 and 4 triplets, arranged so as to form a symmetrical pattern as shown. The whole make the group Nd65.

Neodymium = (Ce27+20Ce32)+4 (2Ca160+2Mo46+Nd65)

Central globe	=	667	Anu
4 funnels of 477 Anu	=	1908	„
Total	=	2575	Anu

Number weight $\frac{2575}{18}$ = 143.06

FIG. 51. YTTERBIUM, TUNGSTEN

ATOMIC NO. 70.

YTTERBIUM

This element is built up in a manner somewhat similar to Neodymium. Fig. 51.

Central globe. The centre-piece of the globe is Ce27. Round this radiate 24 segments, each of 26 Anu, Yb26. This central globe contains 651 Anu.

Funnels. Each funnel contains three Ca160, two Mo46 and a new sphere Yb48, making up 620 Anu. The sphere Yb48 consists of four ovoids each containing twelve Anu.

Ytterbium = (Ce27+24Yb26)+4 (2Ca160+2Mo46+Ca160+Yb48)

Central globe	=	651	Anu
4 funnels of 620 Anu	=	2480	„
Total	=	3131	Anu

Number weight $\frac{3131}{18} = 173.94$

ATOMIC NO. 74.

TUNGSTEN

Tungsten may be said to be a stage between Ytterbium and Radium. In fact Tungsten is almost exactly Radium without the spikes which are the distributive agency of Radium. Its central sphere, Lu819, is identical with that of Radium, except that the six Anu at the outer end of each section are not equidistant but are definitely arranged in the cigar form. In the case of Radium it is evidently the speed of revolution which overcomes their cohesion. In Tungsten the speed of revolution is much less, and the element is only slightly radio active. The funnels of Tungsten are almost identical with those of Radium, except that Tungsten contains two more Anu in each funnel. Fig. 51.

Central globe. The globe consists of a central sphere, Ce27, and 24 sections containing Ba33, making up 819 Anu in all. This sphere is first met with in Lutecium and is therefore identified as Lu819. As has been pointed out above, it occurs in Radium and other radio-active elements.

Funnels. The Tungsten funnels are exactly like those of Ytterbium. Each funnel contains three sections, first three Calcium funnels, Ca160, and then two Mo46 spheres and one Yb48.

Tungsten = Lu819+4 (2 Ca160+2Mo46+Ca160+Yb48)

Central globe	=	819	Anu
4 funnels of 620 Anu	=	2480	„
Total	=	3299	Anu

Number weight $\frac{3299}{18} = 183.3$

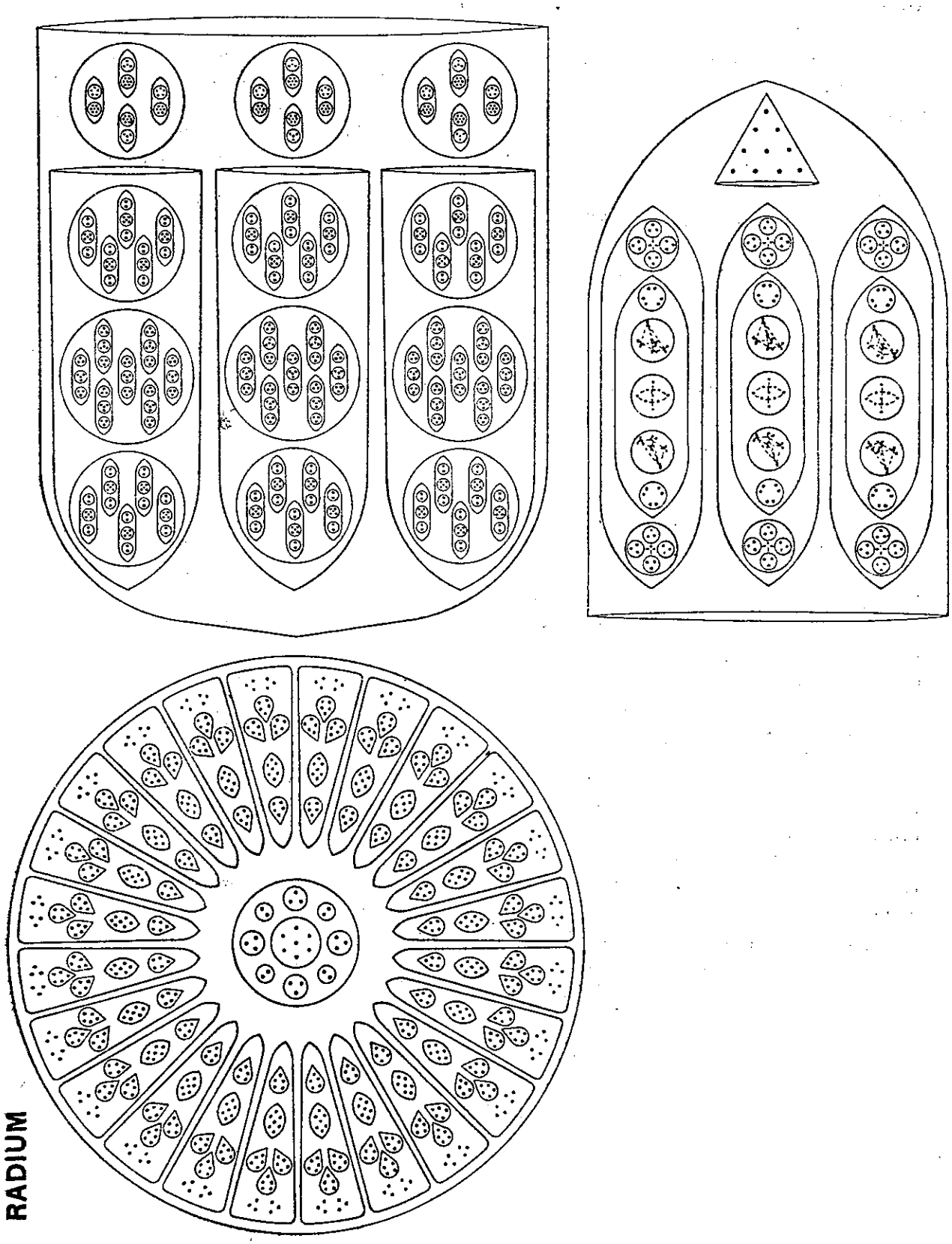


FIG. 52. RADIUM

RADIUM

ATOMIC NO. 88.

Radium is built on a pattern similar to the other elements of its group. Fig. 52.

Central globe. Radium has a complex central sphere, Lu819, extraordinarily vivid and living; the whirling motion is so rapid that continued accurate observation is very difficult; the sphere is more closely compacted than the centre-piece in many other elements, and is much larger in proportion to the funnels and spikes than is the case with some of the other elements in the group; in the lighter elements the funnels are much larger than the centres, whereas in Radium the diameter of the sphere and the length of the funnel or spike are about equal. The heart of the sphere is a globe containing seven Anu. This globe is the centre of two crosses, the arms of which show respectively groups with two and three Anu. Round this central sphere are arranged, as on radii, twenty-four segments, each containing five bodies, as in Ba33—four quintets and a septet—and six loose Anu, which float horizontally across the mouth of the segment; the whole sphere has thus a kind of surface of Anu.

In the rush of the streams presently to be described, one of these Anu is occasionally torn away, but is generally, if not always, replaced by the capture of another which is flung into the vacated space.

Funnels. The funnels are identical with those of Tungsten except that they contain two fewer Anu. We find first the three Calcium funnels, 3 Ca160, and then three Mo46, instead of two Mo46 and one Yb48.

The three sections in the Radium funnel are thus similar to one another. They stand at the corners of a triangle and not side by side.

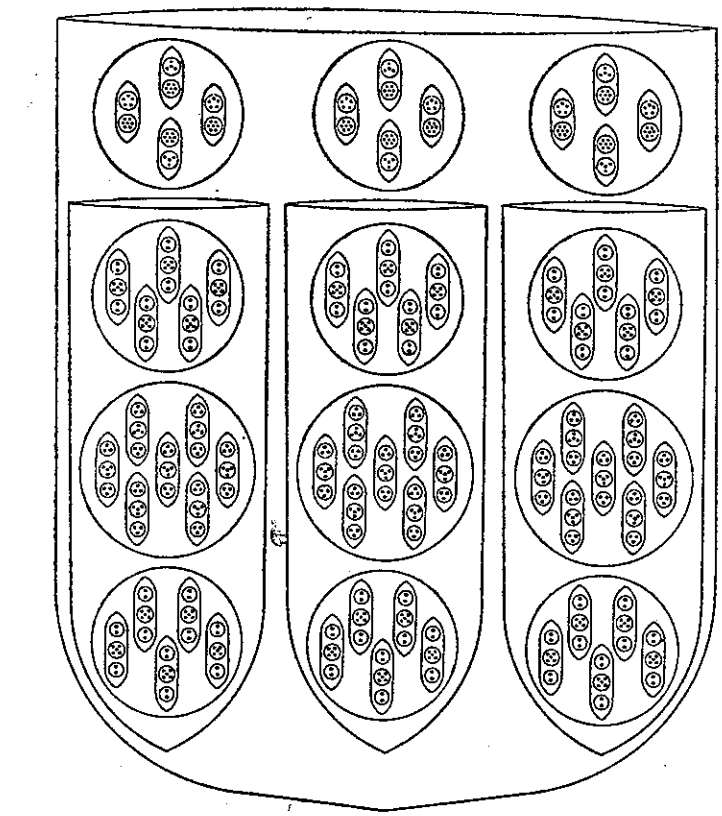
Spikes. Radium has four spikes alternate with the funnels and pointing to the angles of the tetrahedron. Each spike contain three Li63 and a cone or cap of ten Anu, Cu10, floating above the three Li63.

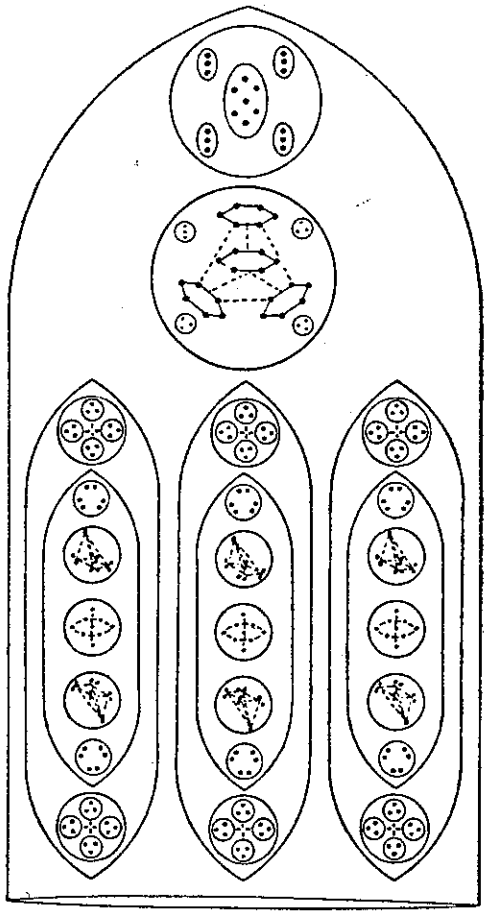
A very peculiar result, so far unobserved elsewhere, arises from the extraordinarily rapid whirling of the central sphere. A kind of vortex is formed, and there is a constant and powerful indraught through the funnels. By this, particles are drawn in from without, and these are swept round with the sphere, their temperature becoming much raised, and they are then violently shot out through the spikes. It is these jets which occasionally sweep away an Anu from the surface of the sphere. These particles may be single Anu, or they may be bodies from any of the etheric levels; in some cases the bodies break up and form new combinations. In fact Radium seems like a kind of vortex of creative activity, drawing in, breaking up, recombining, shooting forth—a most extraordinary element.

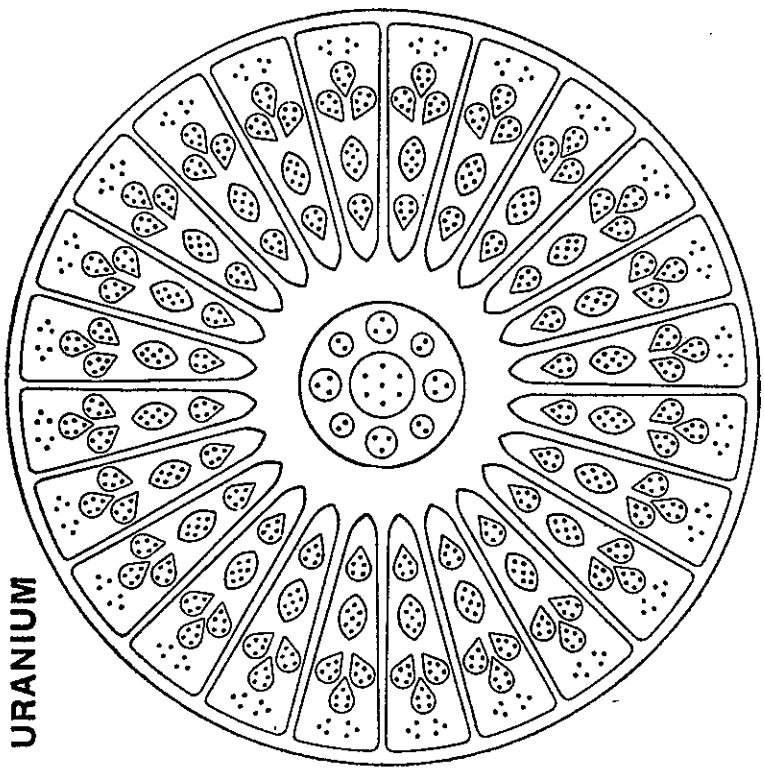
Radium = Lu819+4 [3 (Ca160+Mo46)]+4 (3Li63+Cu10)

Central globe	=	819	Anu
4 funnels of 618 Anu	=	2472	„
4 spikes of 199 Anu	=	796	„
Total	=	4087	Anu

Number weight $\frac{4087}{18}$ = 227.05







URANIUM

FIG. 53 URANIUM

ATOMIC NO. 92.

URANIUM

Uranium is formed on the same pattern as Radium, but is far less active. It has four spikes as well as four funnels. Fig. 53.

Central Globe. This is similar to that of Lutecium, Tungsten and Radium, except that the six Anu at the outer end of each section are *not* equidistant, but definitely arranged as a cigar. In this it follows Tungsten.

Funnels. The four funnels are exactly similar to those in Radium. Each contains three Calcium funnels, 3 Ca160, and three Mo46 spheres.

Spikes. The four spikes contain the three Lithium spikes as in Radium, but instead of the little cap of ten Anu there come two small globes. One of these contains Ad24 and 4 triplets, Ur36, and the other, four triplets and one I.7 = Ur19. The first of these spheres, Ur36, contains components of a Helium atom. Here we have the suggestion of the composition of the Helium atom that we should expect, since Helium is produced by the disintegration of Uranium.

Uranium = Lu819+4 [3 (Ca160+Mo46)]+4 (3Li63+Ur36+Ur19)

Central globe	=	819	Anu
4 funnels of 618 Anu	=	2472	„
4 spikes of 244 Anu	=	976	„
Total	=	4267	Anu

Number weight $\frac{4267}{18} = 237.06$

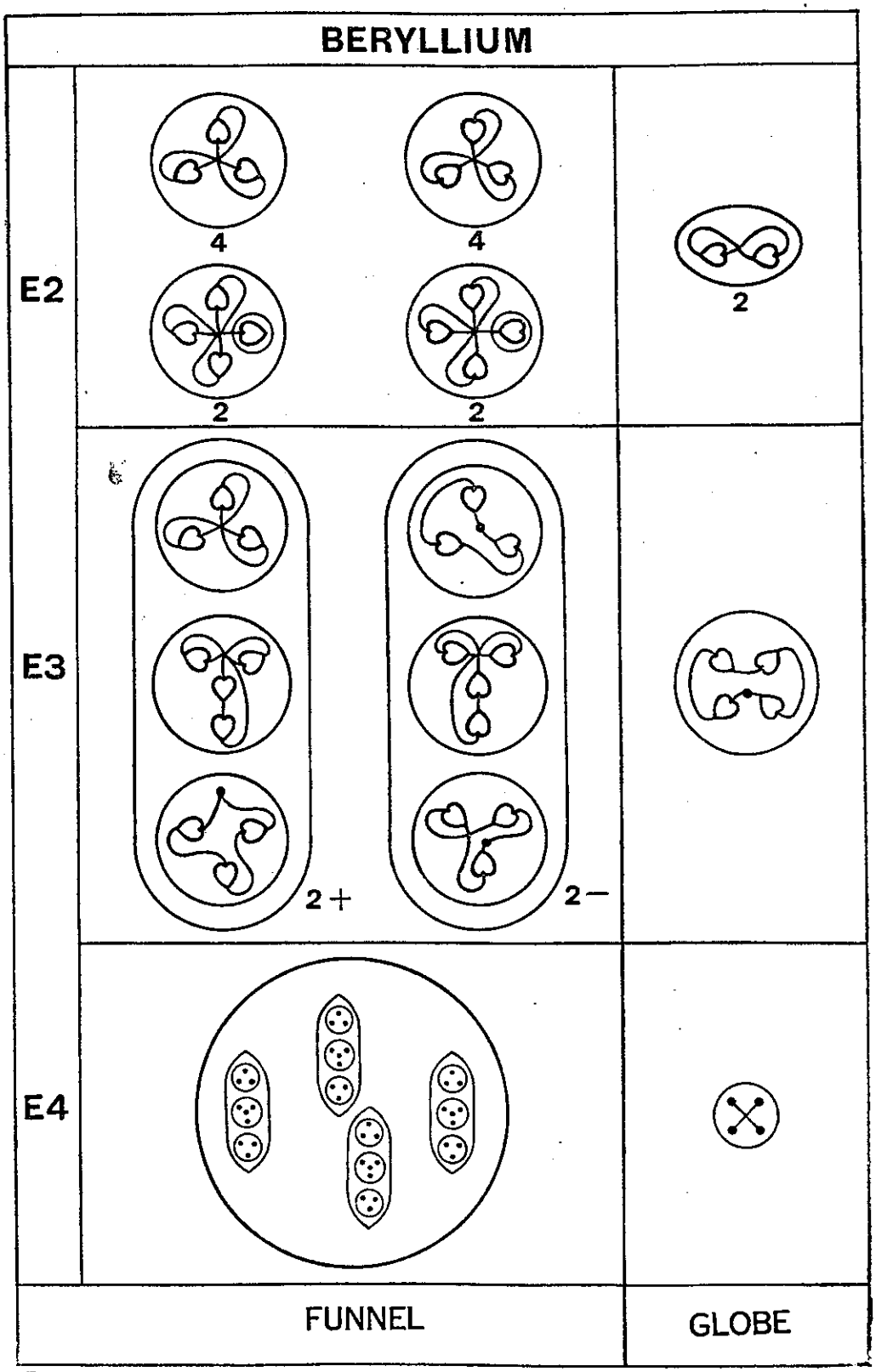


FIG. 54. DISINTEGRATION OF BERYLLIUM

DISINTEGRATION OF THE TETRAHEDRON GROUP A

DISINTEGRATION OF BERYLLIUM

This element contains four similar funnels and a central globe. The E4 groups consist of these five bodies set free. Fig. 54.

Each funnel, released from pressure, assumes a spherical form, with its four ovoids, Be10, spinning within it.

On the E3 level, these four ovoids, Be10, are set free, and two from each funnel are seen to be positive and two negative.

On the E2 level these decads each disintegrate into two triplets and a quartet, the positive with the points outward, the negative with the points inward.

The central globe on the E4 level remains a sphere containing a whirling cross.

On the E3 level the cross shows a change in the resultant force-lines, preparatory to its breaking into two duads an the E2 level.

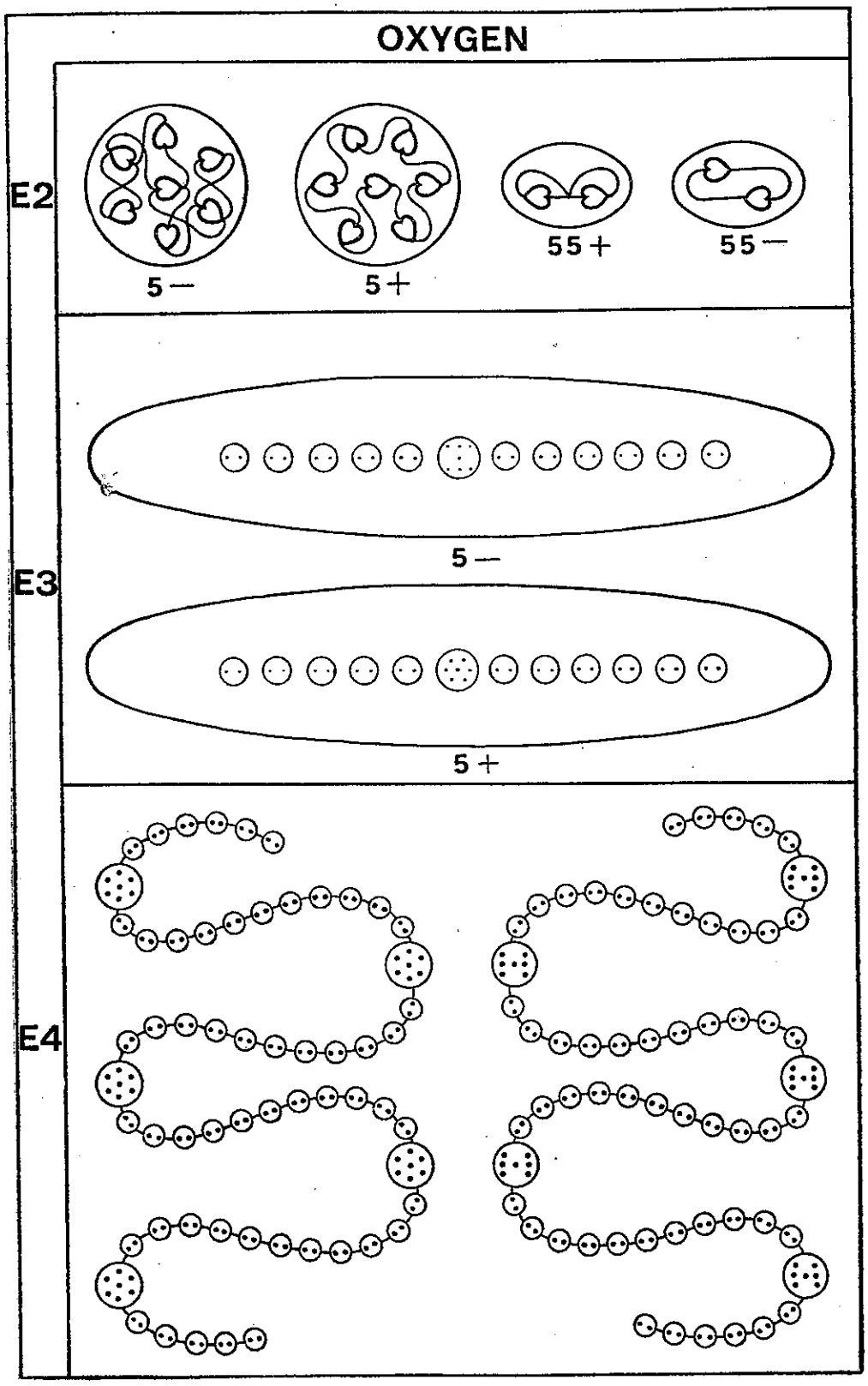


FIG. 55. DISINTEGRATION OF OXYGEN

DISINTEGRATION OF OXYGEN

On the E4 level the two snakes divide. The positive and negative snakes each consist of fifty-five duads and five brilliant discs. These discs have seven Anu but are differently arranged; those in the positive snake have the Anu arranged as in the Iodine ovoids, I.7, whereas the negative snake has them arranged as in a capital H. The snakes show the same extraordinary activity on the E4 level as on the gaseous, twisting and writhing, darting and coiling.

On the E3 level the snakes break into 10 fragments, each consisting of a disc, with six beads, N2, on one side and five on the other, remaining as lively as the original snake.

On the E2 level the snakes shiver into their constituent discs and beads, there yielding the ten discs, five positive and five negative, and 110 beads, 55 positive and 55 negative.

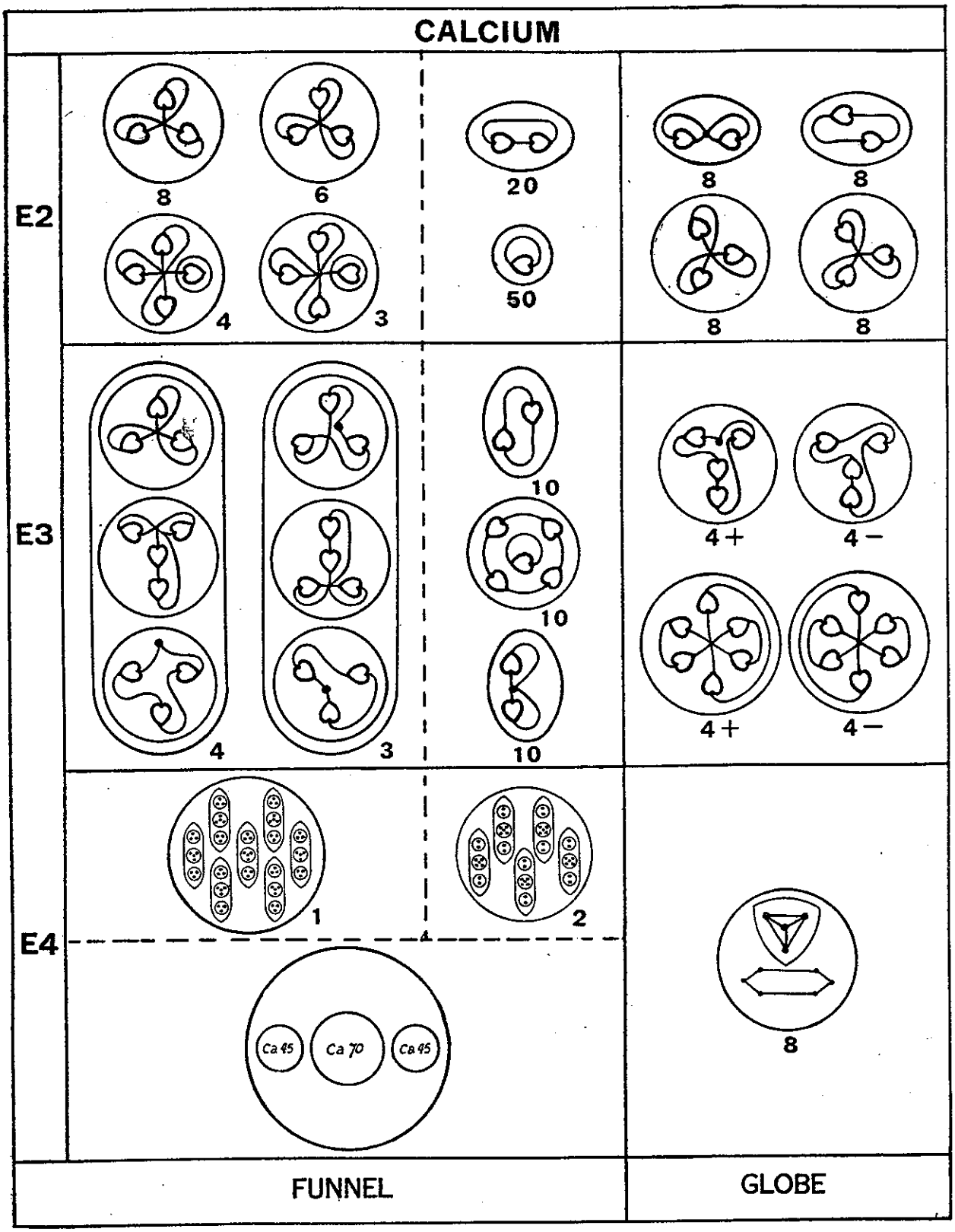


FIG. 56. DISINTEGRATION OF CALCIUM

Funnel. The funnels as usual assume a spherical form on the E4 level, and show three spheres, two Ca45 and one Ca70, each containing ovoids. At the second stage these three spheres, still on the E4 level, break free from their containing funnel, and three bodies are thus liberated on the E4 level.

The sphere, Ca70, contains seven groups of ten Anu, Be10, and acts on the E3 and E2 levels as shown in Fig. 56 and under Beryllium.

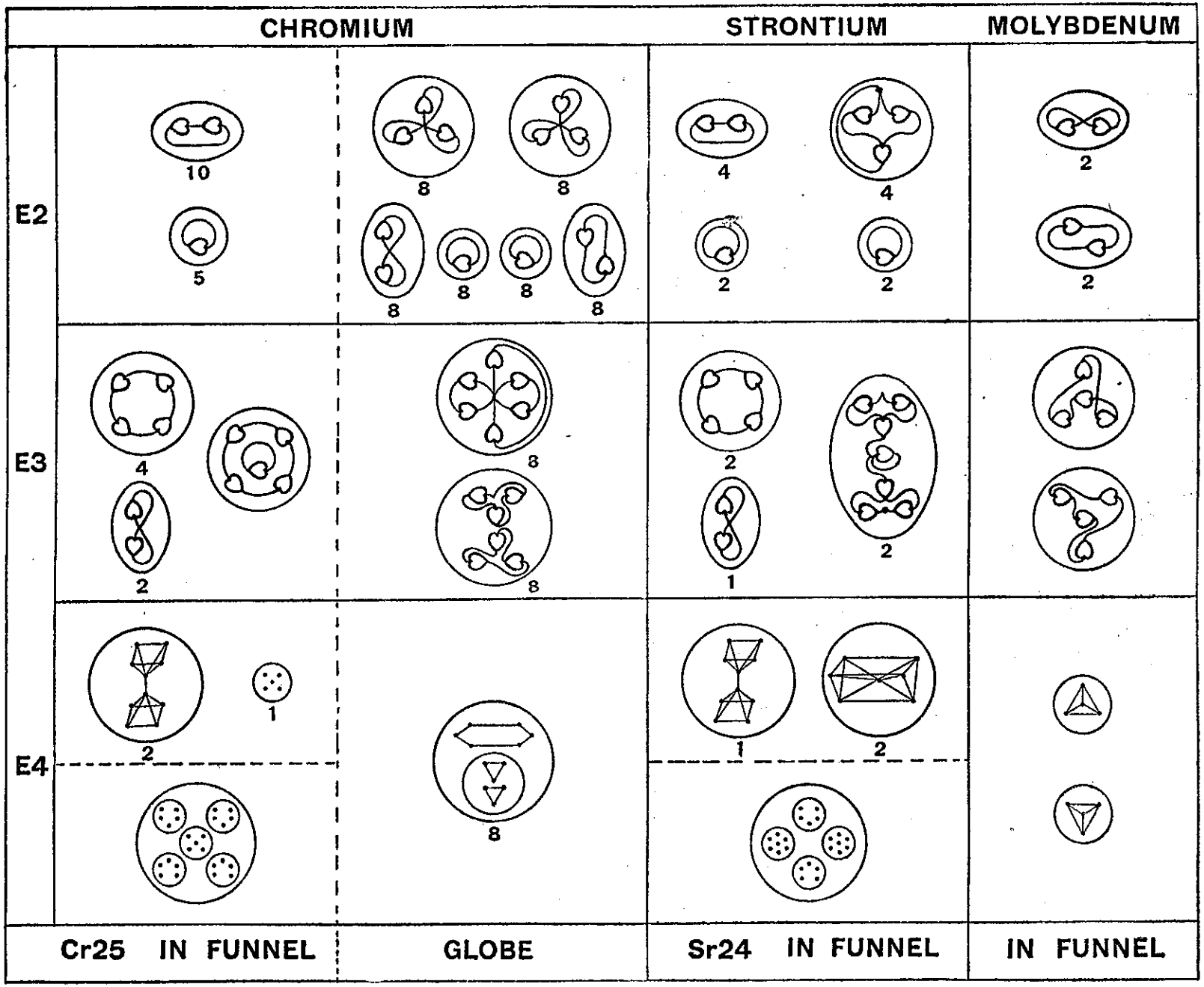
On the E3 level the two spheres, Ca45, each containing five ovoids, Al.9[1], set free ten positive and ten negative duads and ten quintets.

On the E2 level the duads become single Anu, and the central Anu from the quintet is also set free, making fifty units in all. The remaining four Anu of the quintet divide into two duads, making 20 duads.

Globe. The central globe breaks up into eight segments on the E4 level. Each segment becomes spherical and contains within it a cigar, Ad6, and a somewhat heart-shaped body, Li4. Fig. 56.

On the E3 level each segment gives eight spheres of six Anu, the cigar behaving as usual, four sextets being positive and four negative. The four Anu within the Li4, which appear as a tetrahedron, remain together on the E3 level. Four positive and four negative quartets are formed.

On the E2 level the Ad6 dissociates into triplets and the Li4 breaks up into duads.


CHROMIUM
STRONTIUM
MOLYBDENUM
E2
E3
E4
10
5
8
8
8
8
8
8
4
4
2
2
2
2
4
2
8
8
2
1
2
1
2
8
1
2
8
Cr25 IN FUNNEL
GLOBE
Sr24 IN FUNNEL
IN FUNNEL

DISINTEGRATION OF CHROMIUM

Funnel. Each Chromium funnel contains five spheres. Three of these are in Calcium, two Ca45 and one Ca70. Then there are two Cr25, each containing five quintets. These five spheres are quickly set free on the E4 level. The Ca45's and Ca70's behave as in Calcium, Fig. 56. The Cr25 can be seen on closer examination to contain two pairs of quintets which are mirror images of each other, and a fifth quintet which is of a different type. Fig. 57.

At the second stage of E4 each Cr25 forms two figures of ten Anu, making two joined pyramids as in Copper. The remaining quintet is set free.

On the E3 level each figure of ten Anu gives a duad and two quartets in a ring. The remaining quintet makes a ring with the fifth Anu in the centre.

On the E2 level 10 duads and 5 single Anu are set free from the Cr25.

Central globe. In the central globe each segment is first set free, making 8 spheres on the E4 level. Each sphere contains Ad6 and a pair of triangles as in Hydrogen.

On the E3 level these triangles revolve round each other, while the Ad6 acts as usual.

On the E2 level the triangles break up into two duads and two units, while each Ad6 gives 2 triads.

DISINTEGRATION OF STRONTIUM

Funnels. The Strontium funnel contains eight spheres, six as in Calcium, four Ca45 and two Ca70, and two Sr24. All these are liberated in the first stage on the E4 level. The Ca45's and Ca70's behave as in Calcium. At the second stage each Sr24 forms three groups. One of these is a group of ten Anu with two pyramids with apices joined, as in Chromium, and there are two groups of seven Anu, I.7. Fig. 57.

All these disintegrate as shown, either under Calcium or Strontium. Figs. 56 and 57. On the E4 level the joined pyramids give two quartets and a duad, and the I.7 gives a group of seven Anu as in Iodine. On the E2 level the joined pyramids give 4 duads and 2 units as in Chromium, and each seven gives two triads and a unit. There is really nothing new in Strontium, only repetitions of forms already studied.

DISINTEGRATION OF MOLYBDENUM

Funnels. The funnels contain 8 spheres. The first six of these are as in Strontium, while the last two are Mo46. In this Mo46 occur two additional groups of four Anu arranged in the form of a tetrahedron; they occur in pairs as object and image. Fig. 57.

On the E3 level the tetrahedrons give quartets, and on the E2 level these tetrahedrons each give two duads.

Fig. 58 shows the Tetrahedron Group A in a condensed form, from which the relationships in this group can be studied.

TETRAHEDRON GROUP A

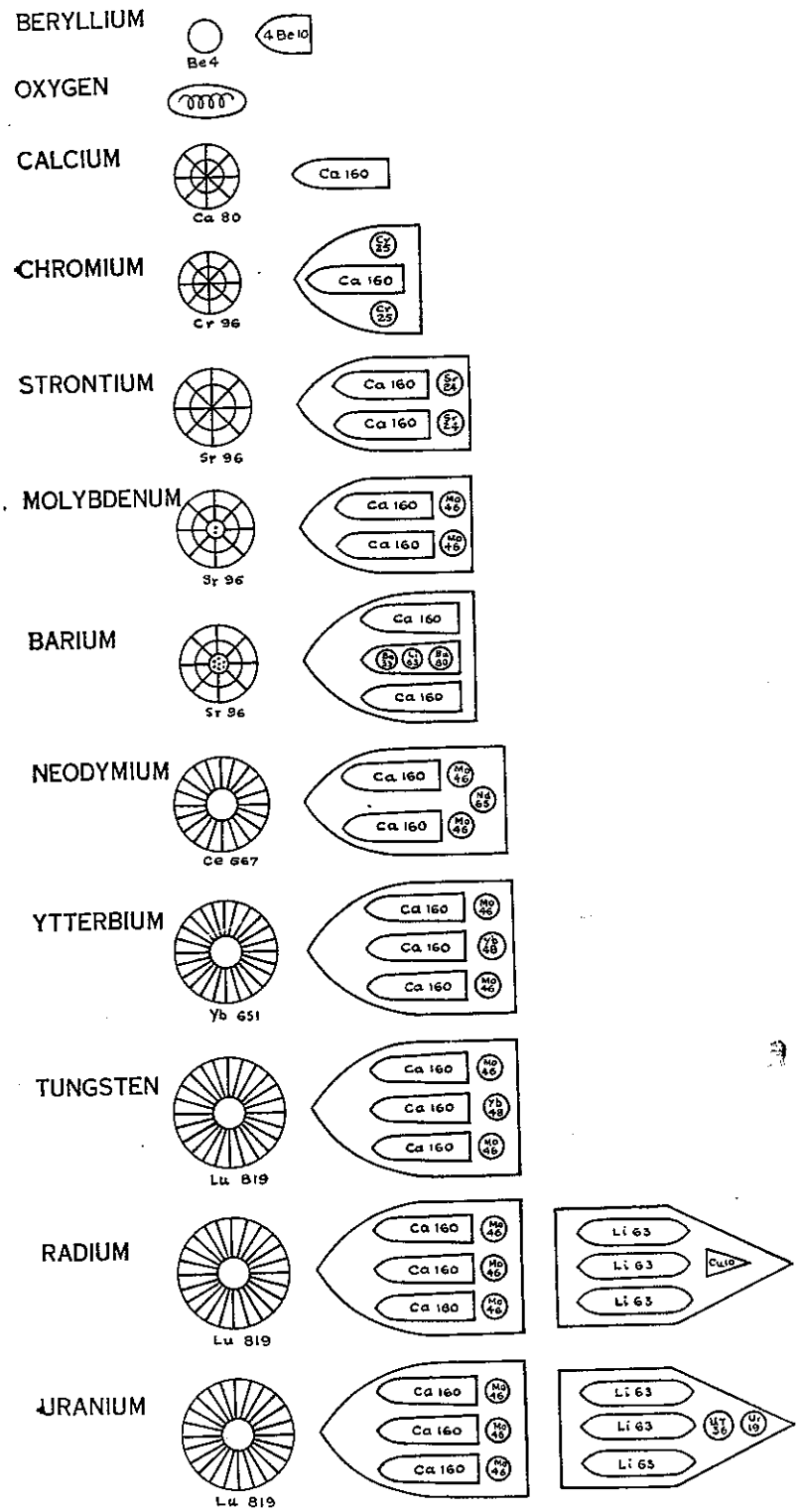
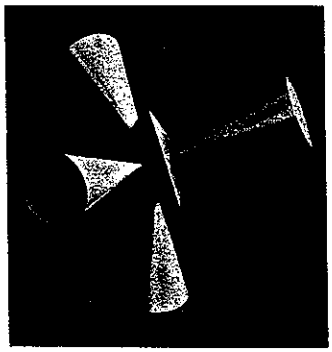


FIG. 58. THE TETRAHEDRON GROUP A

TETRAHEDRON GROUP B



MAGNESIUM

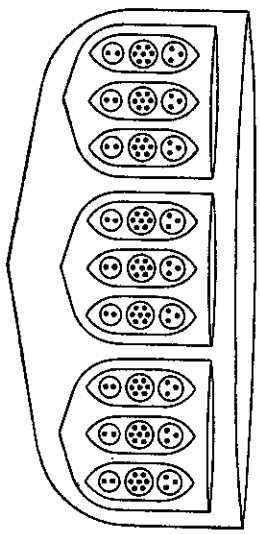


FIG. 59. A TETRAHEDRON, MAGNESIUM

CHAPTER VI

THE TETRAHEDRON GROUP B

THESE ten elements occur on the right hand swing of the pendulum, on the outgoing and on the return swing. They are tetrahedrons in form, and their characteristic valence is four, although some of them are found to develop a higher valence of six. Fig. 59.

Although their fundamental form is the same as that of the Tetrahedron Group A, yet we find a distinctly different type of arrangement of the Anu in the funnels.

The same plan of four funnels opening on the faces of a tetrahedron is found in all these elements, but Magnesium and Sulphur have no central globe, and in Cadmium and Tellurium the globe becomes a cross.

ATOMIC NO.	ANU	ELEMENT	CENTRE	4 FUNNELS	4 SPIKES
12	432	Magnesium		4 [3 (3Mg12)]	
16	576	Sulphur		4 [3 (3S16)]	
30	1,170	Zinc	Zn18	4 [3 (3S16)]	4 [4Zn20+3Zn18'+Cu10]
34	1,422	Selenium	Zn18	4 [3 (3Se10+3Se10+3N2) +Se153)]	
48	2,016	Cadmium	Cd48	4 [3 (3Se10+3Zn18'+4Zn20)]	
52	2,223	Tellurium	(Cd48+3) (Te51)	4 [3 (3Se10+3Te21+4Te22)]	
63	2,843	Europium	Eu59	4 [3 (3Se10+3Eu26+4Eu31)]	
67	3,004	Holmium	Ho220	4 [3 (3Se10+3Eu26+4Eu31)]	
80	3,576	Mercury	Au864	4 [3 (3Se10+3Cl.19+4Te22) +Se153]	
84	3,789	Polonium	Po405	4 [3 (3Po17+3Po33+4Po33')]	

ATOMIC NO. 12. MAGNESIUM

This element introduces us to a new arrangement of the internal structure of the funnels. Fig. 59.

Central globe. Magnesium is exceptional in having no central globe at all.

Funnels. Each funnel contains three segments of three ovoids. Each group of three ovoids forms a ring. The ovoids are all similar and consist of three small spheres of two, seven and three Anu respectively.

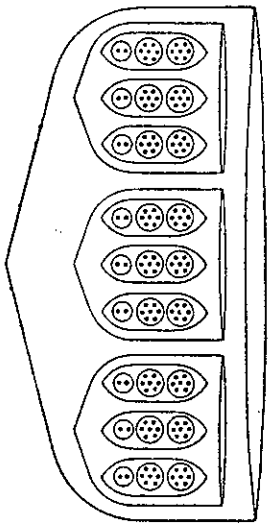
Magnesium = 4 [3 (3Mg12)]

4 funnels of 108 Anu = 432 Anu

Total = 432 Anu

Number weight $\frac{432}{18}$ = 24.00

SULPHUR



ZINC

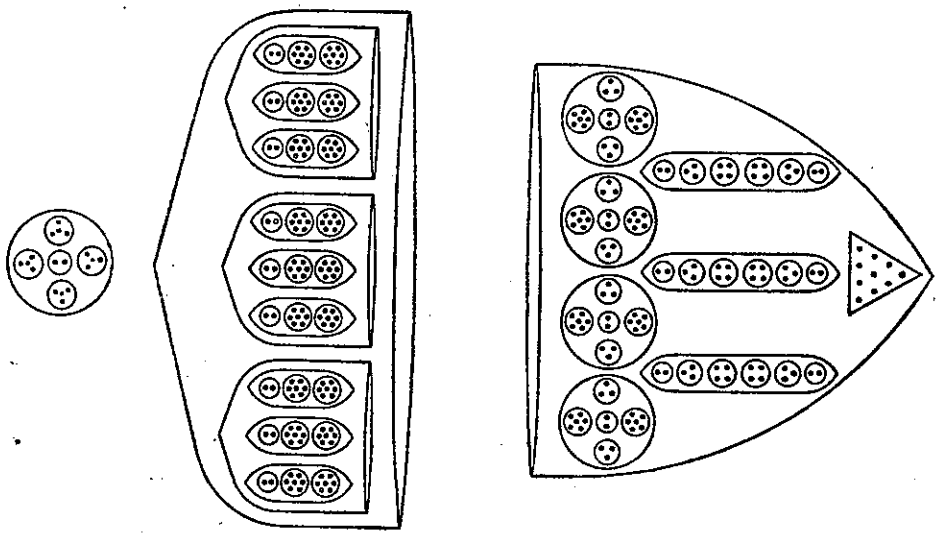


FIG. 60. SULPHUR, ZINC

ATOMIC NO. 16.

SULPHUR

Central globe. Sulphur, like Magnesium, has no central globe.

Funnels. The funnels of Sulphur are very similar to those of Magnesium, having three segments of three ovoids. The ovoids consist of three small spheres, a duad, N2, and two septets, I.7, making S16. Thus 36 extra Anu are slipped into the funnels. Fig. 60.

Sulphur = 4 [3 (3S16)]

4 funnels of 144 Anu	=	576	Anu
Total	=	576	Anu

Number weight $\frac{576}{18}$ = 32.00

ATOMIC NO. 30.

ZINC

Zinc contains a globe and four spikes in addition to the four funnels. Funnels and spikes alike radiate from a simple globe. Fig. 60.

Central globe. The globe is made up of one N2 and four Li4, making Zn18. These five contained spheres are arranged cross-wise, preparing for the fully developed cross of Cadmium. One end of the cross touches the bottom of each funnel.

Funnels. The funnels are identical with those of Sulphur, though they are more compressed.

Spikes. The extra weight is mainly made up by the use of spikes, as was sometimes done in the previous group. The spikes show the cone of ten Anu, met with in other elements, and three very regular pillars, each with six spheres containing two, three, four, four three and two Anu respectively. The four supporting spheres, Zn20, are on the model of the central globe but contain two more Anu.

Zinc = Zn18+4 [3 (3S16)]+[4 Zn20+3 Zn18'+Cu10]

Central globe	=	18	Anu
4 funnels of 144 Anu	=	576	„
4 spikes of 144 Anu	=	576	„
Total	=	1170	Anu

Number weight $\frac{1170}{18}$ = 65.00

SELENIUM

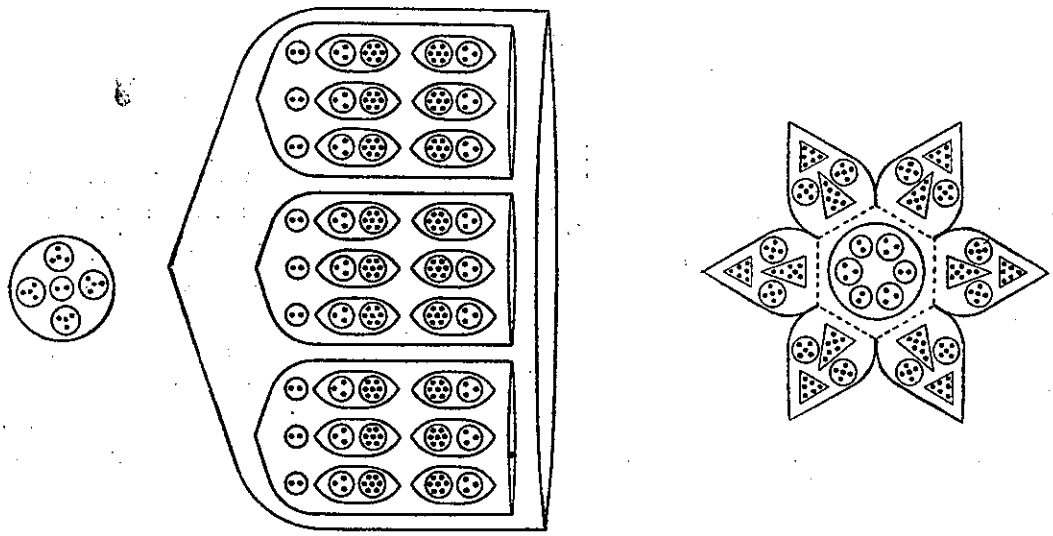


FIG. 61. SELENIUM

ATOMIC NO. 34. SELENIUM

Selenium is distinguished by the peculiarity of an exquisite quivering star floating across the mouth of each funnel and dancing violently when a ray of light falls upon it. It is known that the conductivity of Selenium varies with the intensity of the light falling upon it, and it may be that the star is in some way connected with its conductivity. Fig. 61.

Central globe. The central globe is the same as that of Zinc, Zn18.

Funnels. The bodies in the funnels resemble those in Magnesium, but a reversed image of the top one is interposed between this and the small duad, and each pair has its own enclosure. There are three segments in the funnel as usual.

The Star. It will be seen that the star is a very complicated body, having six points radiating from a central sphere. In each point the spheres of five Anu revolve around the cone of seven. Each star contains 153 Anu, Se153.

Selenium = Zn18+4 [3 (3Se10+3Se10+3N2)+Se153]

Central globe	=	18	Anu
4 funnels of 198 Anu	=	792	"
4 stars of 153 Anu	=	612	"
Total	=	1422	Anu

Number weight $\frac{1422}{18}$ = 79.00

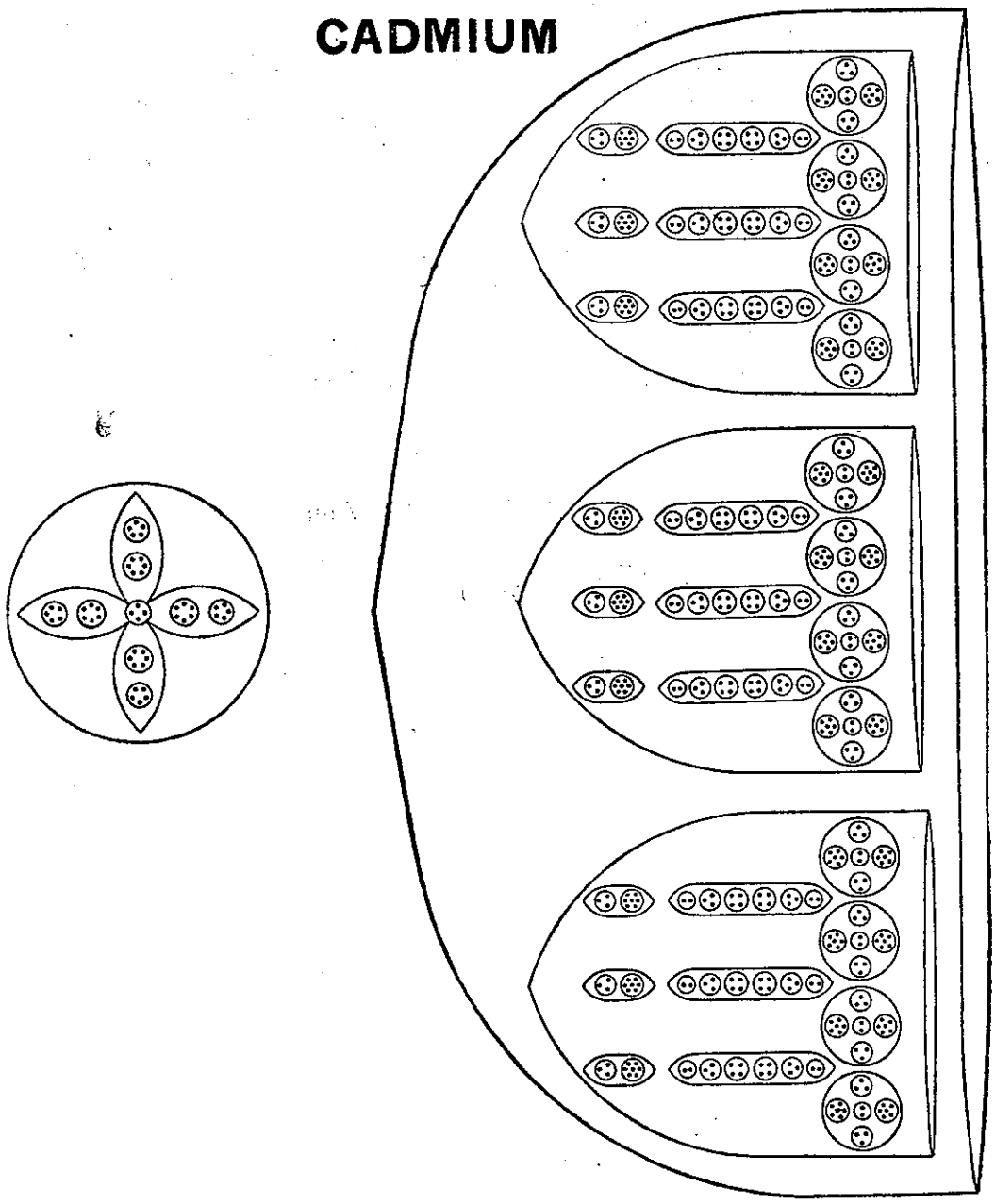


FIG. 62. CADMIUM

ATOMIC NO. 48. CADMIUM

Globe. The central globe is a new form, though prefigured in the central globe of Zinc. It consists of nine small spheres arranged so as to form a cross, Cd48. Fig. 62.

Funnels. In Cadmium there are no spikes, but the three segments of the funnels are much more complex than in Zinc.

Each of the three segments contains four spheres Zn20 and three pillars $Zn18^{1}$. The pillars are similar to those in the zinc spikes. Below each of the pillars is an ovoid with ten Anu. This is the Se10 group found in the funnel of Selenium and which occurs frequently. Each segment of the funnel contains 164 Anu, hence the whole funnel contains 492 Anu.

Cadmium = $Cd48+4\,[3\,(3Se10+3Zn18^{1}+3Zn20)]$

Central globe	=	48	Anu
4 funnels of 492 Anu	=	1968	„
Total	=	2016	Anu

Number weight $\frac{2016}{18} = 112.00$

TELLURIUM

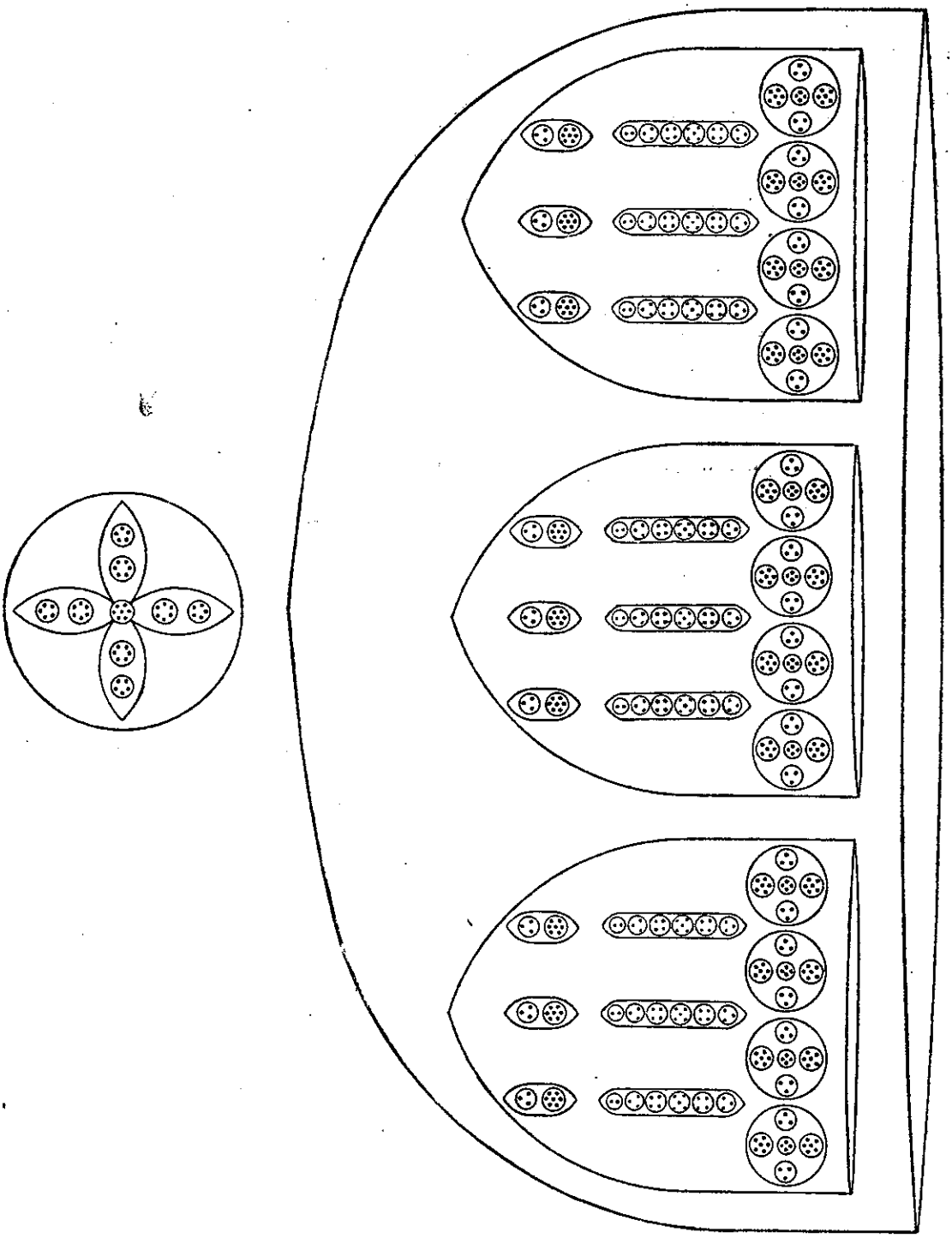


FIG. 63. TELLURIUM

ATOMIC NO. 52.

TELLURIUM

Tellurium, Fig. 63, closely resembles Cadmium.

Globe. The central cross which forms the globe differs from that of Cadmium in having a group of seven Anu at the centre instead of one of four. Cd48+3 = Te51.

Funnels. Tellurium has three cylindrical segments making up its funnel. The contained bodies in the pillars run two, three, four, five, four and three, making Te21. A quartet replaces a duad in the globes, making Te22. Below each pillar is a Se10 group. Each segment has 181 Anu.

Tellurium = (Cd48+3)+4 [3 (3Se10+3 Te21+4 Te22)]

Central globe	=	51	Anu
4 funnels of 543 Anu	=	2172	„
Total	=	2223	Anu

$$\text{Number weight } \frac{2223}{18} = 123.50$$

Note: The number weight for Tellurium is lower than that usually accepted by science. If there were another variety in which the pillars were symmetrical, that is if another group of two Anu were added at the top of each pillar, the total Anu in this variety would be 2,295 giving a number weight of 127.50.

EUROPIUM

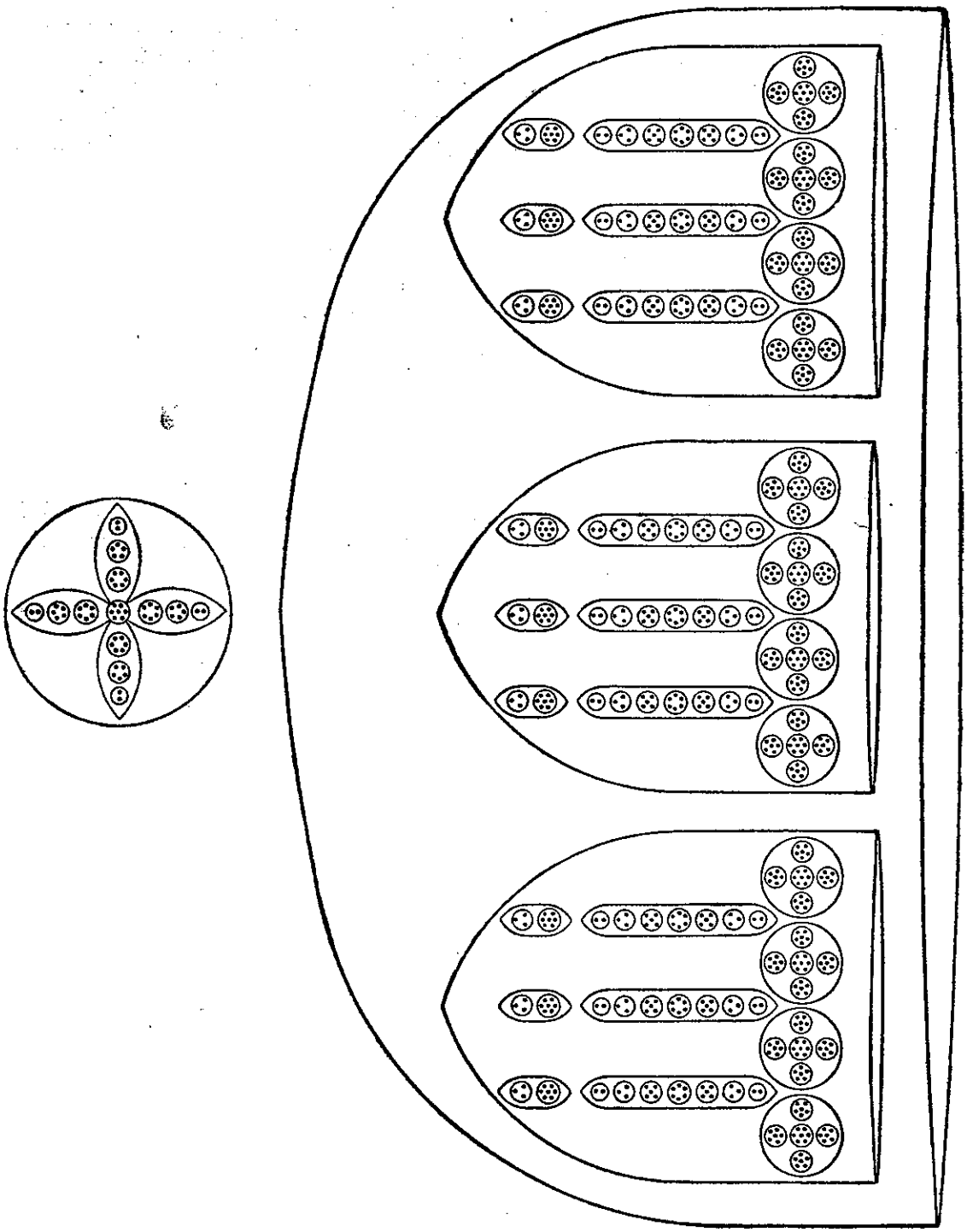


FIG. 64. EUROPIUM

ATOMIC NO. 63. EUROPIUM

This element resembles Tellurium in its arrangement. Fig. 64.

Central globe. The central globe of Europium is similar to that of Tellurium except that a tiny sphere of two Anu is added to each arm of the cross. Thus eight Anu are added to the globe of Tellurium, making Eu59.

Funnels. The funnels each consist of three identical segments, each of 232 Anu. Each segment contains, first the three Se10 as in previous elements, then three pillars each of 26 Anu, Eu26, and above these, four spheres, each Eu31. The total for one funnel is 696 Anu.

Europium = Eu59+4 [3 (3Se10+3Eu26+4Eu31)]

Central globe	=	59	Anu
4 funnels of 696 Anu	=	2784	„
Total	=	2843	Anu

Number weight $\frac{2843}{18} = 157.95$

HOLMIUM

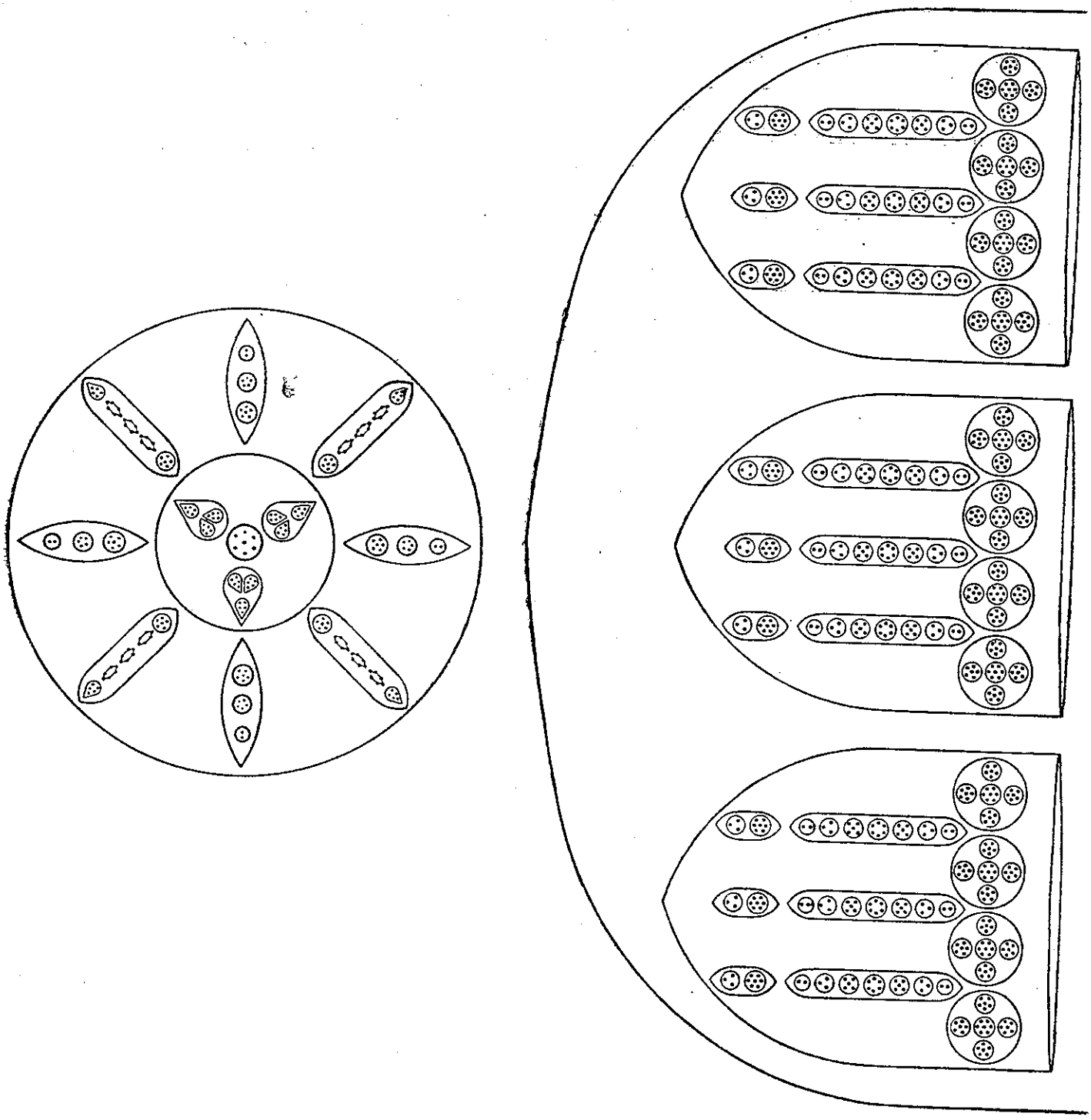


FIG. 65. HOLMIUM

ATOMIC NO. 67. HOLMIUM

This element is similar to Europium except that its central globe is much more complex. Fig. 65.

Central globe. The grand centre of the globe is made up of a sphere of seven Anu, surrounded by three groups of 15 Anu. The seven central Anu are arranged at the six points of space with one in the centre.

The groups of 15 Anu suggest the rings in Occultum, Oc15.

Outside this sphere there radiate groups of bodies composed of two sets of four similar groups. Each set of four points in a definite direction fixed by the tetrahedron. One set of four points to the four faces and the other set to the four corners. The set that points to the four faces is that which occurs in the central globe of Europium.

In the set which points to the four corners each contains N6, three Ad6 and B5, some of which groups are found in Occultum. The B5 at the end comes to a point as if it were a prong.

When we take the three groups of 3B5 and the remaining groups which make the four pointers to the four corners, it is possible to account for three Occultum atoms except for one Anu. When the three groups and the four pointers were taken out they promptly rearranged themselves as three Occultum atoms. It was found that the missing Anu was that which acted as the grand centre of the whole Holmium atom.

Funnel. The four funnels are exactly as those in Europium. Each funnel has three segments and each segment contains 232 Anu arranged as in Europium.

Holmium = Ho220+4 [3 (3Se10+3Eu26+4 Eu31)]

Central globe	=	220	Anu
4 funnels of 696 Anu	=	2784	„
Total	=	3004	Anu

Number weight $\frac{3004}{18} = 166.9$

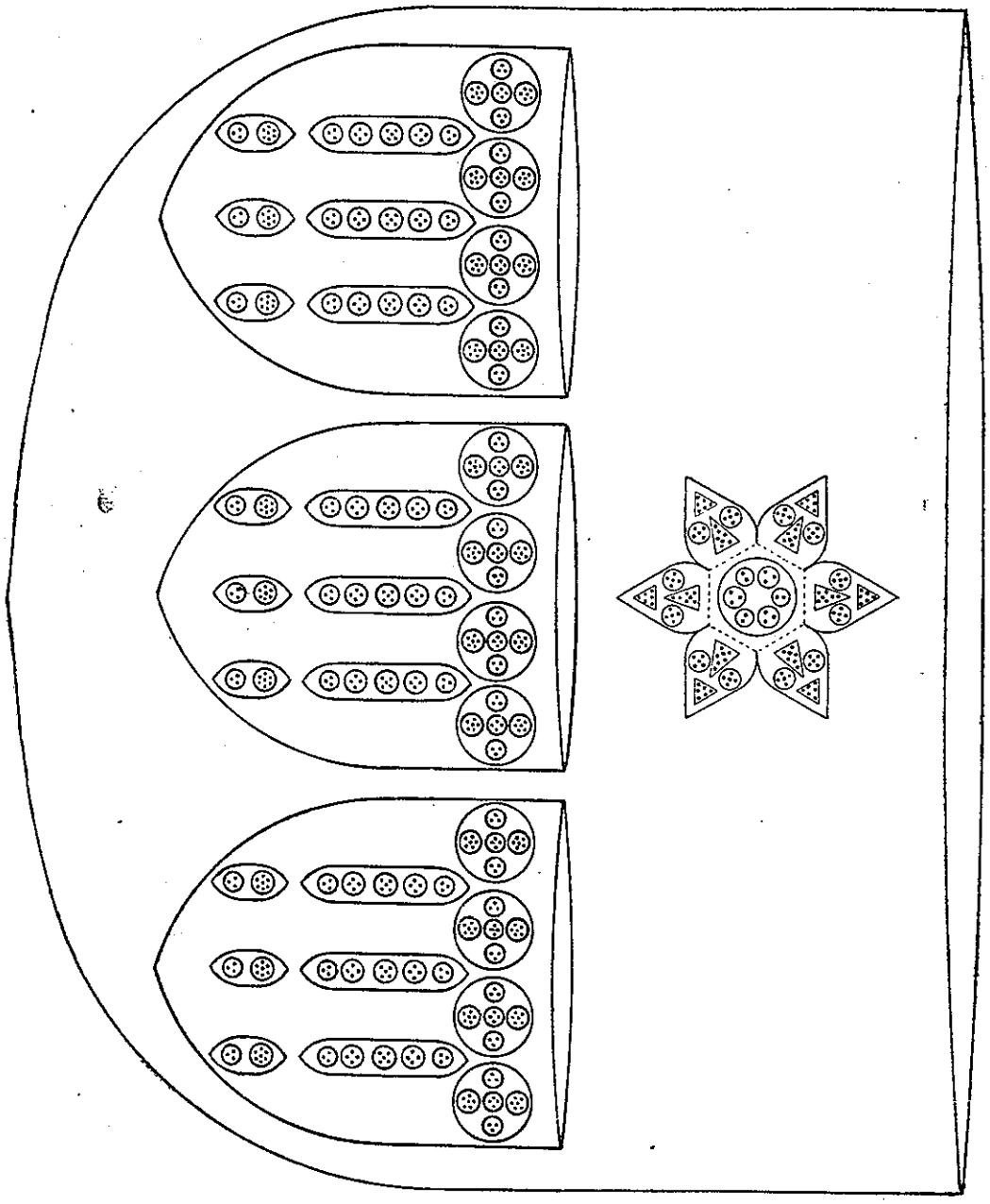


FIG. 66. THE FUNNEL OF MERCURY

ATOMIC NO. 80.

MERCURY

Mercury keeps to the tetrahedral form but adopts a much more complex central globe. Figs. 66, 67.

Here we have an element with a decided individuality of its own. True, its component parts are all borrowed, but the combination of them is unique.

Funnel. Mercury borrows its funnels from Tellurium, though dropping two Anu from each column, and then captures the lovely Selenium star, but turns it into a solid looking and vigorously rotating sphere. The star is no longer flat but has its arms projecting towards the six directions. We may credit what is borrowed from Tellurium and Selenium to the type to which all three belong, but what is taken from Gold must represent the influence of the evolutionary force, since Gold comes just before it on the spiral, though on quite a different line.

The funnels have three segments as in Cadmium. Each segment contains three Se10, three pillars, Cl.19, and four globes Te22. Above the three segments there floats a sphere made of the Selenium star. Each funnel contains three segments+Se153, making 678 Anu.

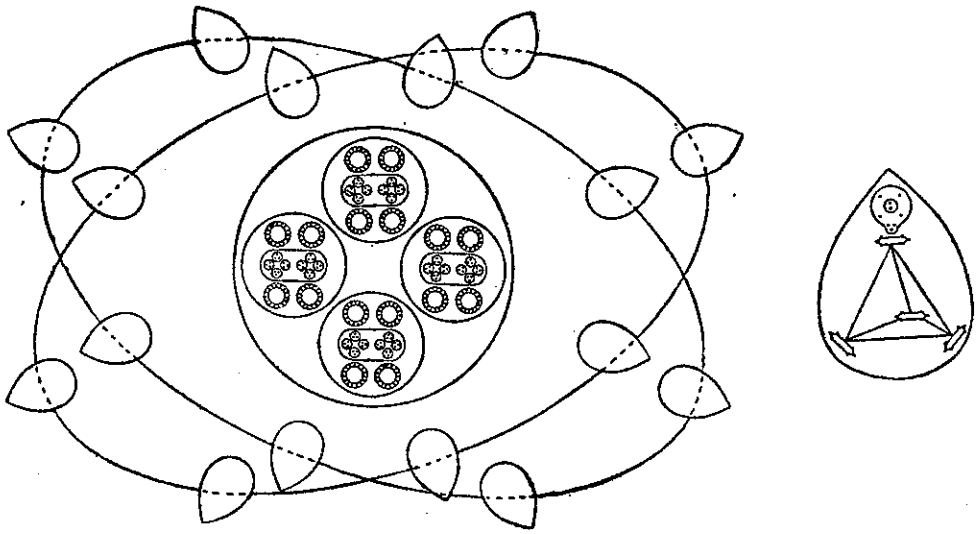


FIG. 67. THE CENTRE OF MERCURY

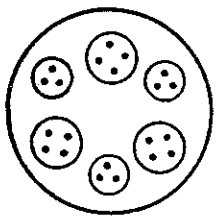


FIG. 68. CENTRE OF THE STAR IN THE FUNNEL OF MERCURY B

The Central Globe. With splendid audacity, Mercury seizes upon the wonderful system of 864 Anu which makes the connecting rod in Gold, and uses that as its centre-piece. Fig. 67.

Mercury = Au864+4 [3 (3Se10+3Cl.19+4Te22)+Se153]

Central globe	=	864	Anu
4 funnels of 678 Anu	=	2712	„
Total	=	3576	Anu

Number weight $\frac{3576}{18}$ = 198.66

An Isotope of Mercury. Mercury B is also a tetrahedron and closely resembles Mercury, the difference being only the addition of six Anu to each of the four funnels of Mercury. This produces a new element, a solid Mercury. A specimen of this rare form of Mercury exists in an occult museum.

The six extra Anu are added in the centre of the Selenium star in the funnels. Fig. 69.

Mercury B.

Central globe	=	864	Anu
4 funnels of 684 Anu	=	2736	„
Total	=	3600	Anu

Number weight $\frac{3600}{18}$ = 200

ATOMIC NO. 84.

POLONIUM

Polonium, though a tetrahedron, is still heavier and more complicated than the earlier members of the group. It is rare and appears to be unstable. Figs. 69, 70.

Central globe. The globe goes back to the pattern of Holmium. It contains a grand centre of a sphere I.7 surrounded by six groups of (3B5) = Ho15. This again is surrounded by eight groups as in Holmium. Four of these are Po42 and four Po35, making a globe of 405 Anu as the centre-piece of Polonium.

Funnel. Each of the funnels has three segments. Each segment contains at the bottom three ovoids Po17, then three pillars Po33 and then four spheres Po33'. These make up 282 Anu. Three segments of 282 make 846 Anu in each funnel.

Polonium = Po405+4 [3 (3Po17+3Po33+4Po33')]

Central globe	=	405	Anu
4 funnels of 846 Anu	=	3384	„
Total	=	3789	Anu

Number weight $\frac{3789}{18}$ = 210.5

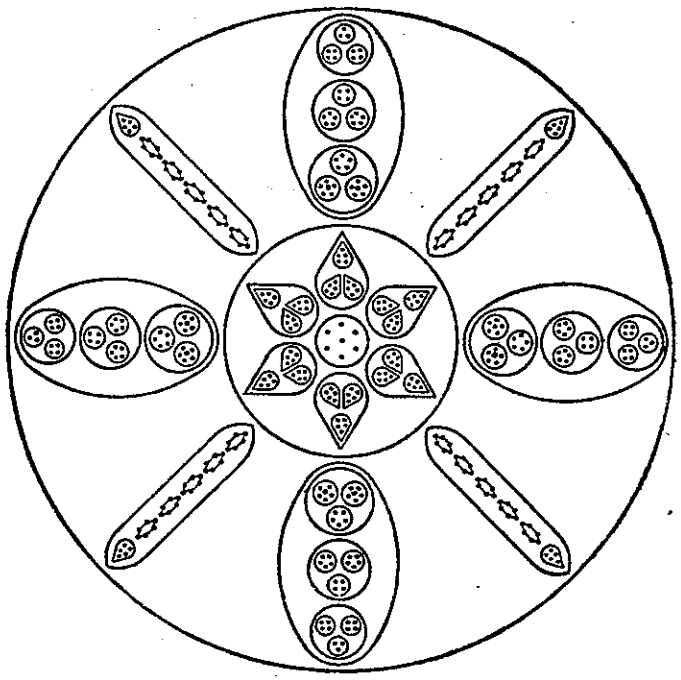


FIG. 69. THE CENTRE OF POLONIUM

POLONIUM

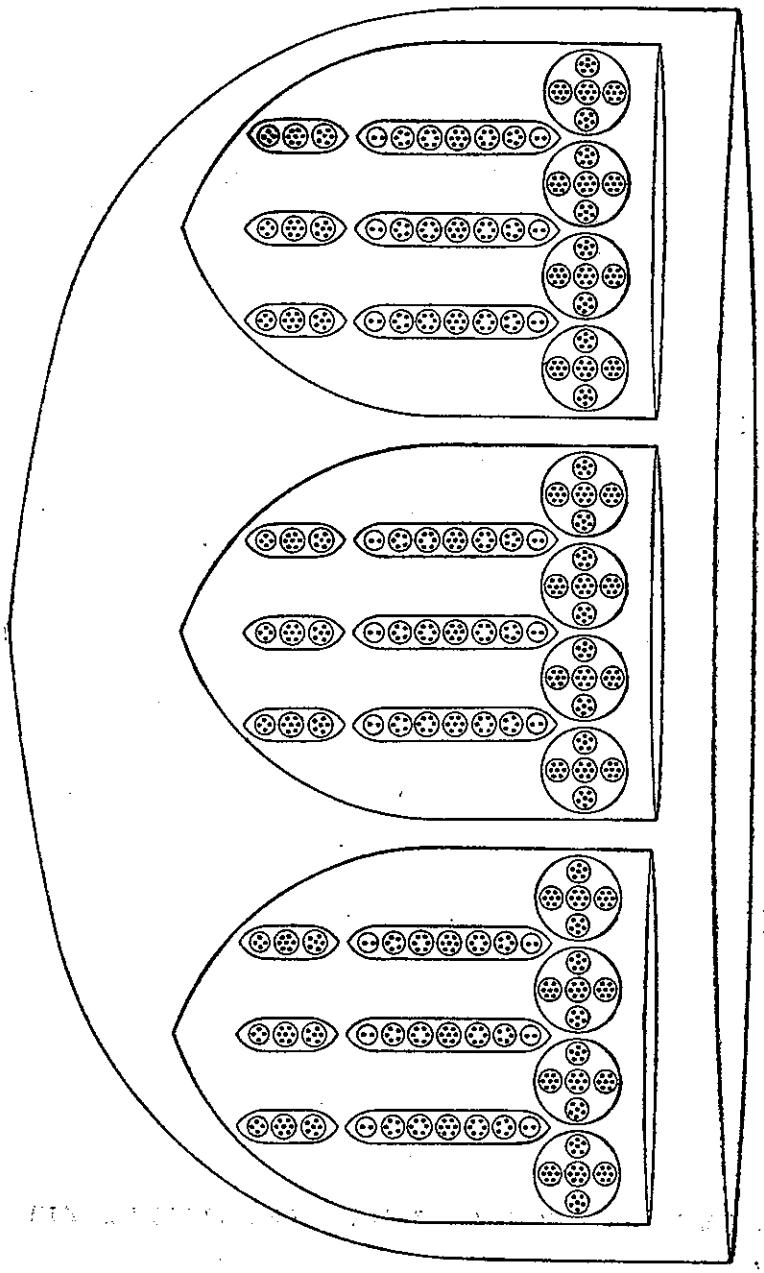


FIG. 70. THE FUNNEL OF POLONIUM

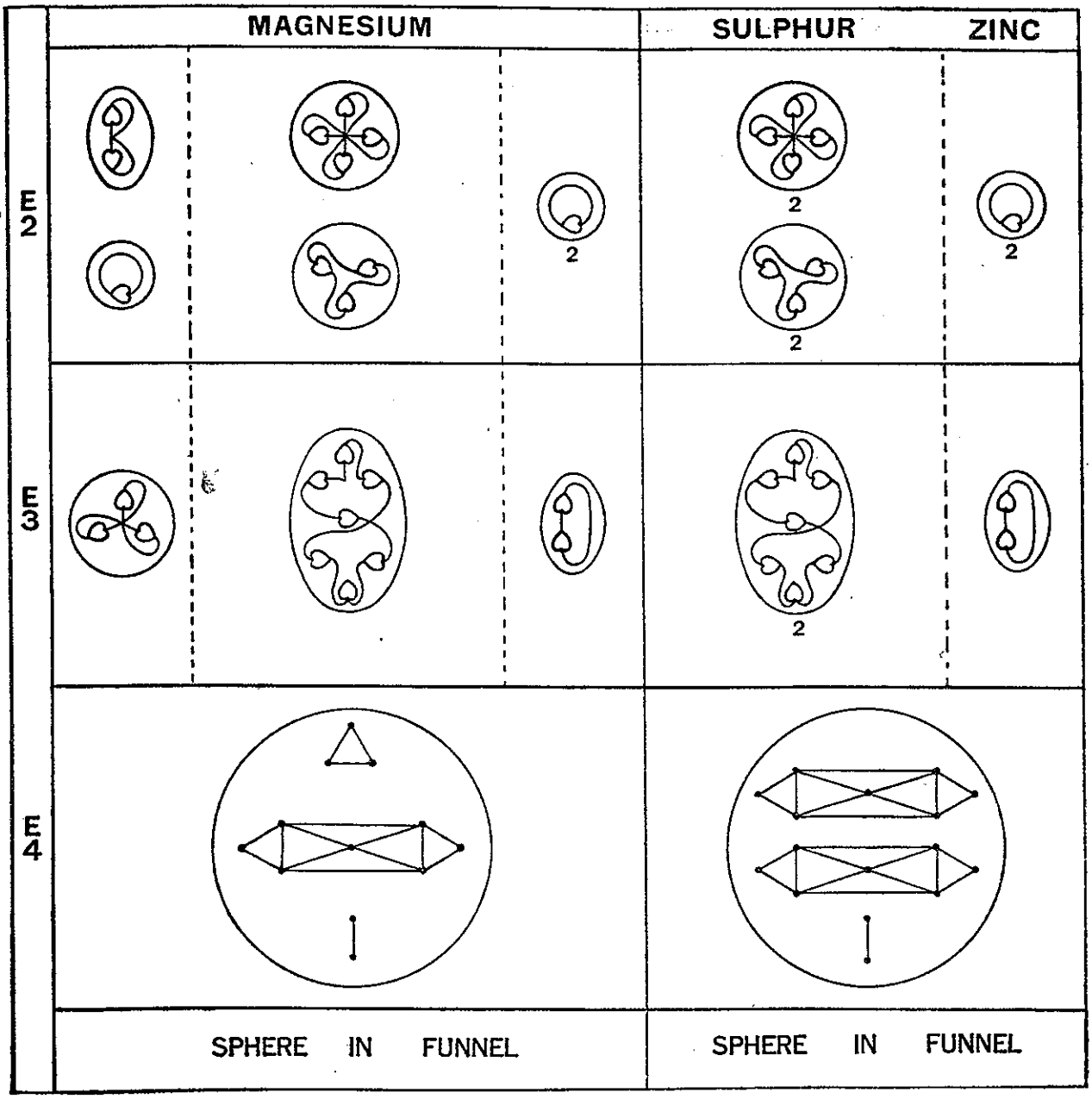


FIG. 71. DISINTEGRATION OF MAGNESIUM, SULPHUR AND ZINC

DISINTEGRATION OF THE TETRAHEDRON GROUP B

DISINTEGRATION OF MAGNESIUM

Funnel. On the E4 level the four funnels are first set free; these then set free the three segments, each segment forming a large sphere. These spheres, however, are not permanent but the three ovoids break loose from the spheres and themselves become spherical. Thus each funnel gives nine spheres. Fig. 71.

On the E3 level the three bodies in the sphere are set free, yielding a triplet, a septet and a duad.

On the E2 level the triplets become a duad and a unit, the septet gives a triplet and a quartet and the duad gives two units.

SULPHUR

This element has the same groups in the funnel as Magnesium, with the substitution of a second septet for the triplet. At the final disintegration on the E4 level we find, therefore, nine spheres from each funnel, each sphere containing two septets and a duad.

On the E3 and E2 levels these disintegrate as in Fig. 71.

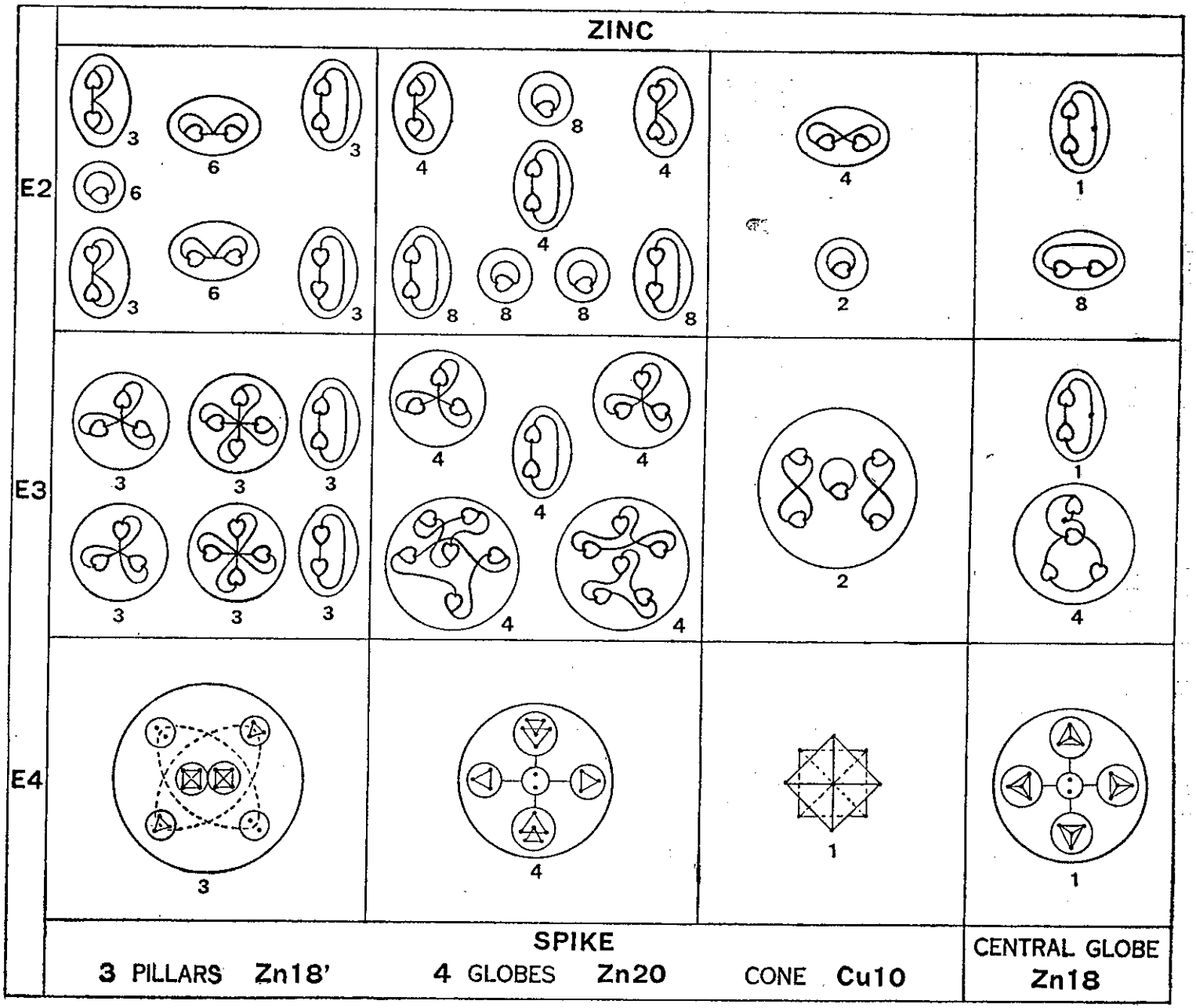


FIG. 72. DISINTEGRATION OF ZINC

DISINTEGRATION OF ZINC

On the E4 level the four funnels, the four spikes and the central globe are first set free. Figs. 71, 72.

The funnels are identical with those of Sulphur and behave in the same way on disintegration.

The spikes immediately release their contents, each spike giving eight bodies, the three pillars Zn18', the four globes Zn20 and the cone Cu10. The pillars Zn18' become globes. Each globe has six bodies revolving in it in a rather peculiar way. The quartets turn round each other in the middle; the triplets revolve round them in a slanting ellipse; the duads do the same on an ellipse slanting at an angle to the first, somewhat as in gold. The globes Zn20 behave as a cross on the E4 level.

The triangular arrangement at the top of the spike is the same as the cone in Copper, Cu10.

The further disintegration of these bodies is shown in Fig. 72.

The central globe. Zn18 is set free on the E4 level and acts as a cross. The cross is a favorite design in these groups.

On the E3 level it forms four quartets and a duad.

On the E2 level it gives 9 duads.

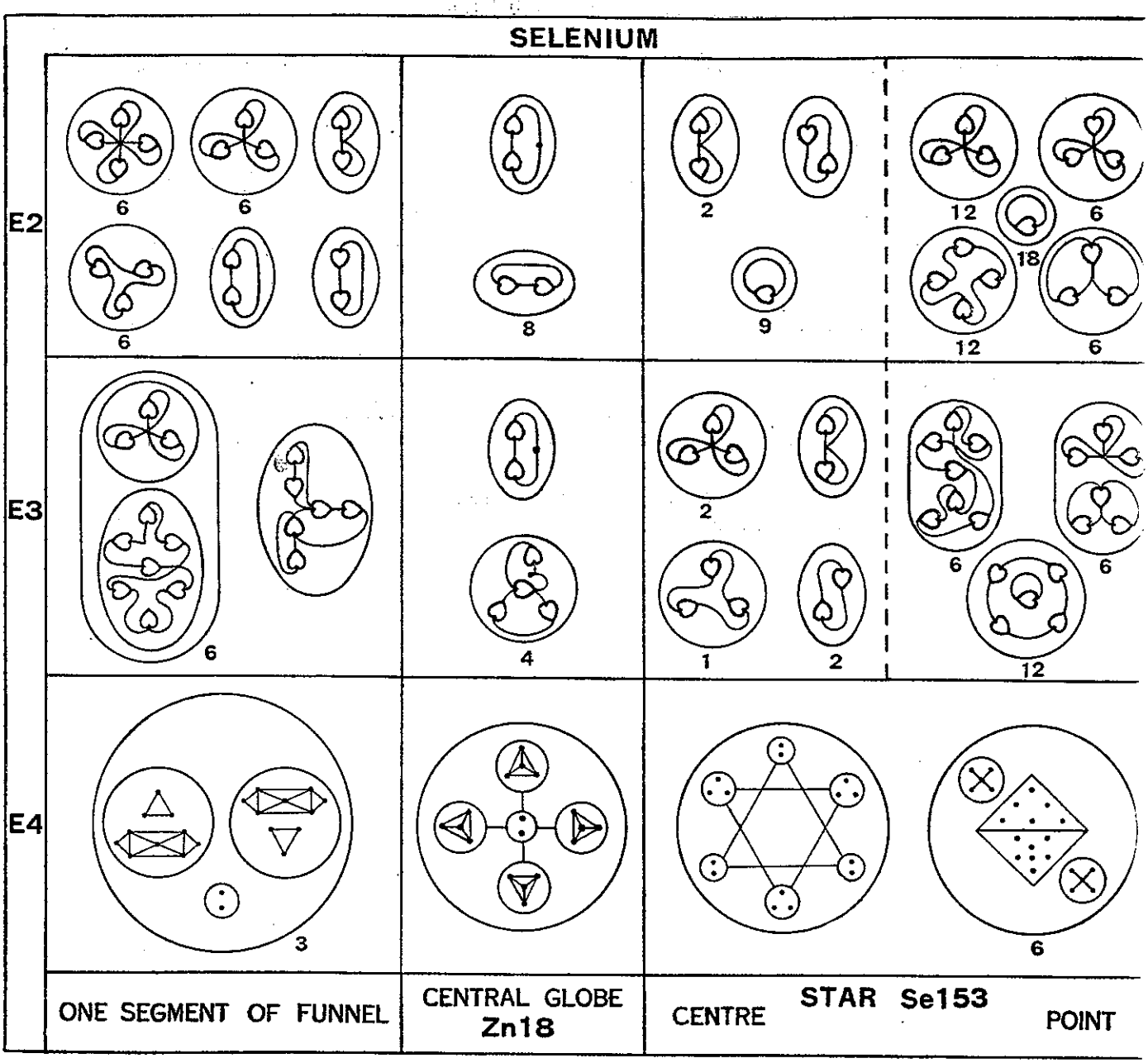


FIG. 73. DISINTEGRATION OF SELENIUM

DISINTEGRATION OF SELENIUM

Funnels. Each funnel on being liberated sets free three segments on the E4 level. Each segment then liberates three spheres, so that we have nine spheres from each funnel. Fig. 73.

On the E3 level six decads are formed and one hexad. The body with six Anu is formed by combination of three duads.

On the E2 level the decads give twelve triplets and six quartets. The hexad give three duads.

The Star. The star is first liberated as a unit on the E4 level but it soon shoots off into seven bodies. The central portion keeps together and the six points become spheres, within which the two cones, base to base, whirl in the centre and the globes of five Anu circle round them.

On the E3 level all the thirty bodies contained in the star separate from one another, forming twelve quintets, six heptads, six sextets, three triplets and three duads.

The further disintegration is shown in Fig. 73.

The central globe is similar to that in Zinc, Zn18. This is liberated on the E4 level and is as shown in Fig. 73. On the E3 level it forms four quartets and a duad. On the E2 level it yields nine duads.

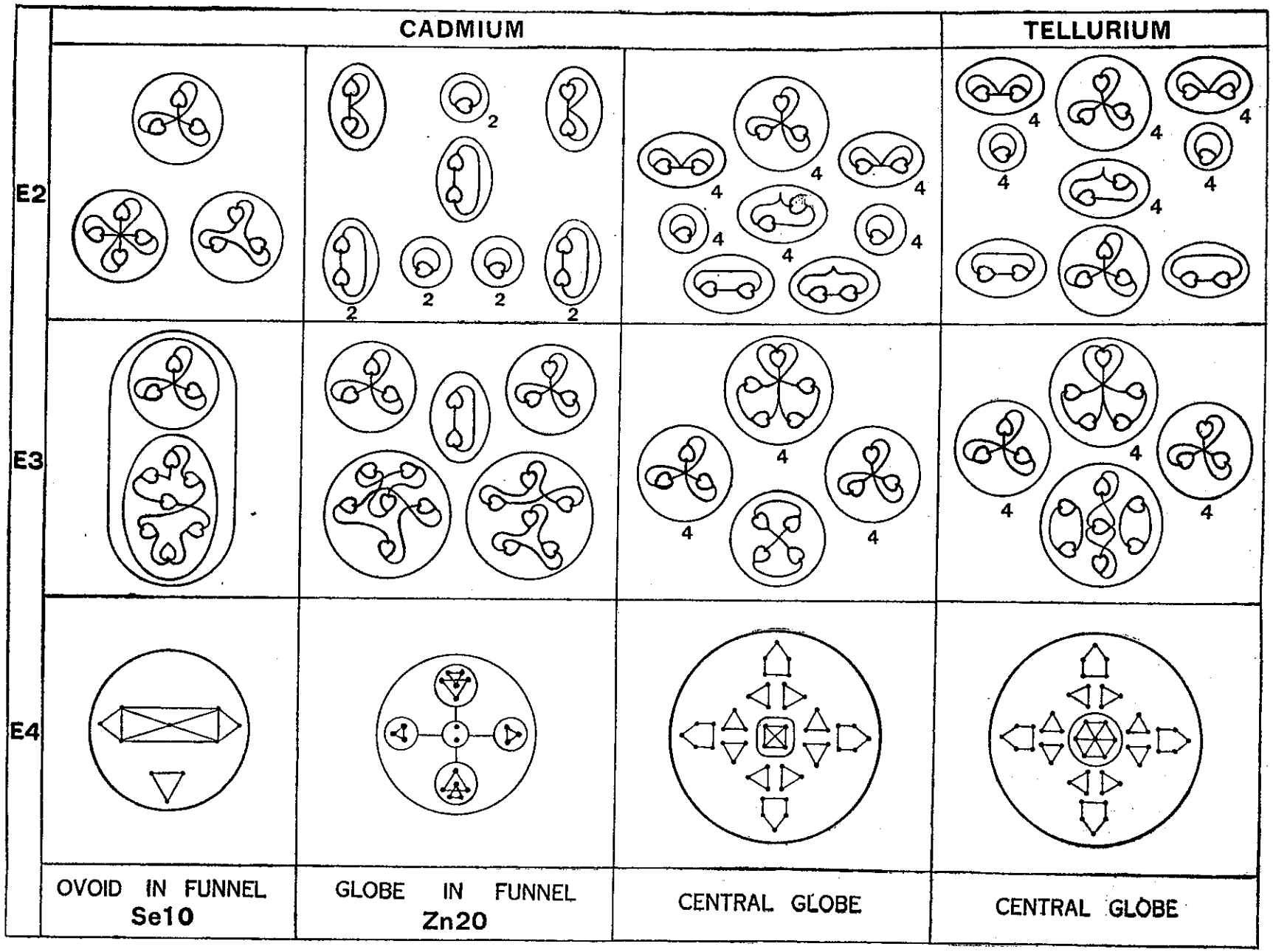


FIG. 74. DISINTEGRATION OF CADMIUM AND TELLURIUM

CADMIUM

Cadmium follows closely on the lines of Zinc. Fig. 74.

Funnels. The globes in the funnels, Zn20, are those of Zinc, and the pillars are the Zn18' of the Zinc spike.

On the E4 level the ovoids Se10 become spheres, the contained bodies revolving within them. The heptad whirls on a diameter of the sphere, cutting it in half as it were, and the triad whirls round it at right angles.

On the E3 level we have a decad, Se10, and on the E2 level two triads and a quartet.

Central globe. The cross becomes a sphere, but the cruciform type is maintained within it by the relative positions of the contained spheres in their revolution. The subsequent stages are shown in Fig. 74.

TELLURIUM

Tellurium very closely resembles Cadmium.

Funnels. The pillars are the same as the rod of Chlorine, Cl.19, with a duad added at the base. The ovoid Se10 is the same as in Selenium and Cadmium, and follows the same course in breaking up. In the globes in the funnels a group of four is substituted for the group of two in Zinc.

Central globe. The cross in Tellurium is identical with that in Cadmium, except that the centre contains seven Anu instead of four. This disintegrates as in Fig. 74.

Fig. 75 shows the Tetrahedron Group B in a condensed form, from which the relations between the elements in the group may be studied.

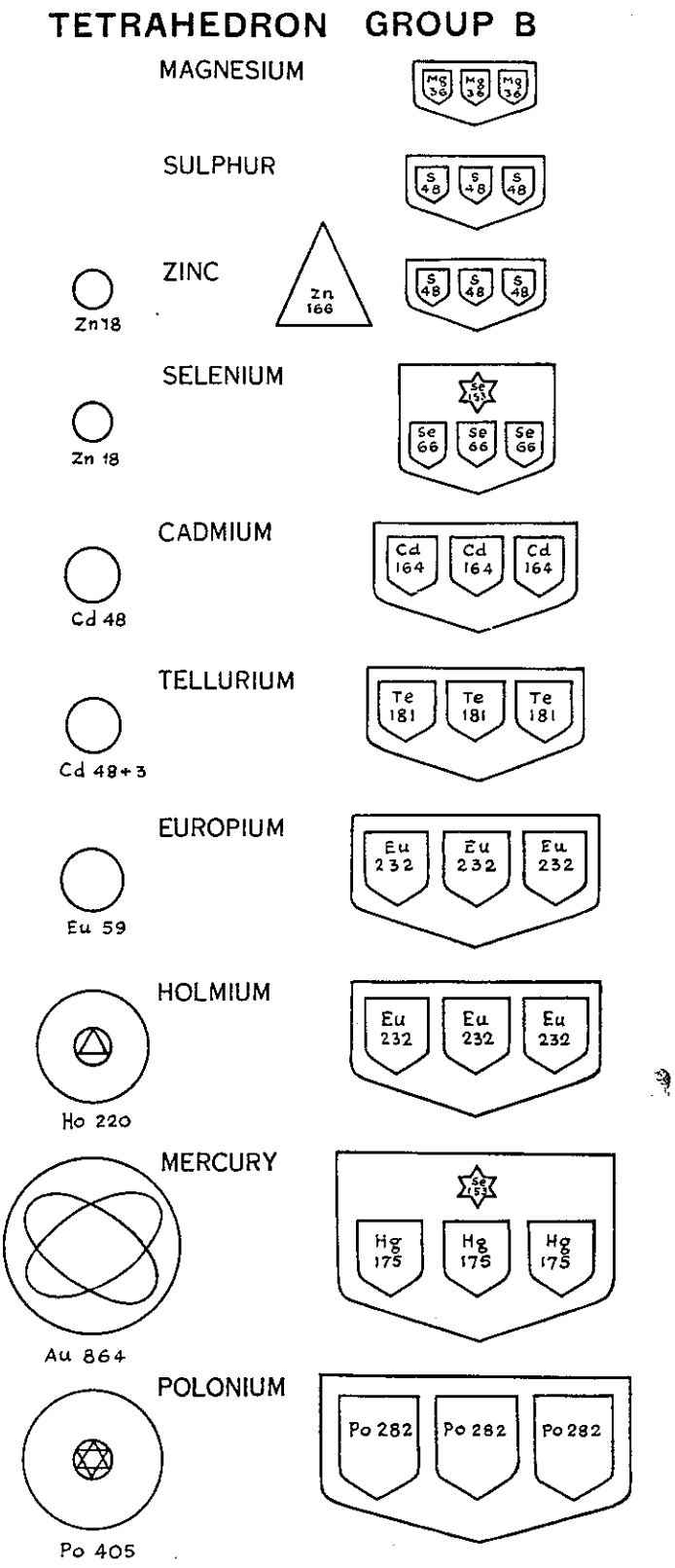
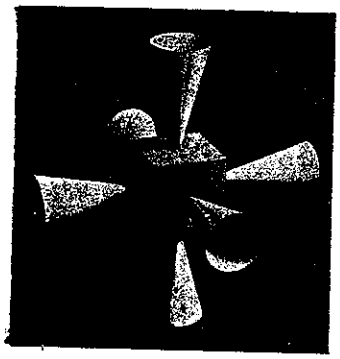
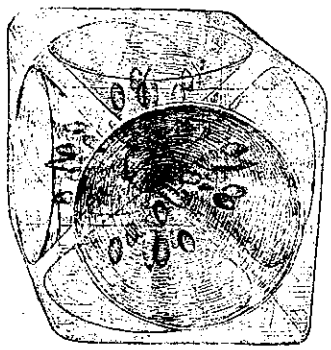


FIG. 75. THE TETRAHEDRON GROUP B





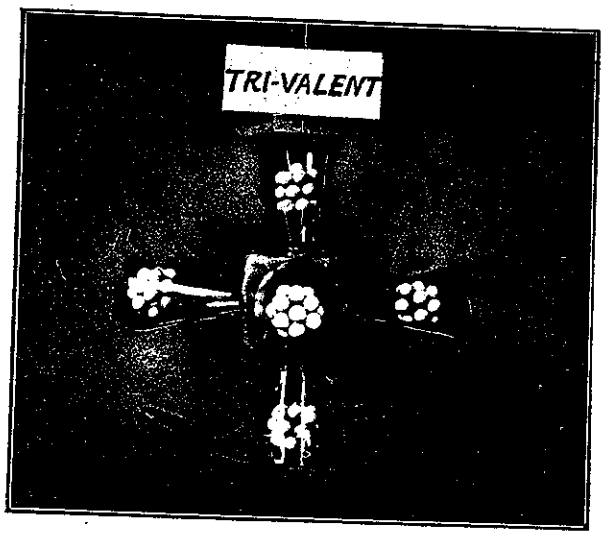


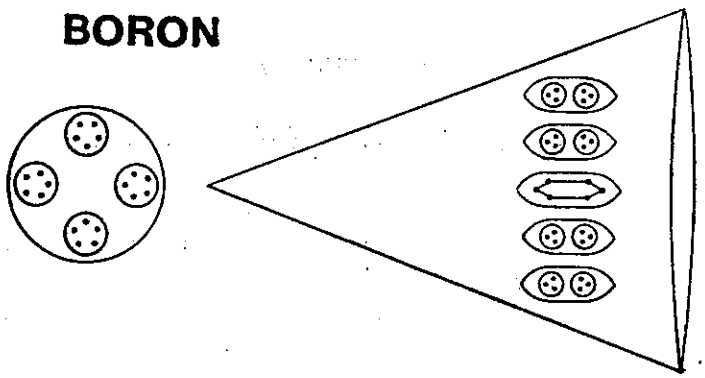
FIG. 76. TYPES OF THE CUBE GROUP

CHAPTER VII

THE CUBE GROUP A

ALL the members of this group, with the exception of Nitrogen, have the external form of a cube. Fig. 76. They occur on the left hand swing of the pendulum. Their characteristic valence is three, but higher valencies are developed. They all have six funnels opening on the six faces of a cube, and in two cases there are also spikes pointing to the eight corners of the cube. At first sight it would appear that Nitrogen should not be placed in this group but, as we shall see, the constituents of Nitrogen occur constantly in the components making up the funnels of the elements in this group.

ATOMIC NO.	ANU	ELEMENT	CENTRE	6 FUNNELS
5	200	Boron	(4 B5)	6 [4 (2H3)+Ad6]
7	261	Nitrogen	(N110+N63+ 2N24+2N20)	
21	792	Scandium	(4 B5+Be4)	3 [N110+4 (2H3)+Ad6] 3 [N63+2N24+B5]
23	918	Vanadium	(4 B5+I.7)	3 [N110+N20+4 (2H3)+Ad6] 3 [N63+2N24+N20+N6]
39	1,606	Yttrium	(Ad24+Yt16)	6 [N63+N110+Yt44+(4Yt8+2Ad6)]
41	1,719	Niobium	(2Ad24+N9)	6 [N63+N110+Yt44+Nb60]
57	2,482	Lanthanum	(Ne120+7)	3 [N63+N110+Mo46+Ca70+Yt44+ Nb60] 3 [N63+N110+Ca45+Ca70+Yt44+ Nb60]
59	2,527	Praeseodymium	(Ce27+30 Ce32) =Ce667	6 [Pr33+N63+N110+Yt44+Nb60]
71	3,171	Lutecium	(Ce27+24Ba33) =Lu819	6 [N63+N110+Lu53+Ca70+Lu36+ Nb60]
73	3,279	Tantalum	Lu819	6 [N63+N110+Ta63+Ca70+Yt44+ Nb60]
89	4,140	Actinium	Lu819	3 [N63+N110+Mo46+Ca160+Yt44+ Nb60] 3 [Zr212+Sb128+Ac116] +8 Li63
91	4,227	Proto-Actinium	Lu819	3 [N63+N110+Mo46+Ca160+Yt44+ Nb60] 3 [Zr212+Sb128+Ac116+Pa29] +8 Li63



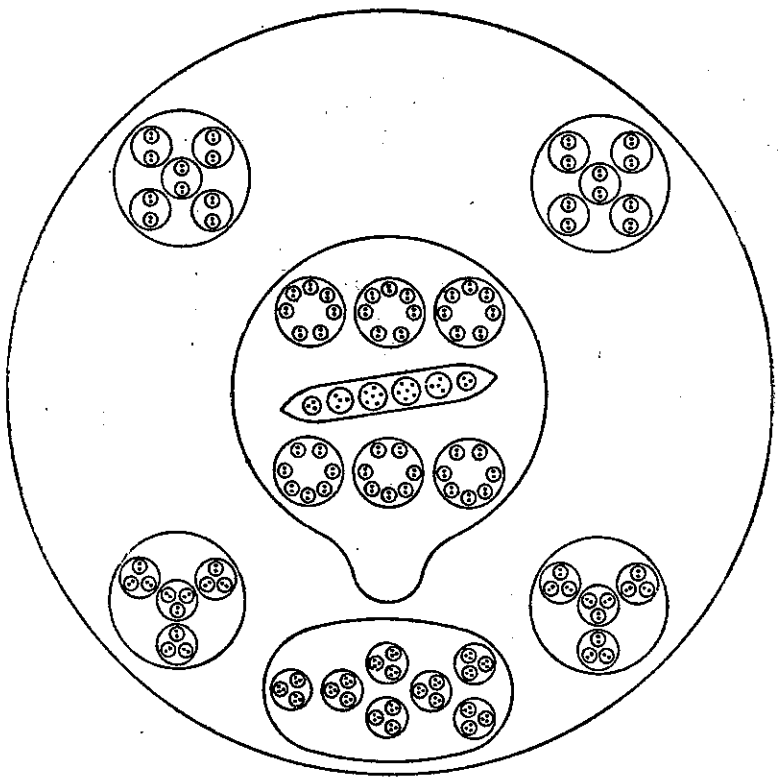


FIG. 77. BORON, NITROGEN

ATOMIC NO. 5.

BORON

In Boron we have the simplest form of the cube. Fig. 77. It is as simple in relation to the other members of its group as is Beryllium.

The Central globe has four spheres of five Anu, 4B5.

The funnels contain five bodies also, four ovoids each of 2H3, and one Ad6. All six funnels are alike.

Boron = 4B5+6 [4 (2H3)+Ad6]

Central globe	=	20	Anu
6 funnels each of 30 Anu	=	180	„
Total	=	200	Anu

Number weight $\frac{200}{18}$ = 11.11

ATOMIC NO. 7.

NITROGEN

Nitrogen does not assume the cubic form of its relatives, but is shaped like a sphere. Fig. 77. The balloon-shaped body, N110, floats in the middle of the sphere. This N110 contains six smaller spheres in two horizontal rows, and a long ovoid in the middle. The balloon-shaped body is positive and is drawn down towards the negative body, N63, below it. N63 contains seven spheres, each of which has nine Anu within it, arranged as three triads. In addition to N110 and N63 there are four more spheres in Nitrogen. Two of these, N20, containing five smaller globes of four Anu, are positive and two, N24, containing four globes of six Anu, are negative.

What is there in Nitrogen which renders it so inert as conveniently to dilute the fiery Oxygen and make it breatheable, while it is so extraordinarily active in some of its compounds that it enters into the most powerful explosives? Some chemist of the future perhaps will find the secret in the arrangement of its constituent parts which we are able only to describe.

Nitrogen = N110+N63+2N24+2N20

Balloon	=	110	Anu
Oval	=	63	„
2N24	=	48	„
2N20	=	40	„
Total	=	261	Anu

Number weight $\frac{261}{18}$ = 14.50

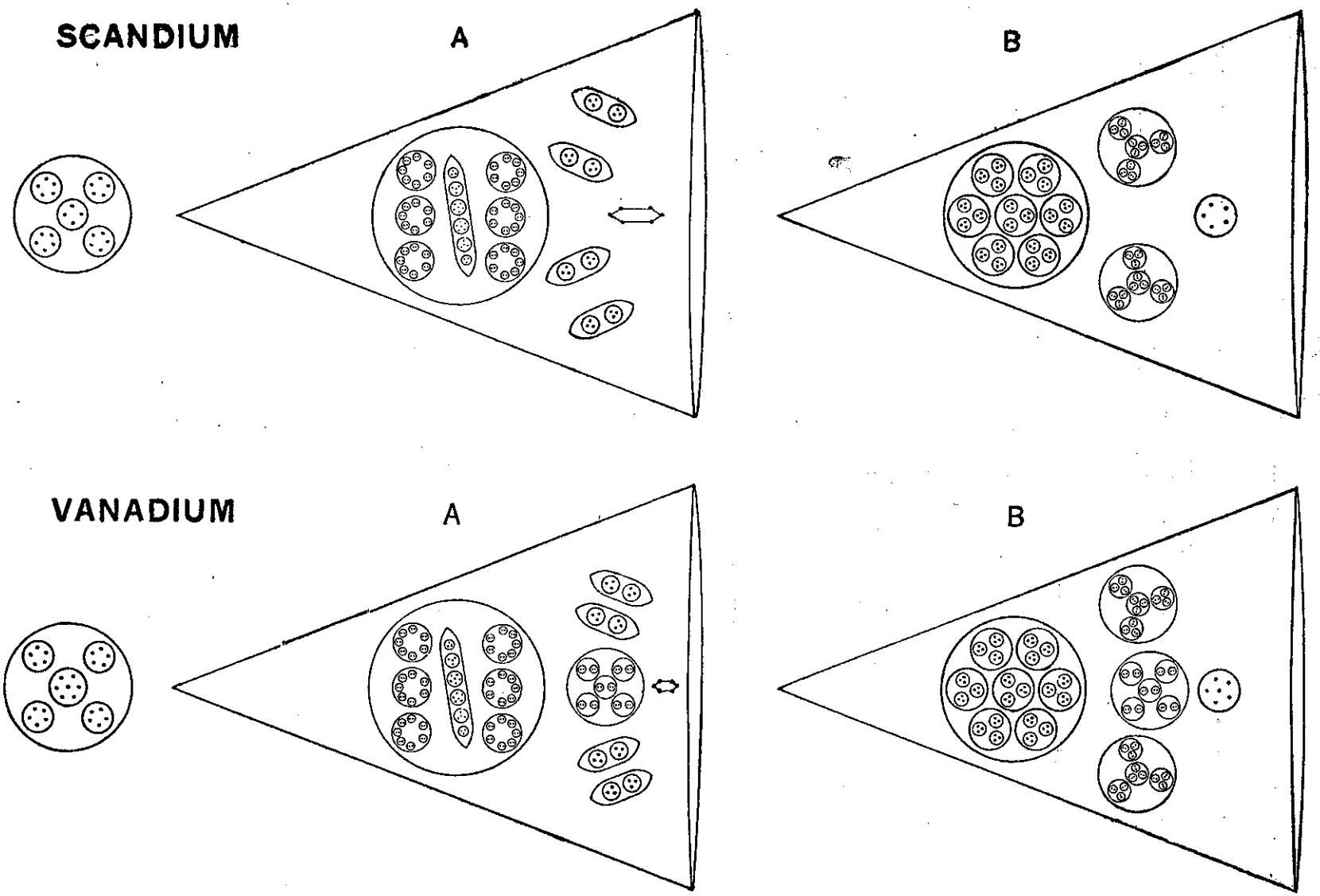


FIG. 78. SCANDIUM. VANADIUM

ATOMIC NO. 21.

SCANDIUM

In Scandium for the first time we meet funnels of two different types in the same atom. The three funnels of type A appear to be positive and those of type B negative, but this must be stated with reserve. Fig. 78.

Central globe. The central globe repeats that of Boron, with an additional sphere of four Anu in the centre.

Funnels. In the A type the Boron funnel is reproduced, the Ad6 having risen above its companion ovoids; but the most important matter to note in respect to this funnel is the introduction of the body N110. This body was observed by us first in Nitrogen, in 1895, and we gave it the name of the "nitrogen balloon," for in Nitrogen it takes the balloon form, which it also often assumes in other gaseous elements. Here it appears as a sphere, the form it always assumes on the E4 level. It will be observed that this N110 appears in every member of this group except Boron.

The B type of funnel runs largely to triads. It contains N63, which has not only a triadic arrangement of spheres within its contained globes, but each sphere has also a triplet of Anu. The funnel also contains two N24 and is completed by a sphere of five Anu at the top of the funnel.

Scandium = (4B5+Be4) +3 [N110+4 (2H3) +Ad6] +3 [N63+2N24+B5]

Central globe	=	24	Anu
3 funnels A of 140 Anu	=	420	„
3 funnels B of 116 Anu	=	348	„
Total	=	792	Anu

Number weight $\frac{792}{18} = 44.00$

ATOMIC NO. 23.

VANADIUM

Vanadium closely follows Scandium. Fig. 78.

The central globe has seven Anu, I.7, in its central body, instead of four as in Scandium.

Funnels. The funnels of type A only differ from those of Scandium by having a globe, N20, inserted in the ring of four ovoids.

The B type funnels have a globe containing six Anu instead of five at the top, and slip in a third globe containing twenty Anu, N20, between the two N24 of Scandium.

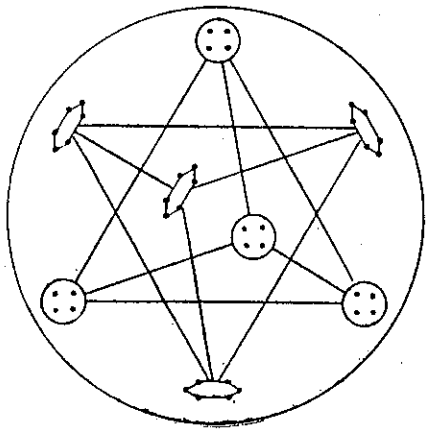
In this way Vanadium succeeds in overtopping Scandium by 126 Anu.

Vanadium = (I.7+4B5)+3 [N110+N20+4 (2H3)+Ad6] +3 [N63+2N24+N20+N6]

Central globe	=	27	Anu
3 funnels A of 160 Anu	=	480	„
3 funnels B of 137 Anu	=	411	„
Total	=	918	Anu

Number weight $\frac{918}{18} = 51.00$

YTTRIUM



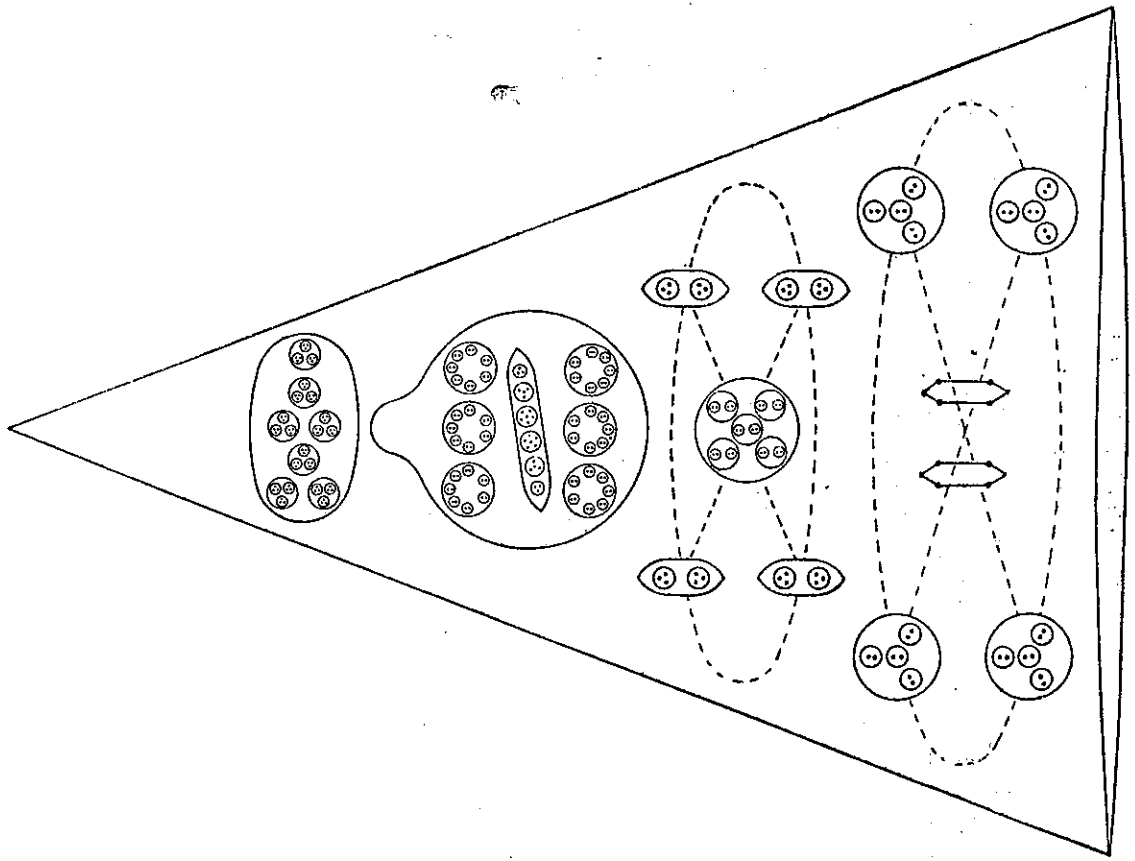


FIG. 79. YTTRIUM

ATOMIC NO. 39.

YTTRIUM

The *central globe* presents us with two tetrahedrons, recalling one of the combinations in Adyarium and in Gold, and differing from that in Gold only by the substitution of two quartets for the two triplets. Fig. 79.

Funnels. The funnels are of one type only, and we have here quite a new arrangement of bodies within the funnel. At the bottom comes N63, followed by N110. The N63 is slightly lengthened.

Two Ad6 whirl on their own axes in the centre near the top, while four globes of eight Anu chase each other in a circle round them, spinning madly on their own axes. This axial spinning seems constant in all contained bodies. Lower down in the funnel a similar arrangement is seen, with a globe, N20, replacing the two Ad6, and four ovoids of six Anu replacing the globes of eight Anu. This group is identified as Yb44.

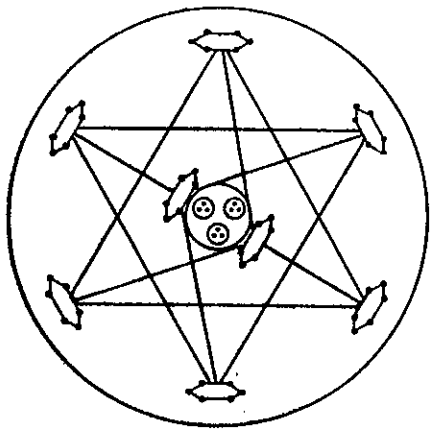
One funnel of Yttrium contains exactly the same number of Anu as is contained in a gaseous atom of Nitrogen. Further, N110, N63 and N20 are all constituents of Nitrogen. We put on record these facts, without trying to draw any conclusions from them. Some day we, or others, may find out their significance, and trace through them obscure relationships.

Yttrium = (Ad24+Yt16)+6 [N63+N110+Yt44+ (4Yt8+2Ad6])

Central globe	=	40	Anu
6 funnels of 261 Anu	=	1566	„
Total	=	1606	Anu

Number weight $\frac{1606}{18}$ = 89.22

NIOBIUM



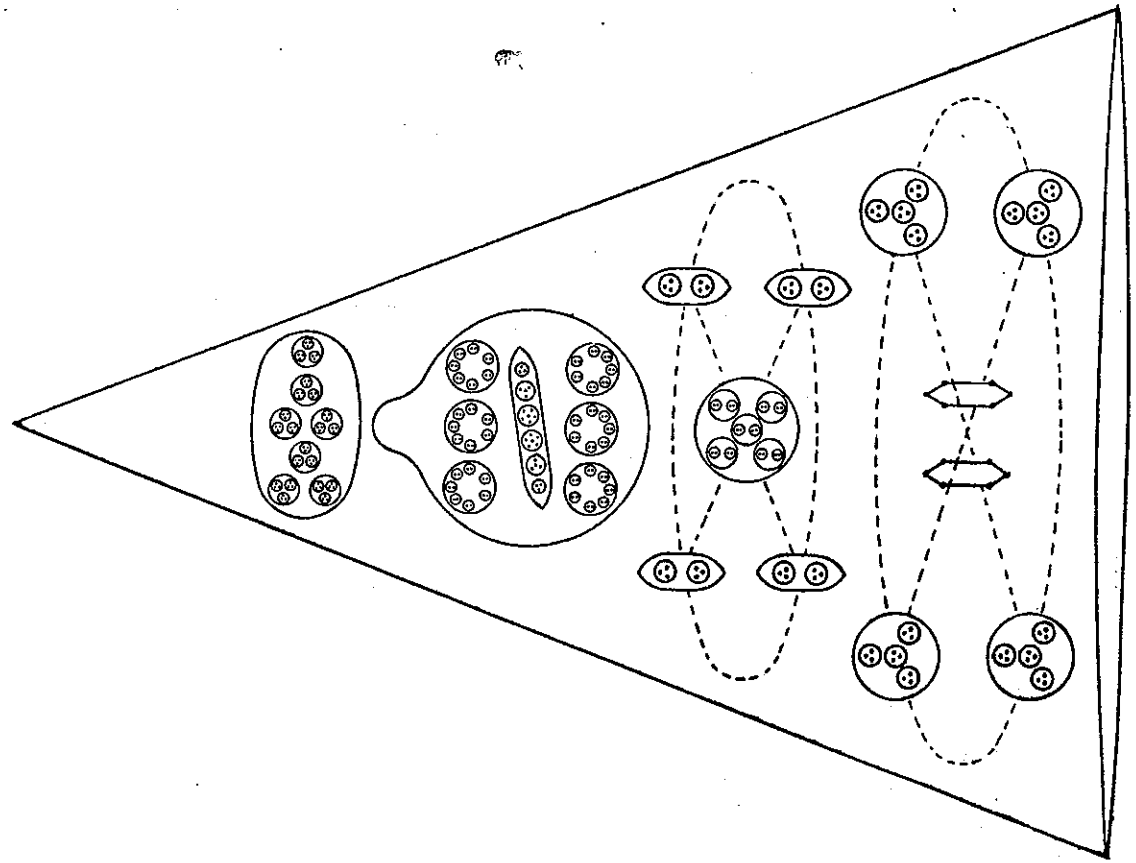


FIG. 80. NIOBIUM

ATOMIC NO. 41.

NIOBIUM

This element is as closely related to Yttrium as is Vanadium to Scandium. Fig. 80.

Central globe. In the central globe we find two interlaced tetrahedrons each of four Ad6, 2Ad24, and a central sphere of nine Anu, N9, spinning round in the centre, seventeen Anu being thus added in each globe.

Funnels. Niobium contains only one type of funnel, and these are exactly like those of Yttrium, save that the little globes which scamper round the two Ad6 contain twelve Anu instead of eight. Thus each funnel contains N63, N110, Yt44 and the new group which is identified as Nb60.

Niobium = (2Ad24+N9) +6 (N63+N110+Yt44+Nb60)

Central globe	=	57	Anu
6 funnels of 277 Anu	=	1662	„
Total	=	1719	Anu

Number weight $\frac{1719}{18}$ = 95.50

ATOMIC NO. 57.

LANTHANUM

This element is closely related to Vanadium and Niobium. It also uses two of the forms belonging to the Calcium group, which have apparently been brought over from its predecessor in atomic weight, Barium, by the evolutionary force. Figs. 81, 82.

Central globe. The central globe is formed from a very striking group which occurs very often. It is made of five interpenetrating tetrahedrons, each tetrahedron being formed of four Ad6, making the group Ad24. The group of five of these tetrahedrons occurs first in Neon and has been called Ne120. In Lanthanum there is a small sphere of seven Anu, I.7, at the centre of the Ne120.

Funnels. As in Vanadium we find here two types of funnels.

Type A. These three funnels contain six groups, that nearest the centre being N63. Next we find N110, and then two groups from the Calcium type, Mo46 and Ca70. Then comes the group Yt44, and finally the large group Nb60.

Type B. These three funnels differ from those of the A type only in having a group Ca45 instead of the Mo46.

Lanthanum = (Ne120+I.7)+3 [N63+N110+Mo46+Ca70+Yt44+Nb60]
+3 [N63+N110+Ca45+Ca70+Yt44+Nb60]

Central globe	=	127	Anu
3 funnels A of 393 Anu	=	1179	„
3 funnels B of 392 „	=	1176	„
Total	=	2482	Anu

Number weight $\frac{2482}{18}$ = 137.9

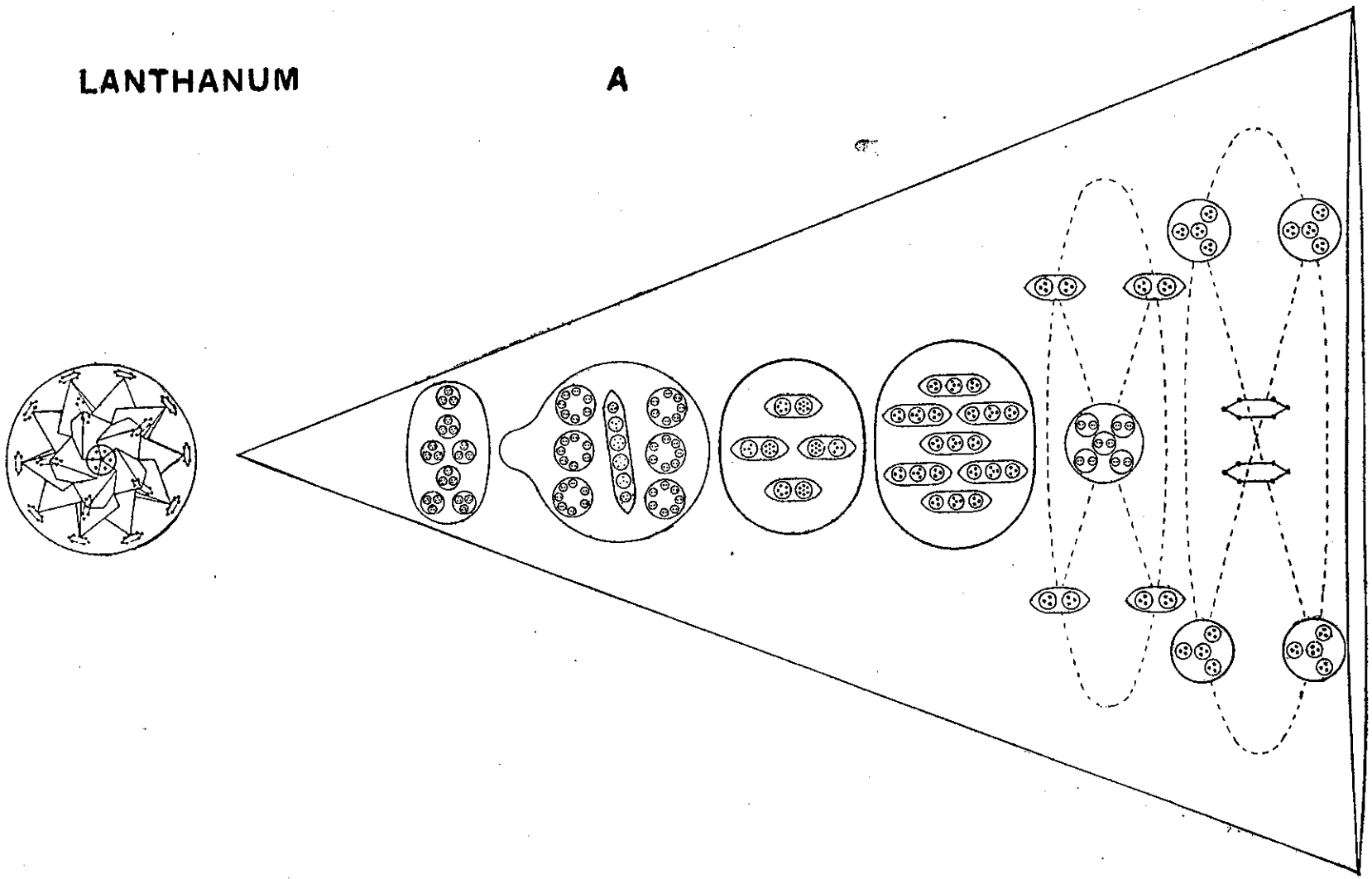


FIG. 81. LANTHANUM CENTRE AND FUNNEL A

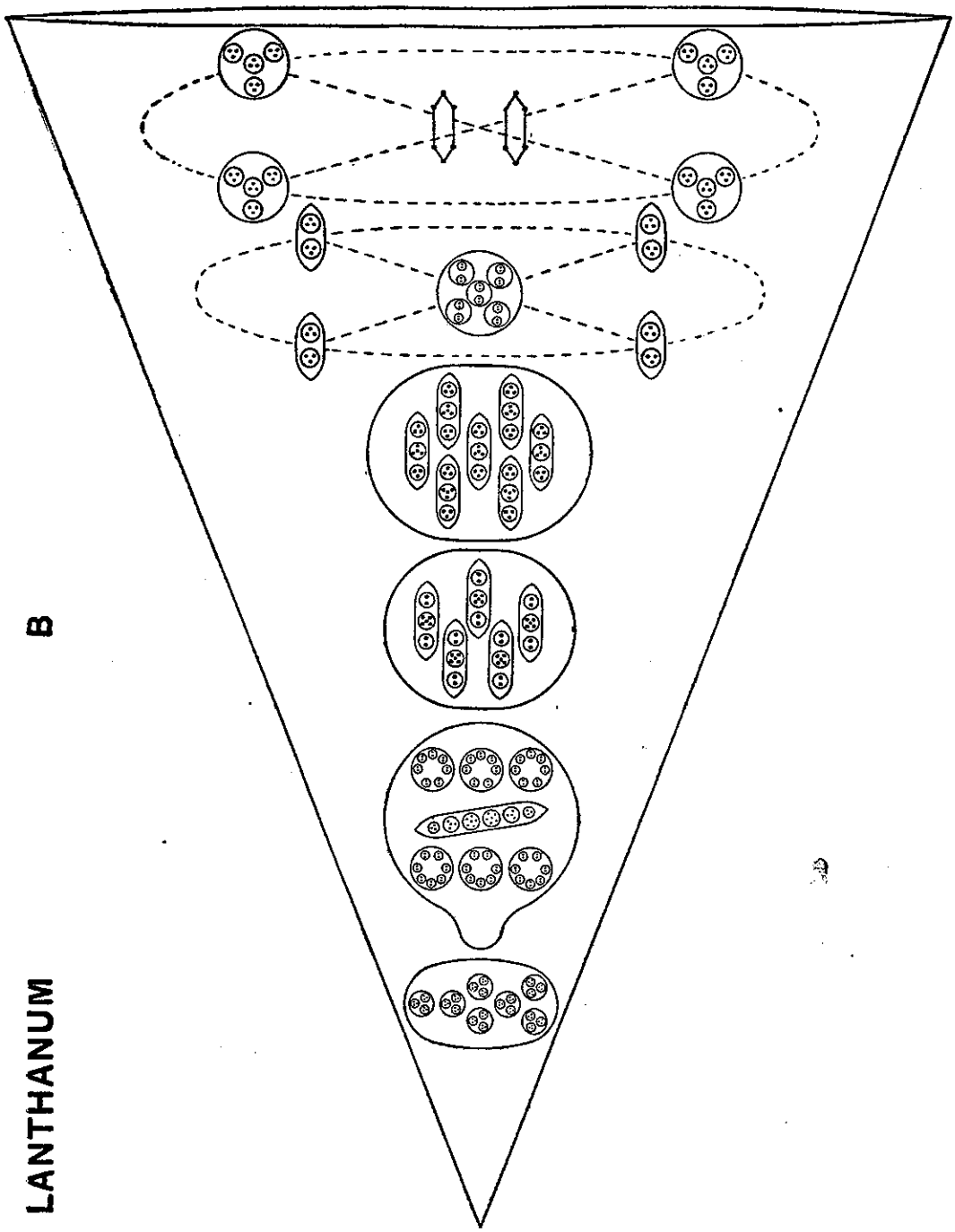


FIG. 82. LANTHANUM, FUNNEL B

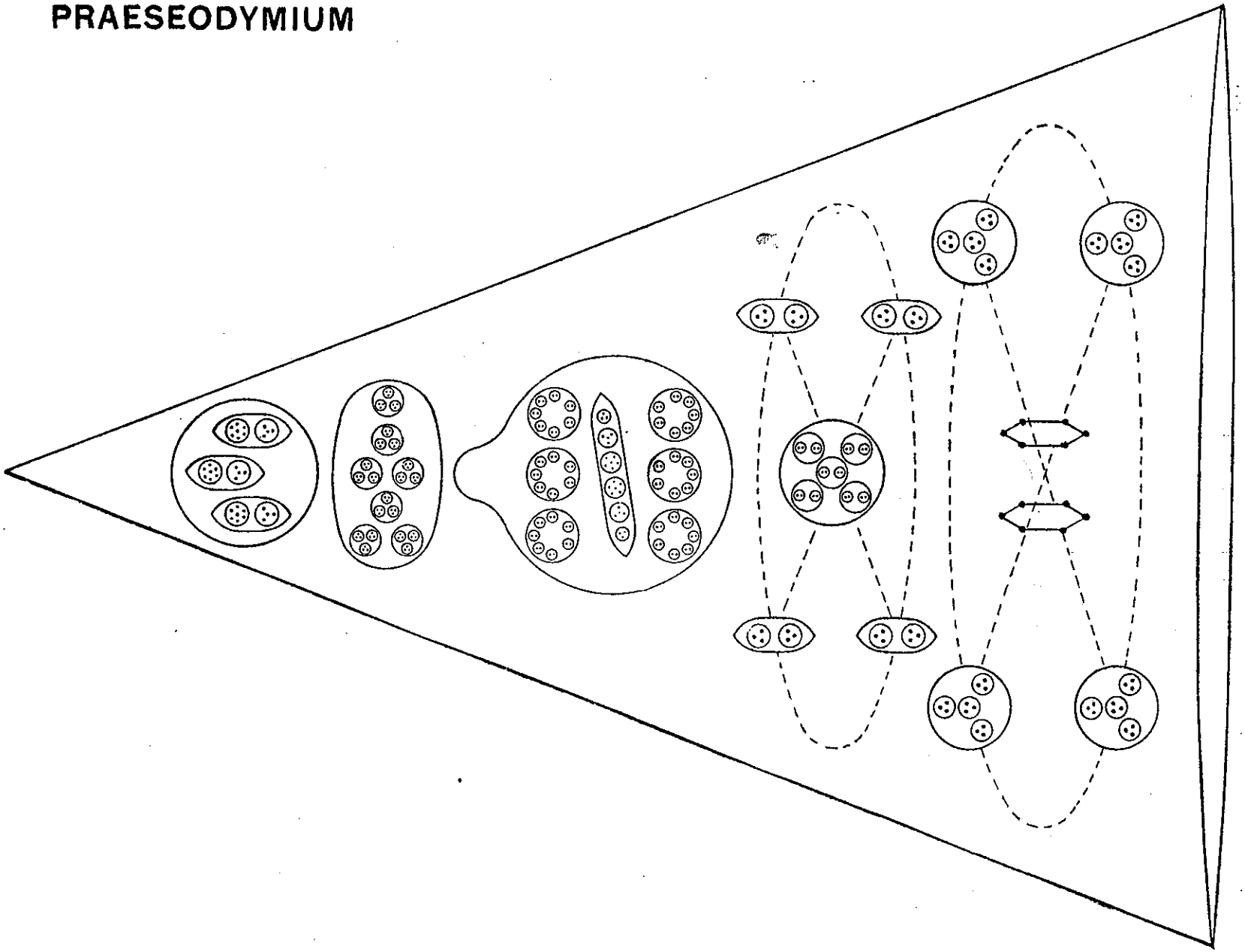


FIG. 83. PRAESEODYMIUM FUNNEL

ATOMIC NO. 59. PRAESEODYMIUM

Central globe. The Central globe, Fig. 84, is complex and is borrowed from Cerium, its predecessor in the atomic weight list. It consists of a centre-piece of 27 Anu, Ce27, and then a ring of twenty segments, each containing 32 Anu. Thus the central globe is identical with Ce667. It also occurs in Neodymium.

Funnels. Praeseodymium has six similar funnels. Fig. 83. At the bottom of the funnel comes a group containing three ovoids, Mo11, making Pr33, and then the N63 and N110 groups. Next comes the Yt44, and finally Nb60.

Praeseodymium = Ce667+6[Pr33+N63+N110+Yt44+Nb60]

Central globe	=	667	Anu
Six funnels of 310 Anu	=	1860	„
Total	=	2527	Anu

Number weight $\frac{2527}{18}$ = 140.4

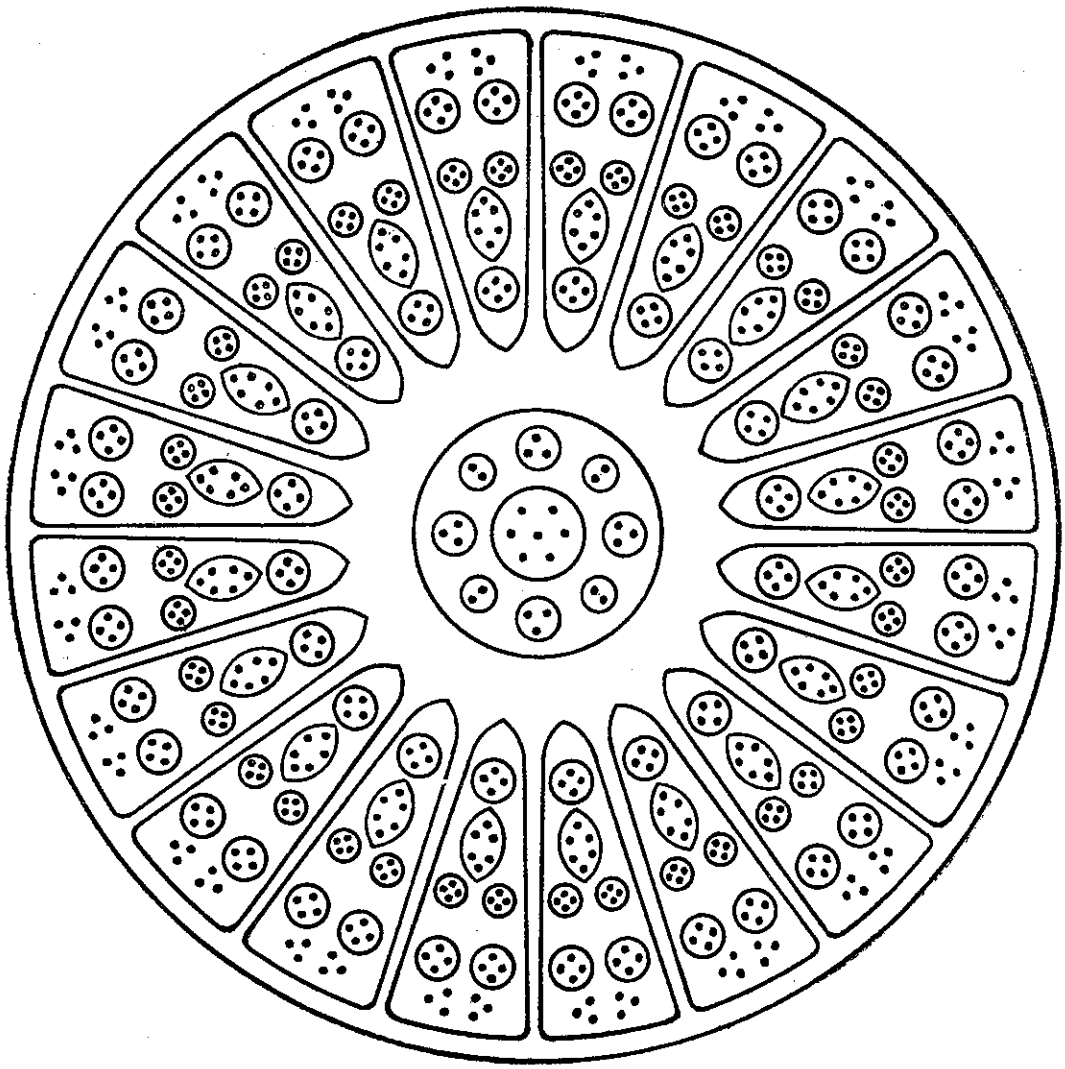


FIG. 84. PRAESEODYMIUM CENTRE, Ce667

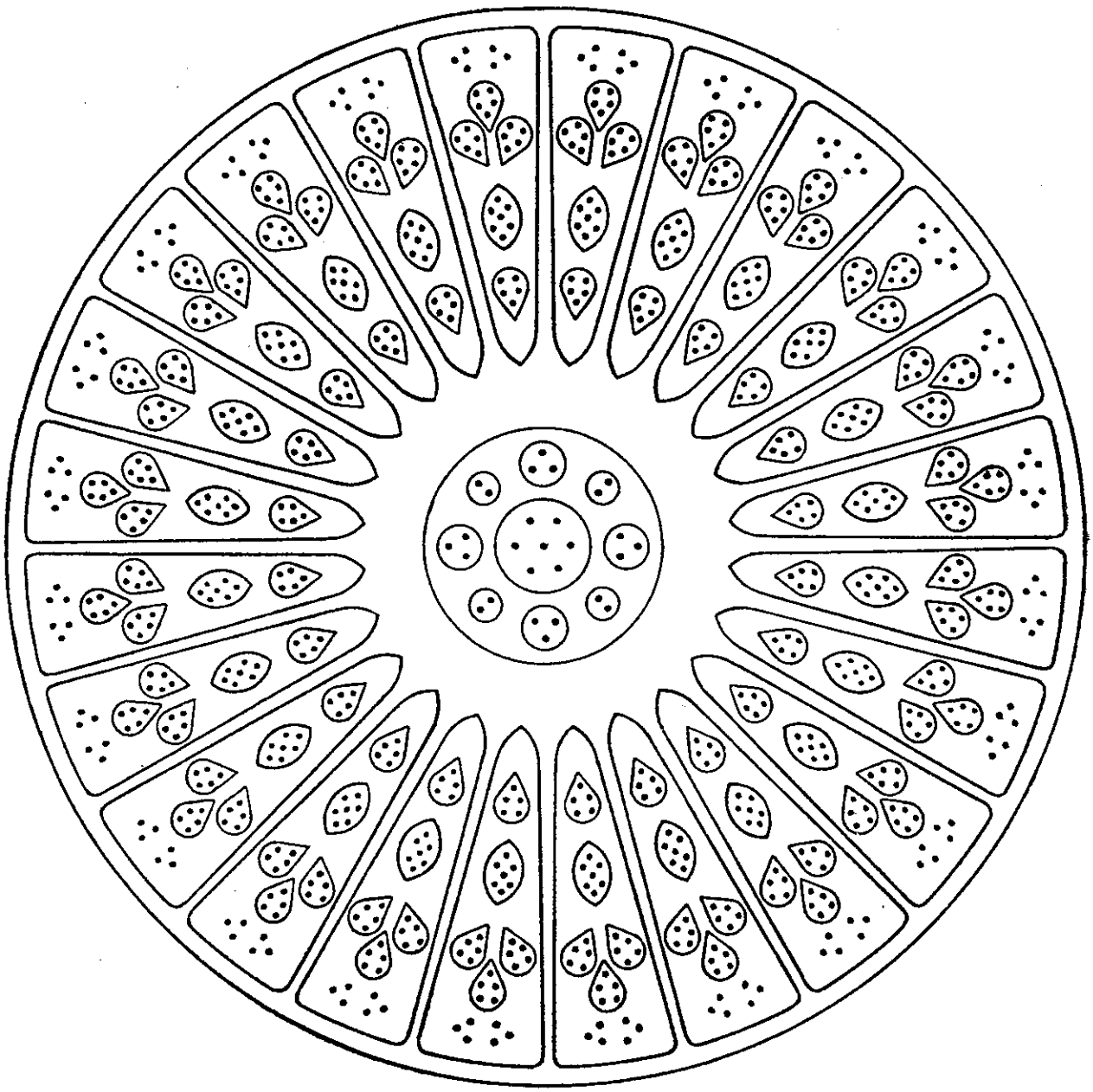


FIG. 85. LUTECIUM CENTRE, Lu819

LUTECIUM

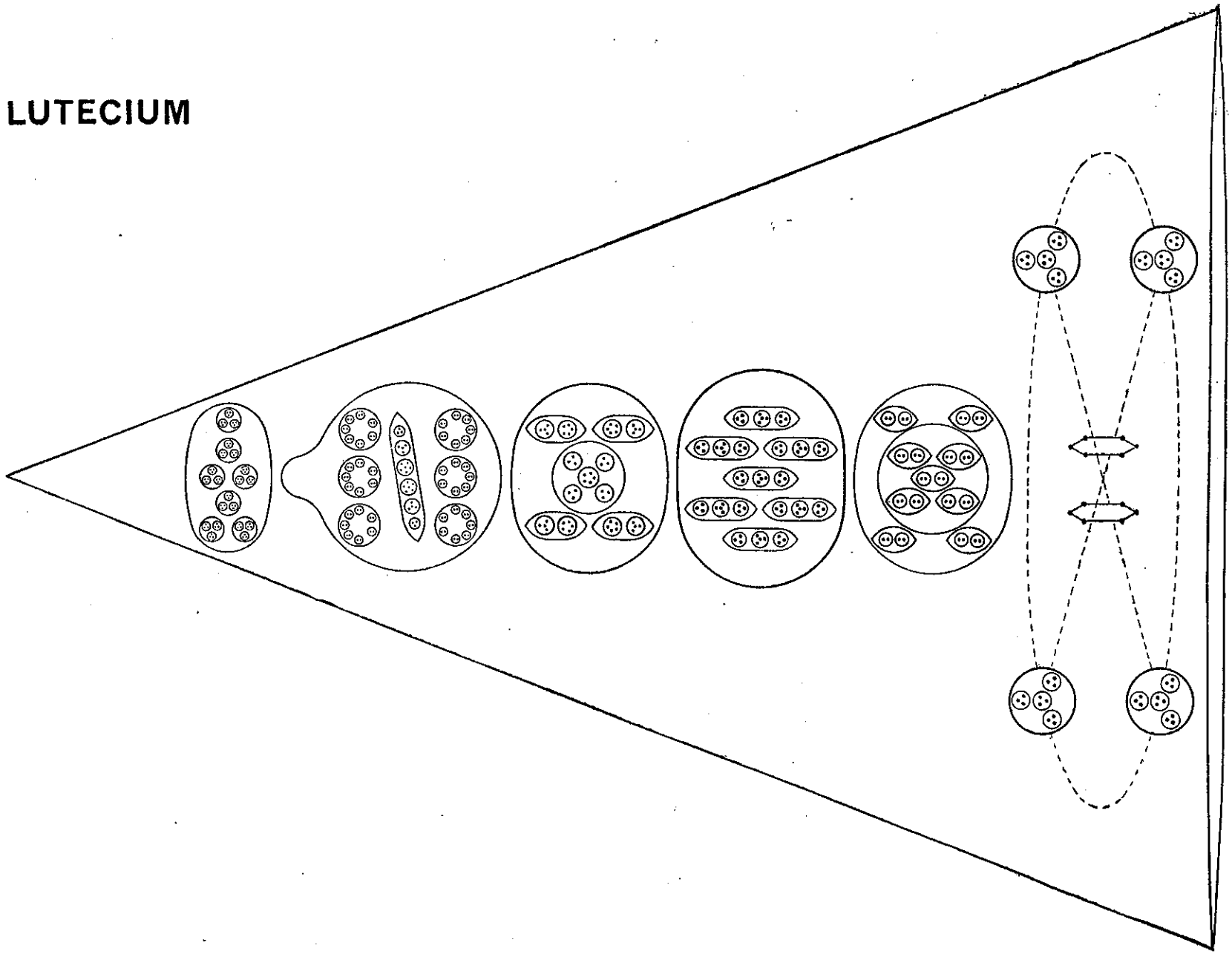


FIG. 86. LUTECIUM FUNNEL

ATOMIC NO. 71. LUTECIUM

Central globe. In this element occurs the remarkable central globe containing 819 Anu which is found in Radium and other elements. As Lutecium is the element of lowest atomic weight in which this globe occurs it has been identified as Lu819. The globe is formed of a grand centre of 27 Anu surrounded by 24 segments of the Ba33 form, making up the 819 Anu. Fig. 85.

Funnels. Lutecium has six similar funnels. At the bottom of the funnel we find first N63, then N110, and then a group Lu53. Next comes Ca70 and then another new group Lu36 instead of the usual Yt44, and finally the familiar Nb60. Fig. 86.

Lutecium = Lu819+6 [N63+N110+Lu53+Ca70+Lu36+Nb60]

Central globe	=	819	Anu
6 funnels of 392 Anu	=	2352	„
Total	=	3171	Anu

Number weight $\frac{3171}{18} = 176.17$

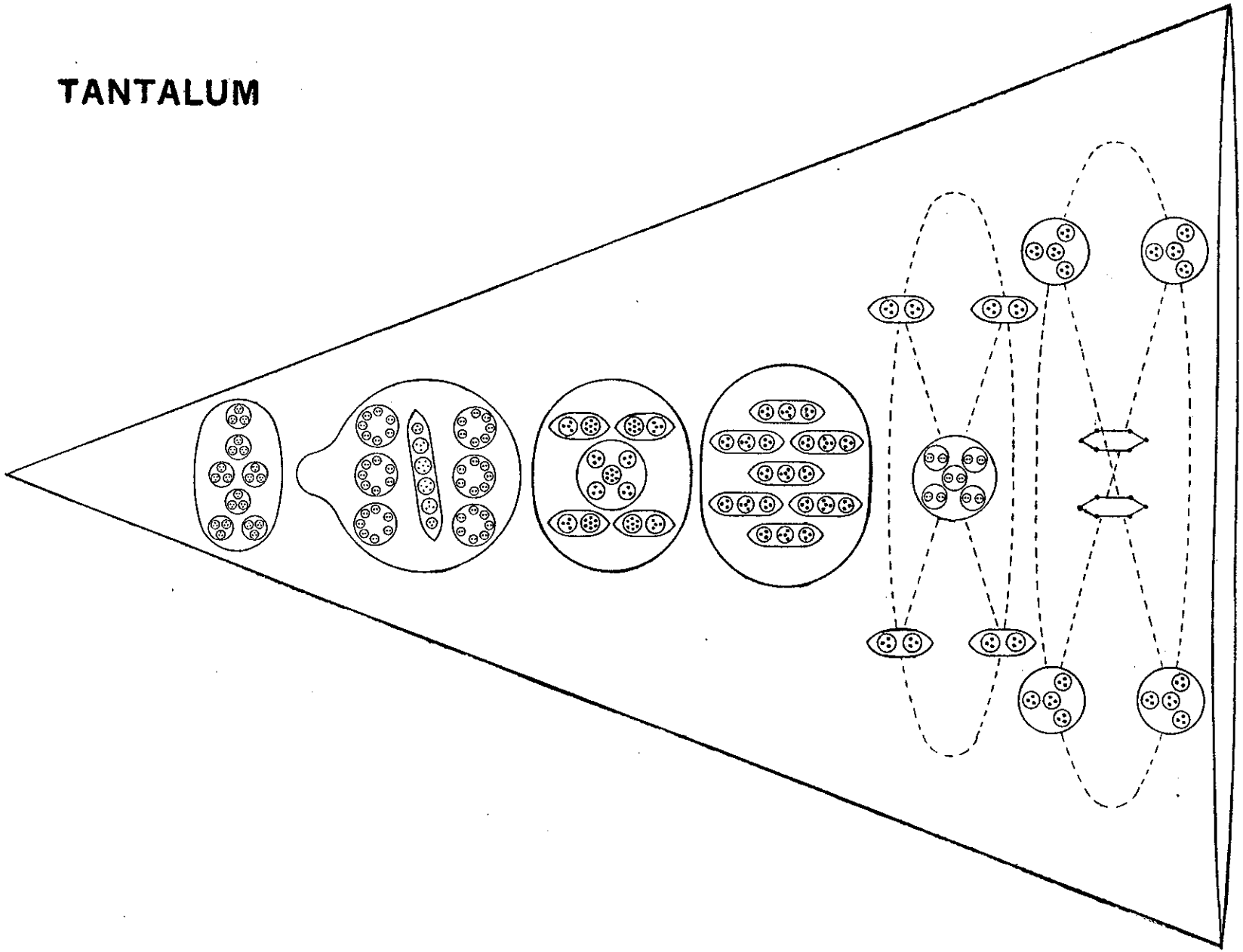


FIG. 87. TANTALUM FUNNEL

ATOMIC NO. 73. TANTALUM

Central globe. The central globe is identical with that of Lutecium, Lu819. Fig. 88.

Funnels. Again we find six similar funnels opening on the faces of a cube. Fig. 87. At the bottom of the funnel we find first the N63 group, then N110. Next comes a group peculiar to Tantalum, Ta63; after that we find one of the all pervading Calcium type, Ca70, and then Yt44, and finally Nb60.

Tantalum = Lu819+6 [N63+N110+Ta63+Ca70+Yt44+Nb60]

Central globe	=	819	Anu
6 funnels of 410 Anu	=	2460	„
Total	=	3279	Anu

Number weight $\frac{3279}{18} = 192.1$

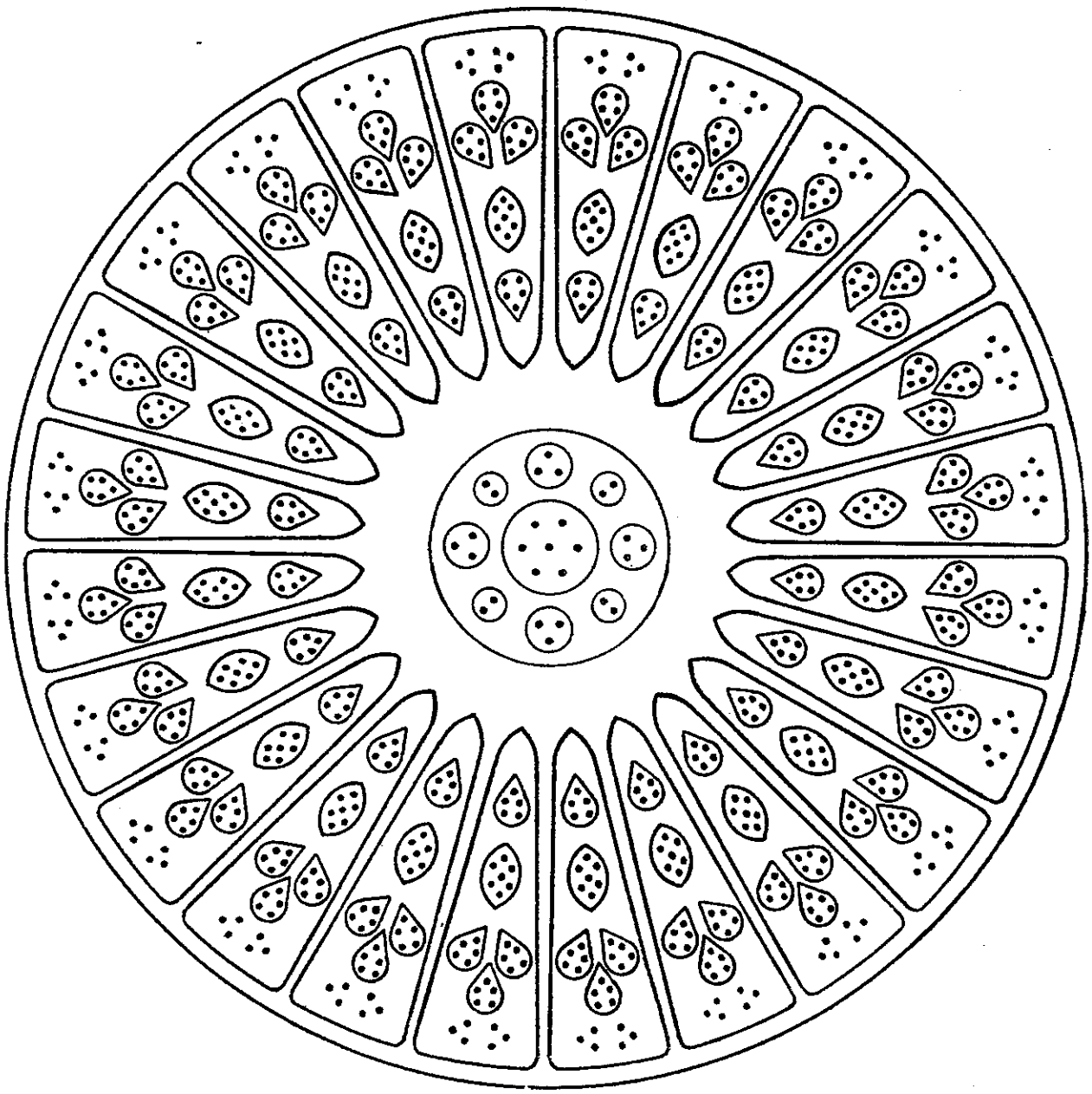


FIG. 88. TANTALUM AND ACTINIUM CENTRE—Lu819

ATOMIC NO. 89.

ACTINIUM

This element shows relations with more than one of the preceding elements both of its own and other groups. It has two types of funnels, and adds eight spikes, directed to the corners of the cube.

Actinium is a true element and not the temporary product of a heavier element. It is itself radioactive.

Central globe. The globe is identical with that of Tantalum, Lu819. Fig. 88.

Funnels:

Type A. These funnels are very similar to those of Lanthanum. They contain the whole of the Lanthanum A type funnel, with the addition of two Ca45 groups. Fig. 89.

Type B. For these three funnels Actinium has borrowed from Antimony and Zirconium. They contain the large ovoid from the arm of Zirconium, Zr212, which we shall describe later when we come to discuss that element. In addition to the Zr212, the funnel contains two groups from Antimony, Sb128, and Sb113 plus three extra Anu making up Ac116. Fig. 90.

Spikes. There are eight spikes, each consisting of Li63.

Actinium = Lu819+3 [N63+N110+Mo46+Ca160+Yt44+Nb60]
+3[Zr212+Sb128+Ac116]
+8Li63

Central globe	=	819	Anu
3 funnels A of 483 Anu	=	1449	„
3 funnels B of 456 Anu	=	1368	„
8 spikes of 63 Anu	=	504	„
Total	=	4140	Anu

Number weight $\frac{4140}{18} = 230.0$

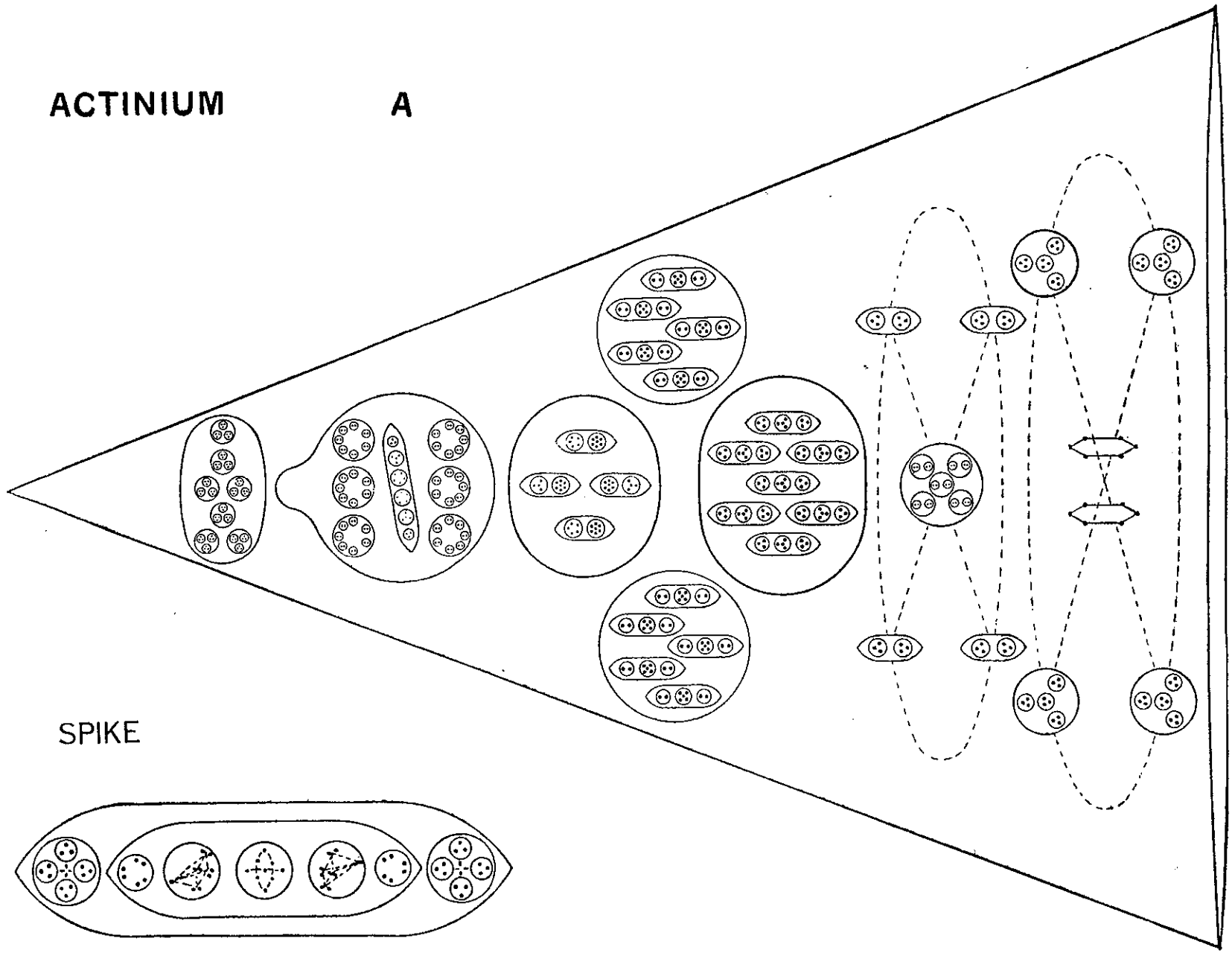


FIG. 89. ACTINIUM, FUNNEL A AND SPIKE

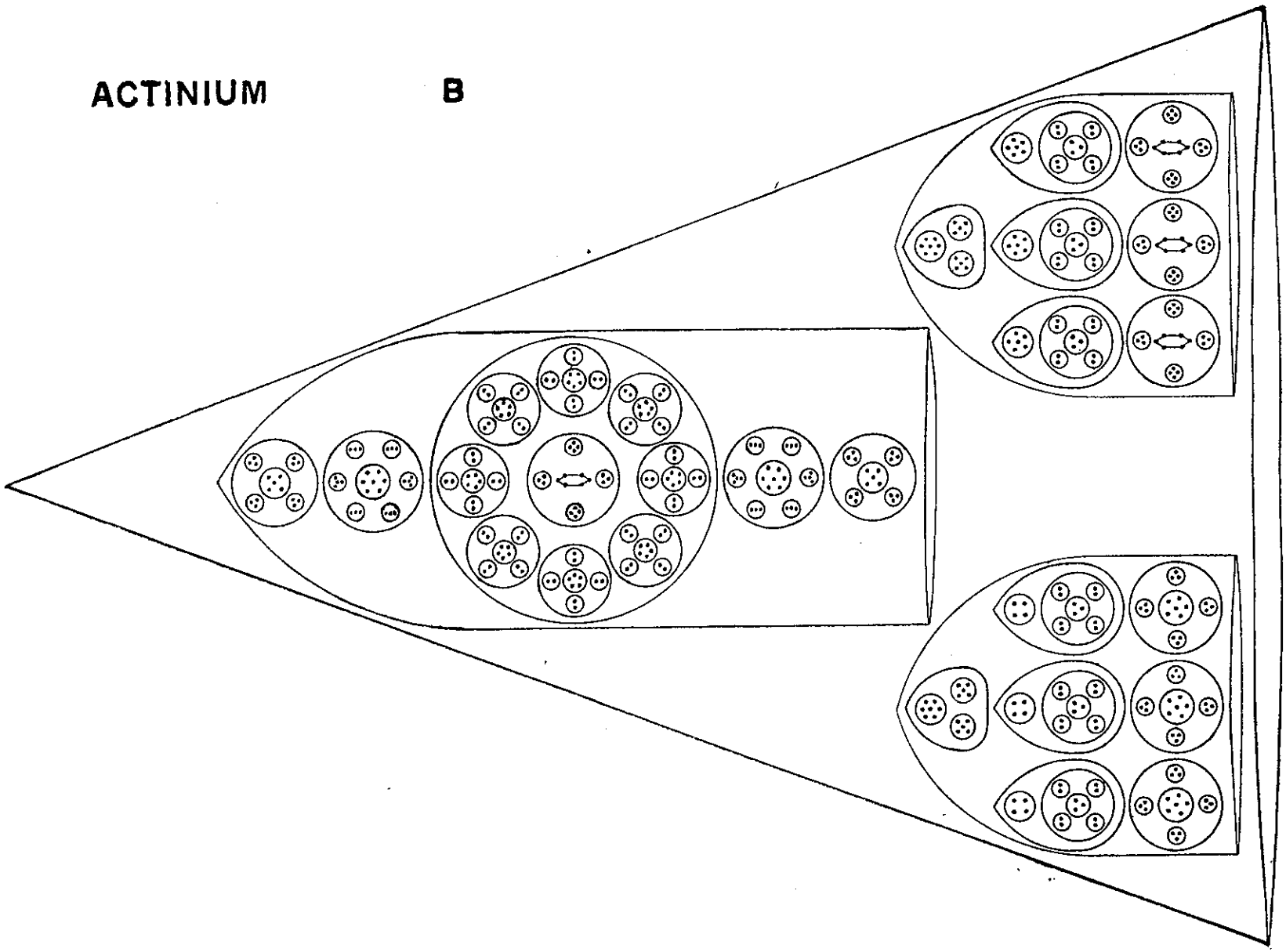


FIG. 90. ACTINIUM, FUNNEL B

ATOMIC NO. 91. PROTO-ACTINIUM

This element is very similar to Actinium. It contains two types of funnels and eight spikes.

Central globe. The globe is the familiar Lu819. Fig. 91.

Funnels:

Type A. These three funnels are exactly like the A type funnels in Actinium and contain 483 Anu. Fig. 92.

Type B. These three funnels contain the whole of the Actinium B funnels, Ac456, with the addition of a new group Pa29. Pa29 contains four Ad6 and a B5, the Ad6 being in a ring as shown. Fig. 93.

Spikes. The eight spikes are the Li63 groups as in Actinium.

Proto-Actinium = Lu819+3[N63+N110+Mo46+Ca160+Yt44+Nb60]
+3[Zr212+Sb128+Ac116+Pa29]
+8Li63

Central globe	=	819	Anu
3 funnels A of 483 Anu	=	1449	„
3 funnels B of 485 Anu	=	1455	„
8 spikes of 63 Anu	=	504	„
Total	=	4227	Anu

Number weight $\frac{4227}{18} = 233.72$

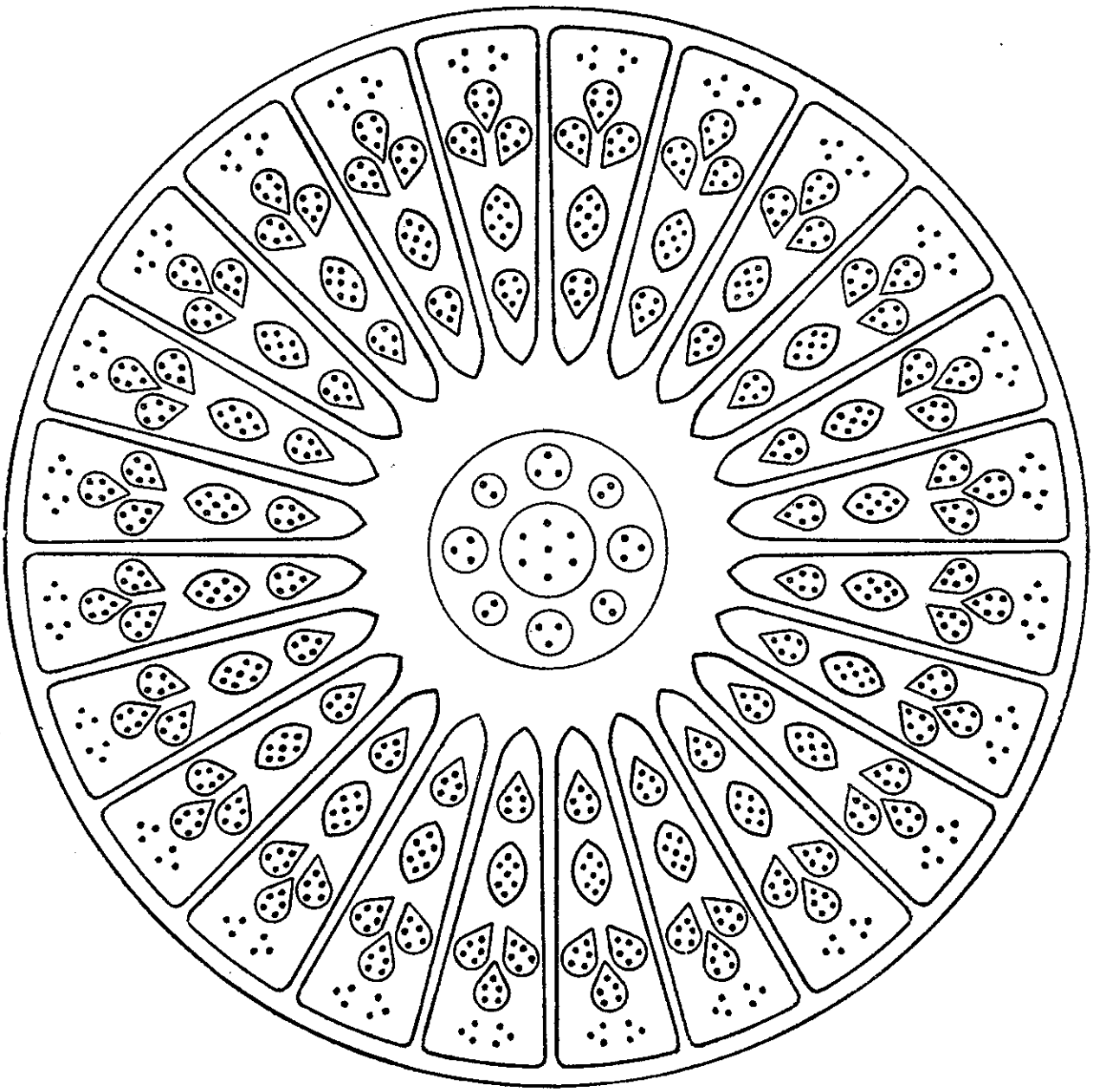


FIG. 91. CENTRE OF PROTO-ACTINIUM, Lu819

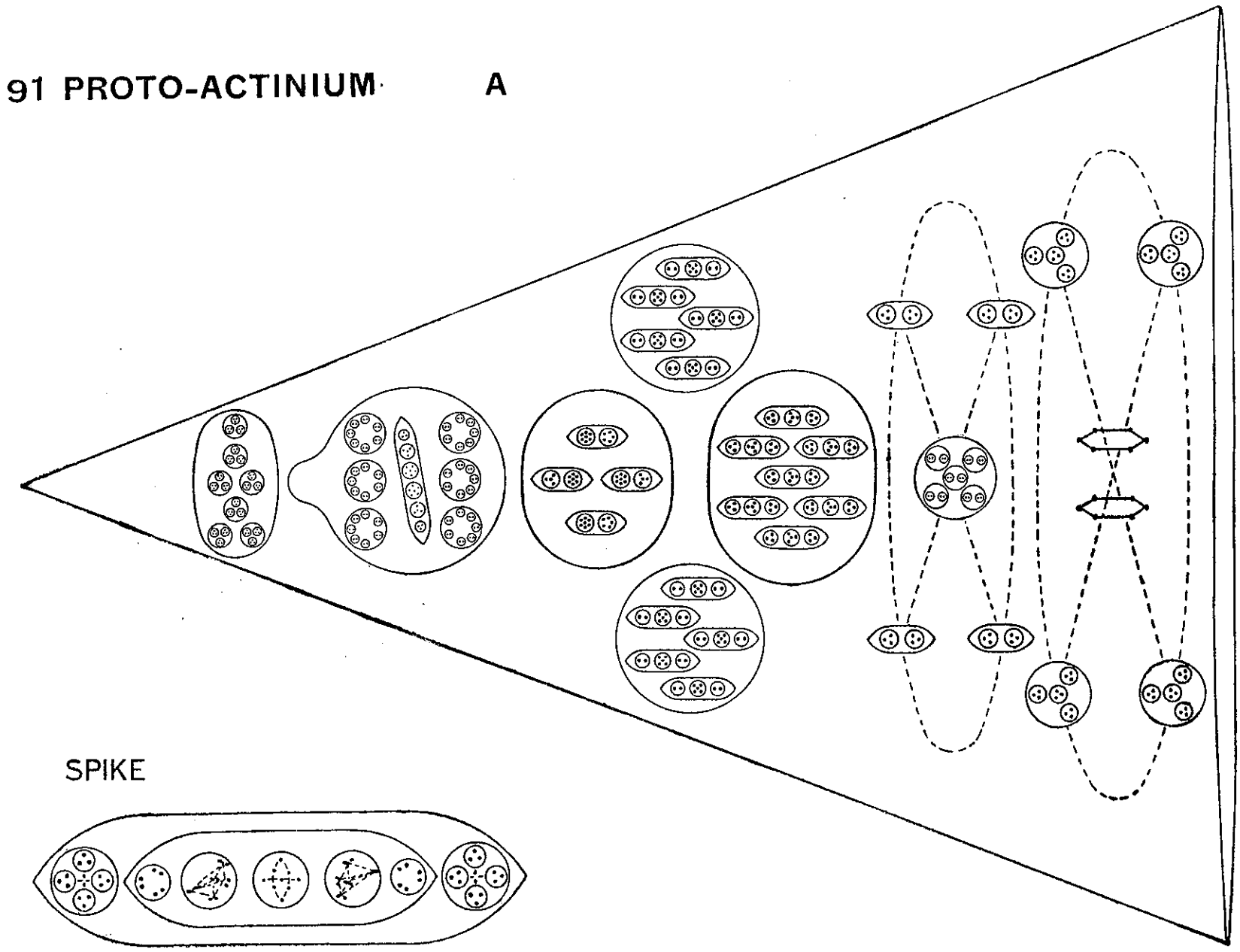


FIG. 92. PROTO-ACTINIUM, FUNNEL A AND SPIKE

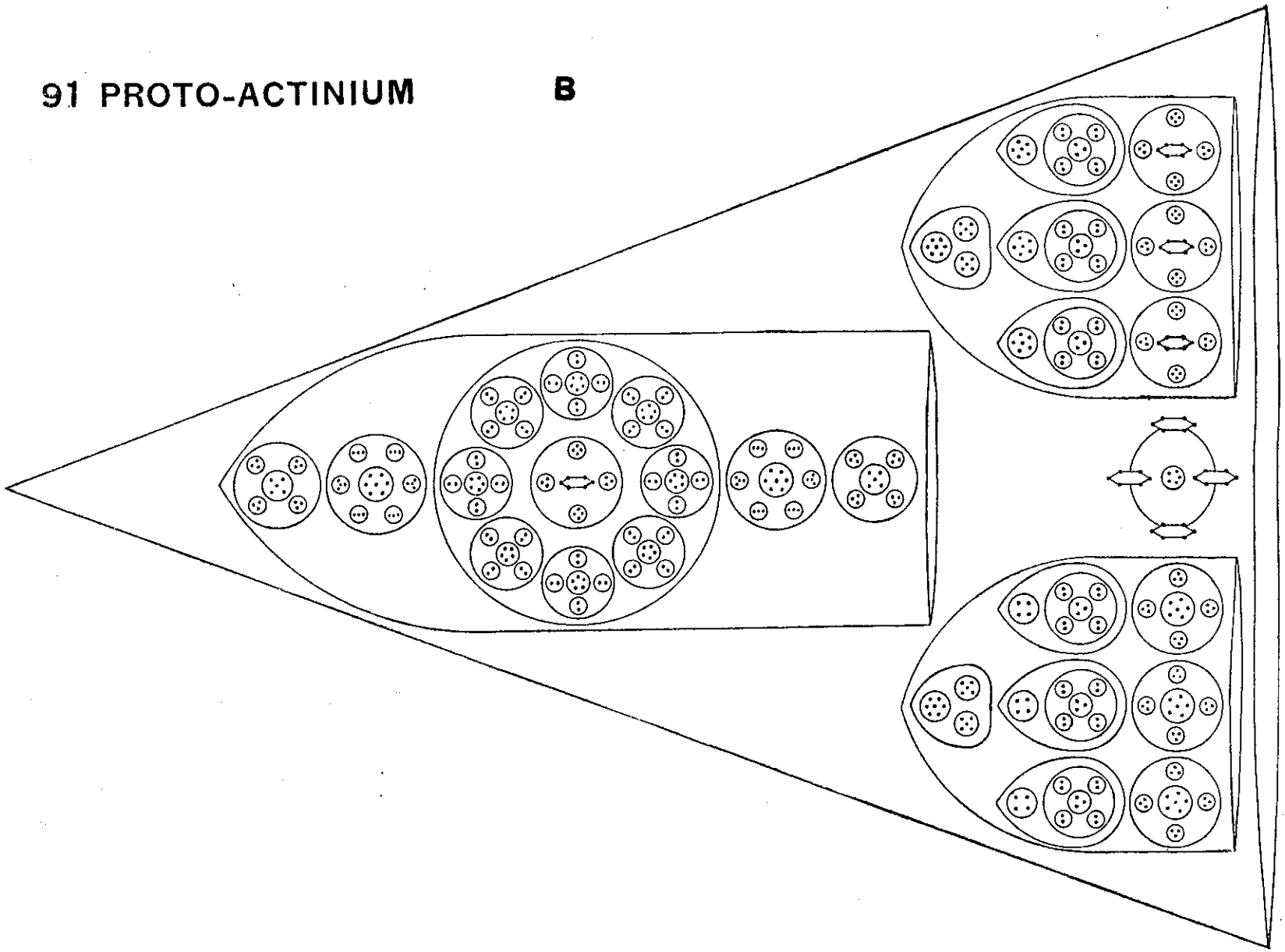


FIG. 93. PROTO-ACTINIUM, FUNNEL B

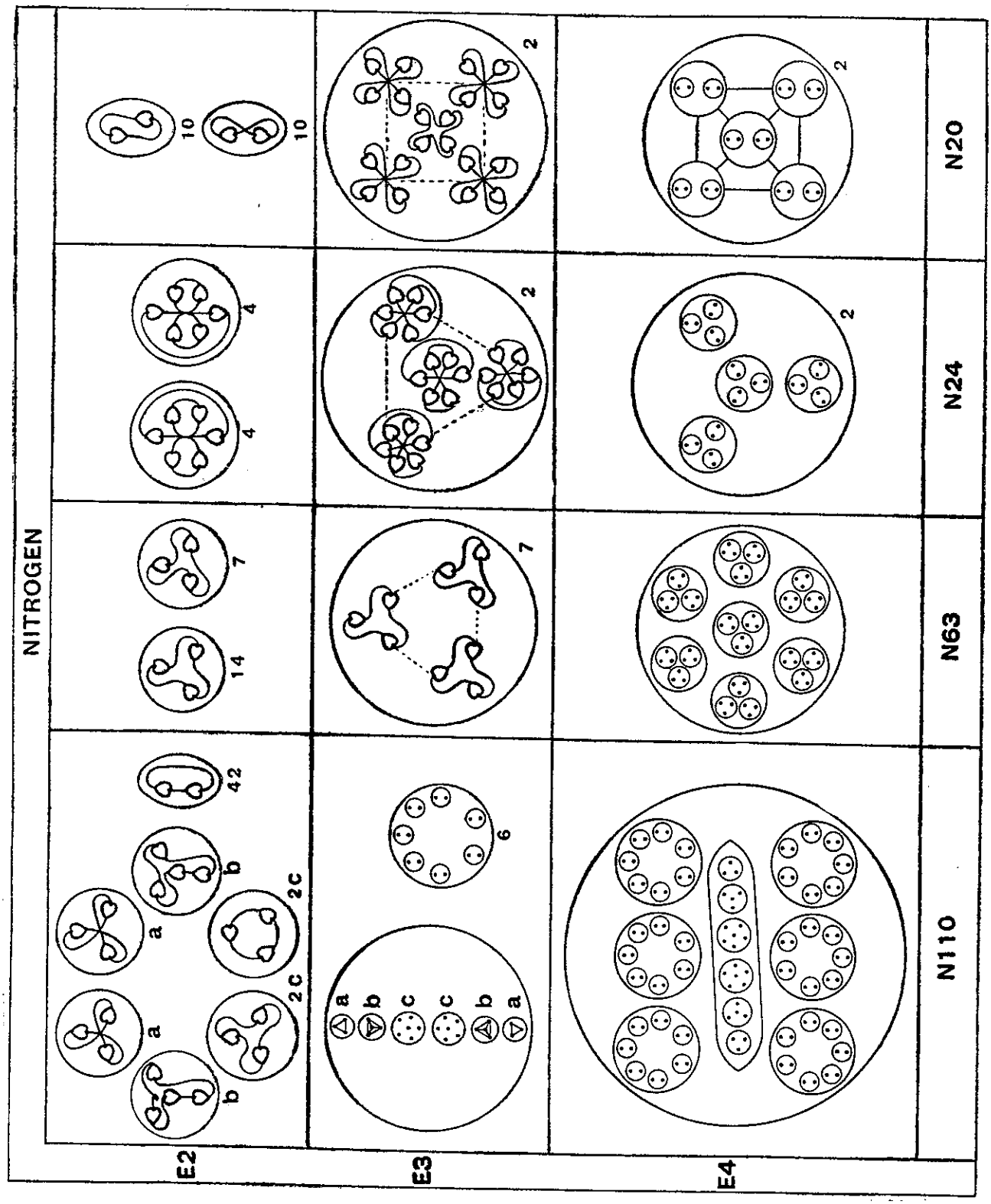


FIG. 94. DISINTEGRATION OF NITROGEN

DISINTEGRATION OF CUBE GROUP A

DISINTEGRATION OF NITROGEN

The constituents of Nitrogen are used constantly in this and other groups.

Nitrogen consists of six bodies, N110, N63, two N24 and two N20, each of these being complex. Fig. 94.

N110. The "balloon," N110, changes to a sphere, and holds together on the E4 level; on the E3 it yields six globes each containing seven duads, and these are all set free as duads on the E2 level. The ovoid is also set free on the E3 level, becoming a sphere; and on the E2 level it liberates its contained bodies, as two triplets, two quartets and two sextets which immediately become triplets.

N63. This body is liberated on the E4 level. On the E3 level it sets free seven bodies of 9 Anu and these become twenty-one triplets on the E2 level.

N24. The two N24 spheres are liberated on the E4 level. On the E3 level each assumes a tetrahedral form with six Anu at each point. On the E2 level each gives four sextets.

N20. On the E4 level each N20 is found as a tetrahedral arrangement of pairs of duads at the angles of a square-based pyramid.

On the E3 we find a similar arrangement though the distribution of the forces is changed. On the E2 level the groups separate into 10 duads from each N20.

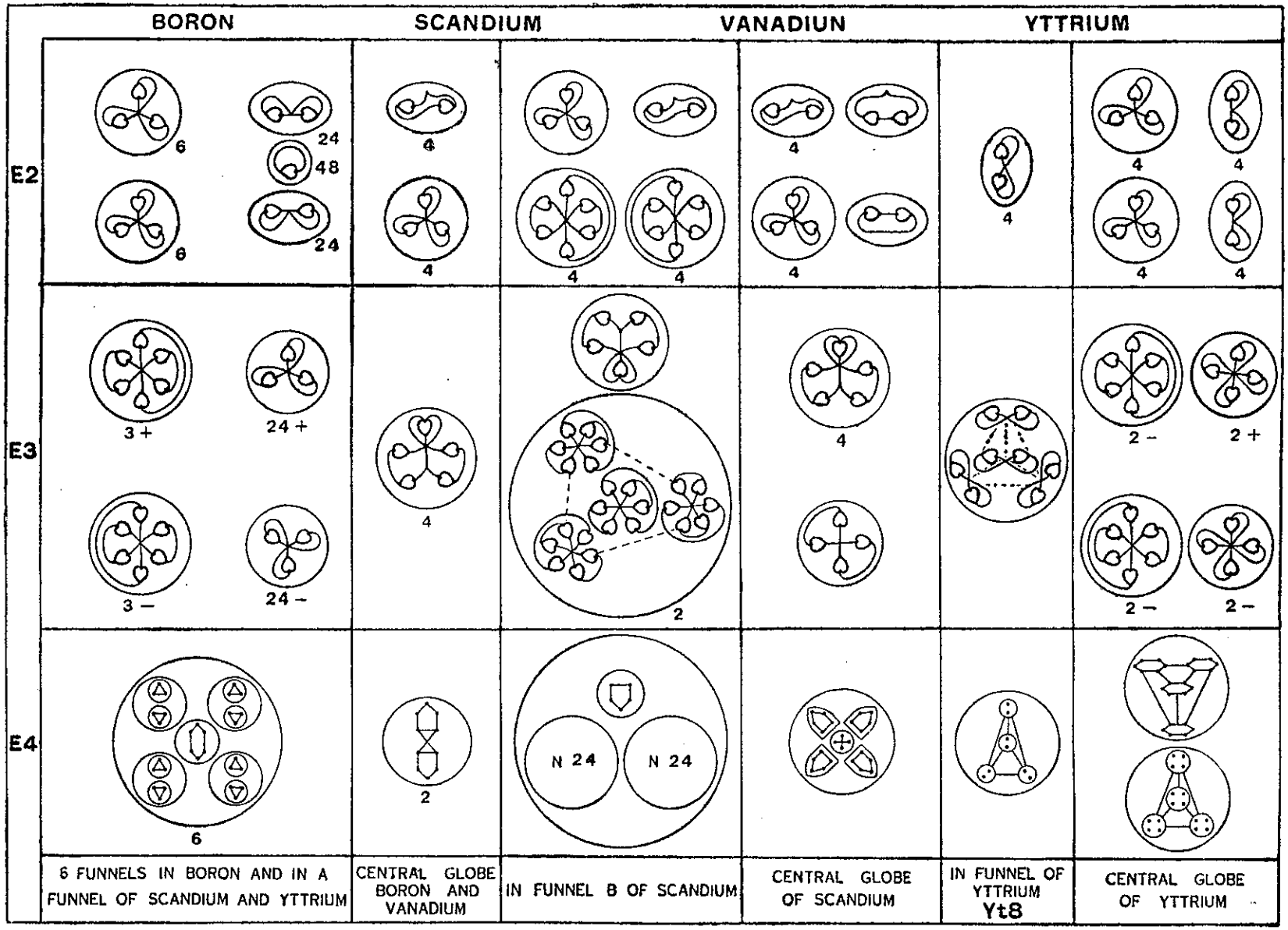


FIG. 95. DISINTEGRATION OF BORON, SCANDIUM, VANADIUM, YTTRIUM

DISINTEGRATION OF BORON

The Central globe, with its four quintets, is set free and breaks at once into two groups of ten Anu. Fig. 95.

On the E3 level four quintets are formed which, on the E2 level, are resolved into triplets and duads.

The funnels. The six funnels are first set free on the E4 level, where they assume the spherical form, showing a central Ad6 and four globes each containing two triplets.

On the E3 level the Ad6 behaves as usual and the triplets separate. On the E2 level the Ad6 gives triplets and the other triplets give duads and units.

DISINTEGRATION OF SCANDIUM

The Central globe shows a cross at its centre, with the four quintets whirling round it, on the E4 level. On the E3 level the quintets are set free and follow the Boron type, while the cross becomes a quartet. On the E2 level each quintet gives a triplet and a duad and the quartet two duads. Fig. 95.

Funnels A. In funnels A the Ad6 and the ovoids behave as in Boron, but the N110 escapes from the funnel as it changes to a sphere and holds together on the E4 level. The N110 disintegrates as shown under Nitrogen and the rest of the funnel as in Boron.

Funnels B. The N63 escapes when the funnel becomes a sphere on the E4 level. The remaining sphere contains the two N24 and the quintet B5. On the E3 and E2 levels these groups behave as in Nitrogen and Boron.

DISINTEGRATION OF VANADIUM

The Central globe follows the pattern of the globe of Boron. Fig. 95. The centre sphere I.7 is shown in Iodine.

The A funnels of Vanadium repeat the A funnels of Scandium with the addition of N20. All these disintegrate as shown under Nitrogen or Boron.

The B funnels also repeat the B funnels of Scandium with the addition of a N20 group and the substitution of a sextet, N6, for a quintet. These also disintegrate as shown under previous elements.

DISINTEGRATION OF YTTRIUM

The Central globe breaks up into two groups which disintegrate as shown in Fig. 95.

Funnels. On the E4 level the six funnels are first liberated and then the N110 and N63 escape and behave as shown in Nitrogen. The ovoids, 2H3, and the cigars, Ad6, are set free on the E3 level and behave as in Boron Fig. 95.

Yt8 is a tetrahedral arrangement of duads on the E3 level and these are set free as duads on the E2 level. The N20 behaves as shown under Nitrogen.

Fig. 96 shows the Cube Group A in a condensed form, from which the relationships in the group may be studied.

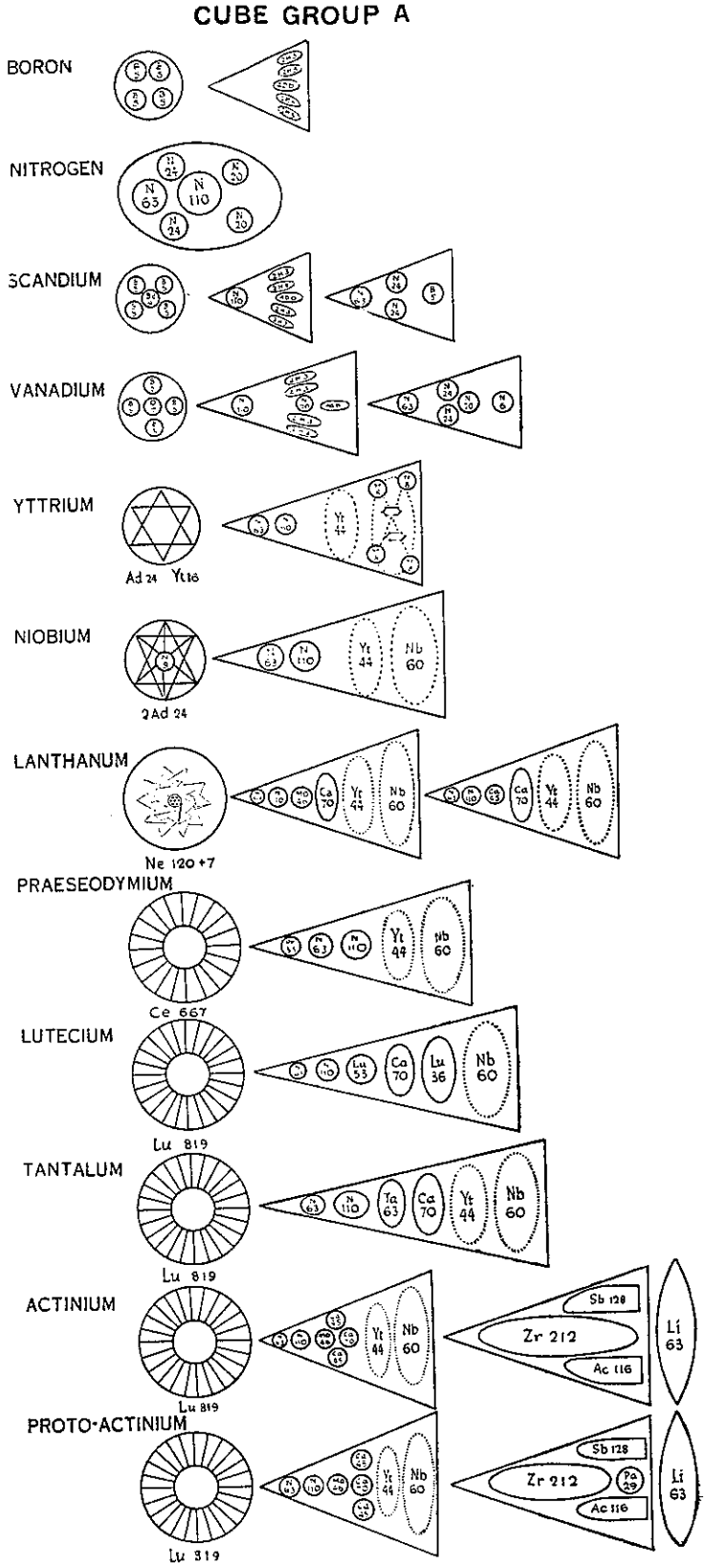
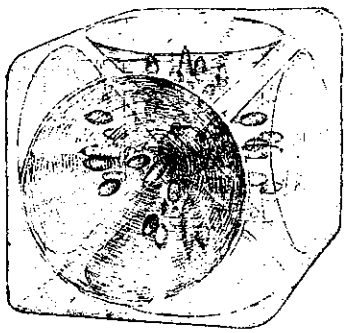


FIG. 96. CUBE GROUP A



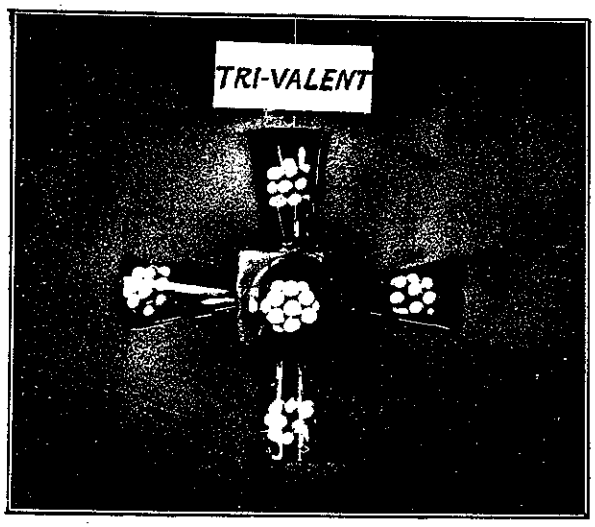


FIG. 97. TYPES OF CUBES

CHAPTER VIII

THE CUBE GROUP B

THE members of this group are all cubes. They occur on the right hand swing of the pendulum. Their characteristic valence is three but they often show higher valencies. They all have six funnels, as in Cube Group A, but they show quite a different design in the arrangement of the Anu.

ATOMIC NO.	ANU	ELEMENT	CENTRE	6 FUNNELS
13	486	Aluminium	—	6 [A1.9' + 8A1.9]
15	558	Phosphorus	—	6 [(B5+3N6+3P9)+ (Li4+3Be4+3P9)]
31	1,260	Gallium	—	6 [(Ga7+3Ga15+3Ga20)+(B5+3Ga13 +3Ga18)]
33	1,350	Arsenic	—	6 [A1.9' + 8(2N9+A1.9)]
49	2,052	Indium	—	3 [2 (In16+3Ga15+3Ga20)+(In14+ 3Ga13+3Ga18)]
				3 [(In16+3Ga15+3Ga20)+2(In14+ 3Ga13+3Ga18)]
51	2,169	Antimony	—	3 [2Sb128+Sb113]
				3 [Sb128+2Sb113]
64	2,880	Gadolinium	Ne120	3 [2Sb128+Sb113+(Ca45+2N24)]
				3 [Sb128+2Sb113+(Ca45+Mo11+ 2N24)]
66	2,979	Dysprosium	Ne120	3 [2Sb128+Sb113+(Ca45+2Mo11+ 2N24)]
				3 [Sb128+2Sb113+(Ca45+2Mo11+ 2N24)]
81	3,678	Thallium	Tl.687	3 [2Sb128+Sb113+(Ca45+Tl.44+ 2N24)]
				3 [Sb128+2Sb113+(Ca45+Tl.44+ 2N24)]
83	3,753	Bismuth	Tl.687	3 [2Sb128+Sb113+(Ca45+Mo46+ 2N24)]
				3 [Sb128+2Sb113+ {Ti+88+(Ga20 +4Zr13)}]

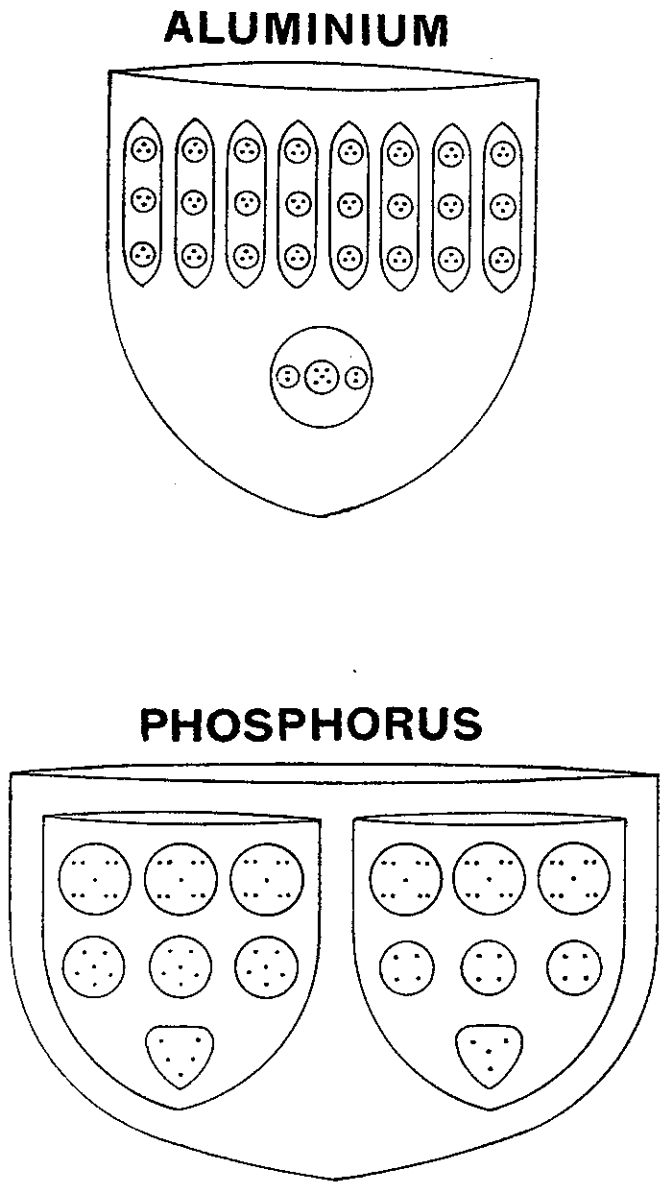


FIG. 98. ALUMINIUM, PHOSPHORUS

ATOMIC NO. 13.

ALUMINIUM

As the head of the group this element is, as usual, simple. There is no central globe. Fig. 98.

Funnels. The six funnels each contain eight similar ovoids, Al.9, of three spheres of three Anu. Below these is an ovoid Al.9', again of three spheres, these being two duads and a pentad.

Aluminium = 6 (Al.9'+8 Al.9)

6 funnels of 81 Anu	=	486	Anu
Total	=	486	Anu

Number weight $\frac{486}{18}$ = 27.00

ATOMIC NO. 15.

PHOSPHORUS

Like Aluminium, Phosphorus has no central globe. Fig. 98.

Funnels. Each of the six funnels contains two segments.

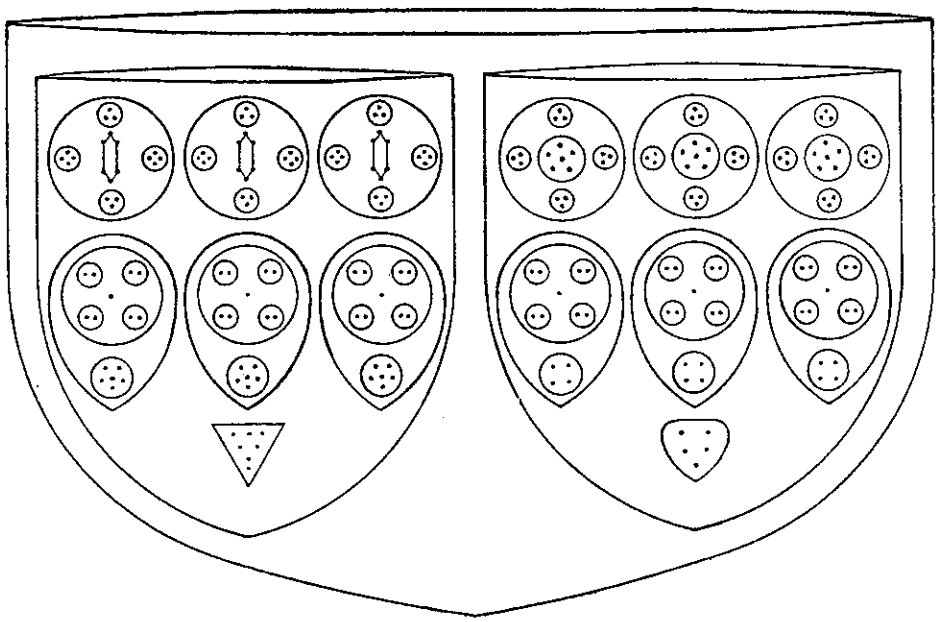
Segment A contains at the bottom a group B5, then three N6, and then three spheres, P9, of nine Anu, making 50 Anu in all. Segment B also contains seven spheres, first a tetrad Li4, with its Anu at the corners of a tetrahedron, then three spheres of four Anu, Be4, and then the three spheres, P9, of nine Anu found in segment A. Segment B contains 43 Anu.

Phosphorus = 6 [(B5+3N6+3P9) + (Li4+3Be4+3P9)]

6 funnels of 93 Anu	=	558	Anu
Total	=	558	Anu

Number weight $\frac{558}{18}$ = 31.00

GALLIUM



ARSENIC

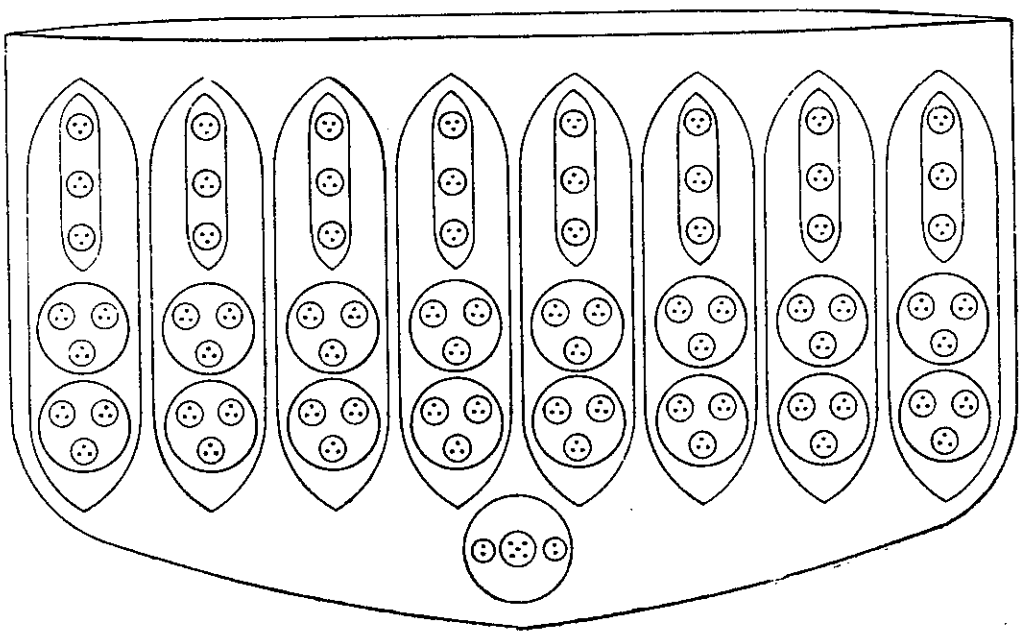


FIG. 99. GALLIUM. ARSENIC

ATOMIC NO. 31.

GALLIUM

There is no central globe in this element. Fig. 99.

Funnels. Gallium has six similar funnels, each with two segments.

Segment A. There is first a cone of 7 Anu, then three rather curiously formed groups of fifteen Anu, containing a P9 group and an N6. The three upper spheres, Ga20, in segment A are made up of two Be4 and two H3 in the form of a cross with an Ad6 in the centre.

The total number of Anu in segment A is 112 Anu.

Segment B is somewhat similar to segment A. It contains first a B5 instead of the cone, then three groups Ga13, made up of P9 and Be4, and then a row of three spheres, Ga18, each with four H3 in the form of a cross with N6 in the centre. Segment B contains 98 Anu.

Gallium = 6 [(Ga7+3Ga15+3Ga20)+(B5+3Ga13+3Ga18)]

6 funnels of 210 Anu = 1260 Anu

Total = 1260 Anu

Number weight $\frac{1260}{18} = 70.00$

ATOMIC NO. 33.

ARSENIC

Once more there is no central globe. Fig. 99.

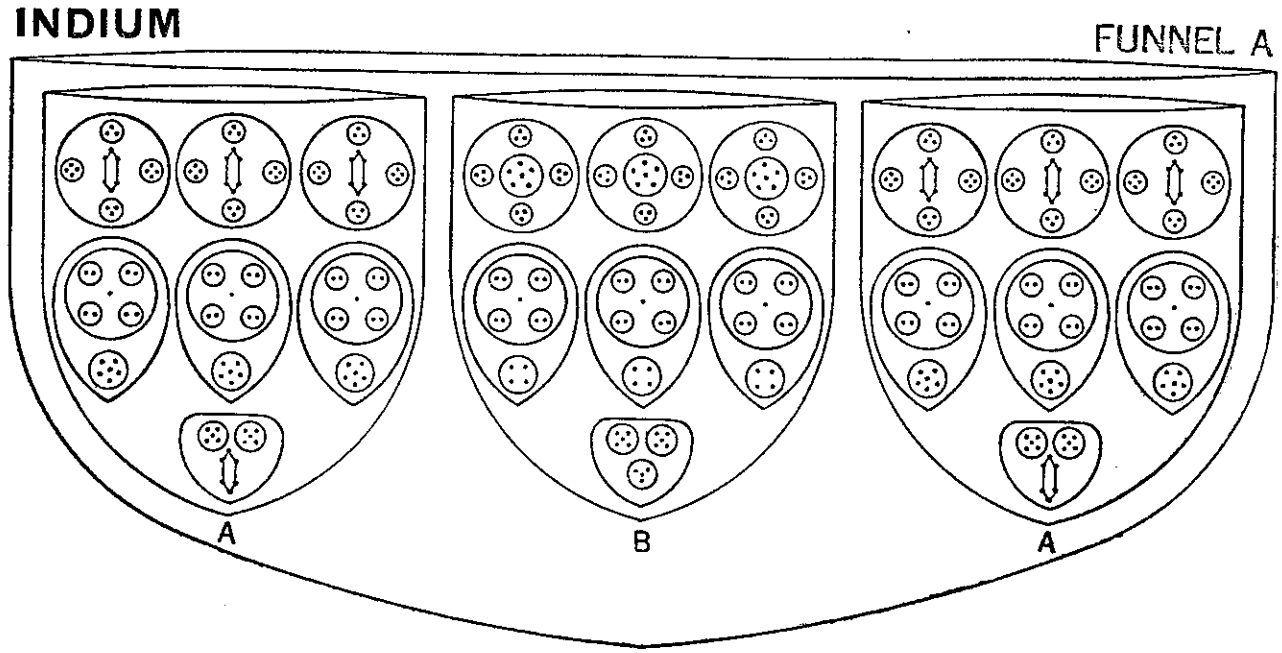
Funnels. All six funnels are alike, and there are not two separate segments. Arsenic resembles Aluminium in having eight internal sub-divisions in the funnels, and the ovoids which form the top ring are identical with those in Aluminium save for the minute difference that in Aluminium the ovoids stand the reverse way from those in Arsenic. In Arsenic the top and bottom triplets in the top ovoids point downwards and the middle one upwards, in Aluminium the opposite is true. Arsenic inserts sixteen spheres, in two rows of eight, between the ovoids and the bottom globe Al.9', which is similar to that in Aluminium. Each of these 16 spheres contain nine Anu, N9, so that Arsenic adds no less than 144 Anu to each funnel of Aluminium. The total in one Arsenic funnel is 225 Anu.

Arsenic = 6 [Al.9'+8 (2N9+Al.9)]

6 funnels of 225 Anu = 1350 Anu

Total = 1350 Anu

Number weight $\frac{1350}{18} = 75.00$



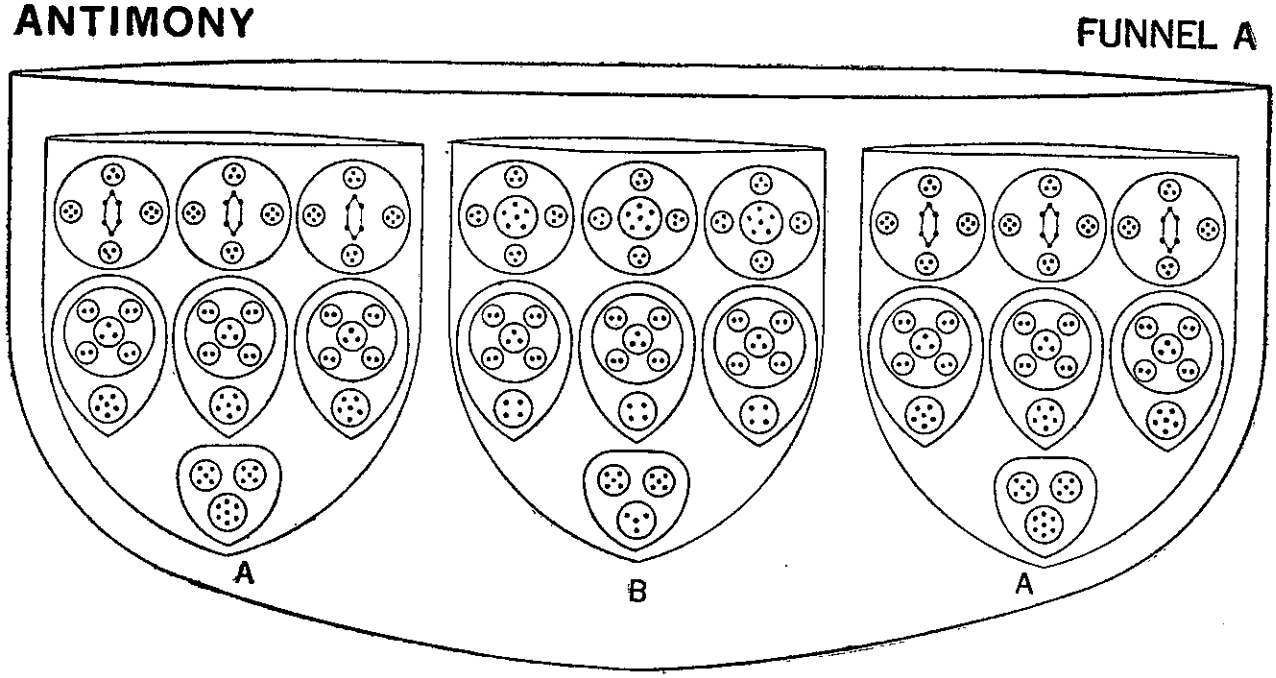


FIG. 100. INDIUM, ANTIMONY

ATOMIC NO. 49. INDIUM

This element also has no central globe. Fig. 100.

Funnels. Each of the six funnels has three segments instead of two, and the segments are of two types. Three funnels contain two segments of type A and one of type B; the other three funnels contain two segments of type B and one of type A. Segment A is similar to segment A of Gallium, save in the substitution of a body of 16 Anu for the cone of 7 Anu, making a total of 121 Anu. Segment B is similar to the B segment of Gallium save that a body of 14 Anu, In14, is substituted for the B5 group, making a total of 107 Anu.

Type A funnels contain 2A+B. Type B funnels contain A+2B.

Indium = 3 [2 (In16+3Ga15+3Ga20)+(In14+3Ga13+3Ga18)]
+3 [(In16+3Ga15+3Ga20) +2 (In14+3Ga13+3Ga18)]

3 funnels 2A+B	=	1047	Anu
3 funnels A+2B	=	1005	„
Total	=	2052	Anu

Number weight $\frac{2052}{18}$ = 114.0

ATOMIC NO. 51. ANTIMONY

Antimony is very similar to Indium. There is no central globe. Fig. 100.

Funnels. As in Indium there are two types of funnels and each funnel contains three segments, of types A and B.

Segment A consists of seven bodies. Nearest the centre we find a group containing two quintets and a septet I.7. This group may be identified as Sb17'. Then comes a ring of three spheres containing 17 Anu, Sb17. In this sphere we find that the unit in the centre of the P9 group has been replaced by a triplet. Finally there is another ring of three globes each containing two triplets, two quartets and an Ad6. This is Ga20. This whole segment is Sb128. Segment B also contains seven bodies, first a group of three small spheres which is identical with In14, then a ring of three Sb15, and finally three Ga18, the whole making Sb113.

So in Antimony we find three funnels of Type A containing 2A+B segments and three funnels of Type B containing A+2B.

Antimony = 3 (2Sb128+Sb113)+3 (Sb128+2Sb113)

3 funnels 2A+B	=	1107	Anu
3 funnels A+2B	=	1062	„
Total	=	2169	Anu

Number weight $\frac{2169}{18}$ = 120.5

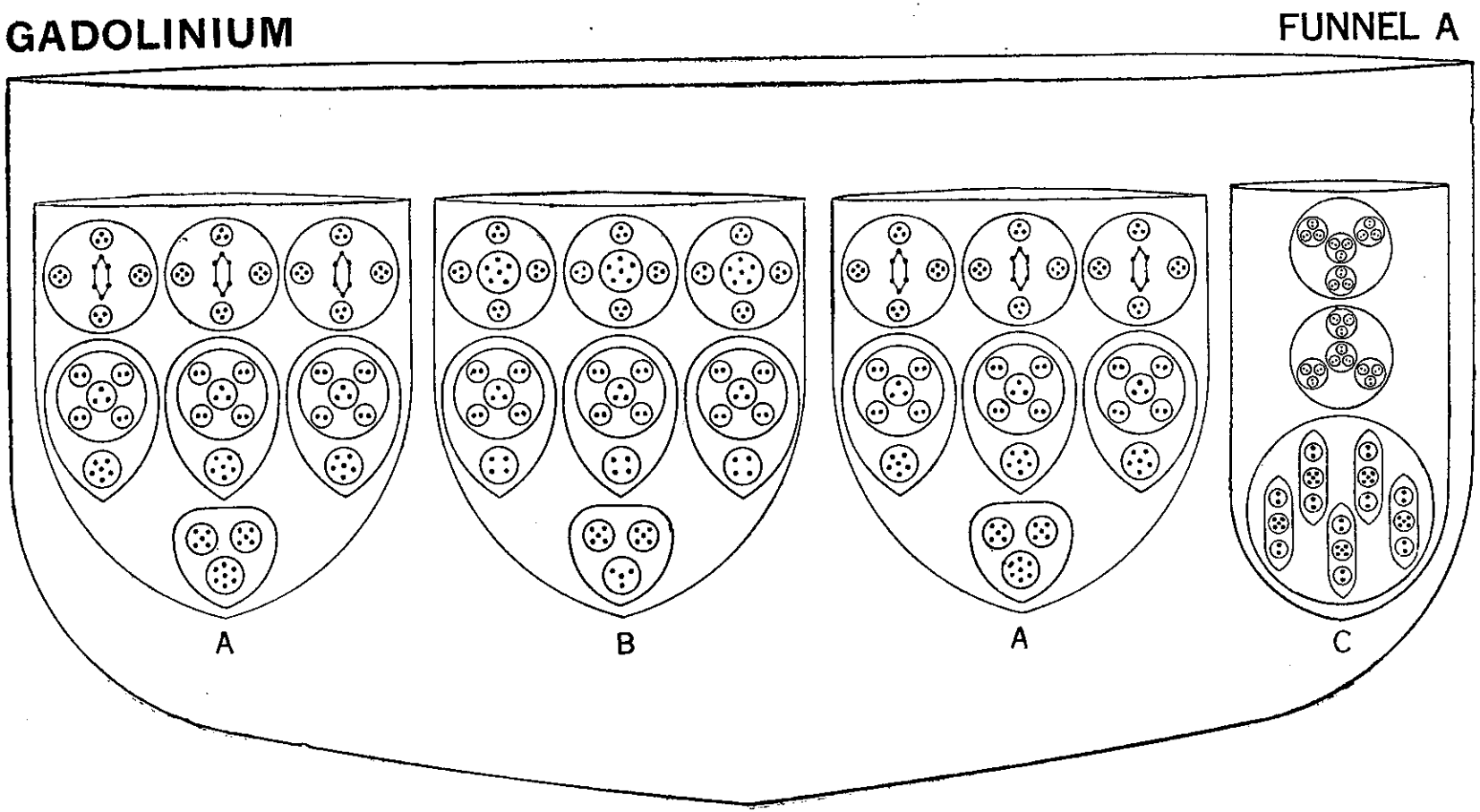


FIG. 101. GADOLINIUM, FUNNEL A

GADOLINIUM

FUNNEL B

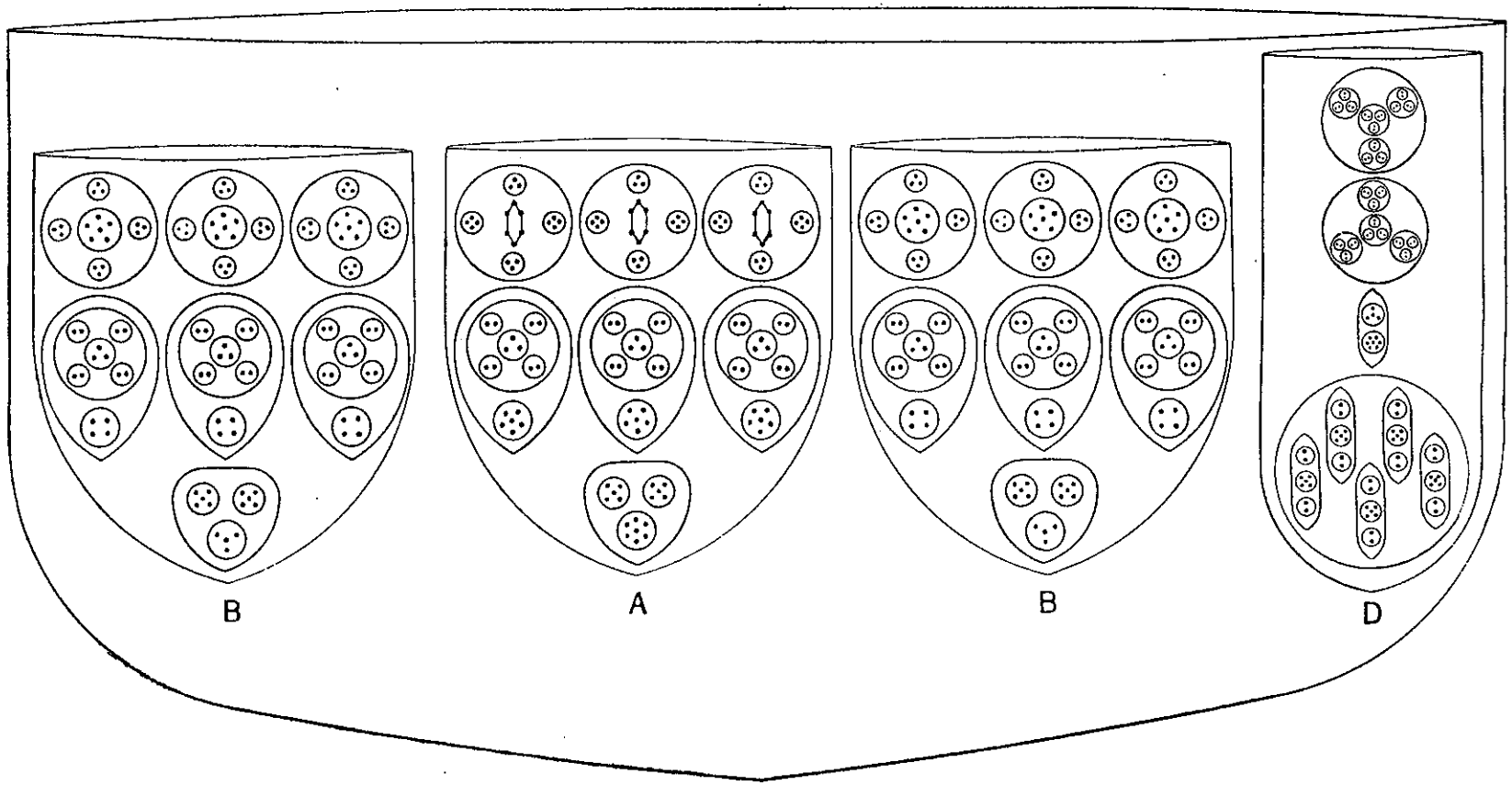


FIG. 102. GADOLINIUM, FUNNEL B

ATOMIC NO. 64.

GADOLINIUM

This element somewhat resembles Antimony.

Central globe. In this case there is a central globe. Fig. 103.

This globe is made up of five interpenetrating tetrahedrons, each with an Ad6 at its apices. This group occurs first in Neon and is identified as Ne120.

Funnels. Gadolinium has two types of funnels, each of which contains four segments. Figs. 101, 102.

In three of the funnels we find that segments A, Sb128, and B, Sb113, are identical with those of Antimony. Segment C contains one Ca45 and two N24 spheres making up 93 Anu, Gd93. In this first set of funnels there are 2A+B+C segments.

In the other set of three funnels we find one A segment, 2B, and a D segment containing Ca45, 2N24 and an additional group Mo11, making up Gd104. Thus these funnels are made up of A+2B+D.

Gadolinium = Ne120+3[2Sb128+Sb113+Gd93]
+3[Sb128+2Sb113+Gd104]

Central globe	=	120	Anu
3 funnels (2A+B+C)	=	1386	„
3 funnels (A+2B+D)	=	1374	„
Total	=	2880	Anu

Number weight $\frac{2880}{18}$ = 160.00

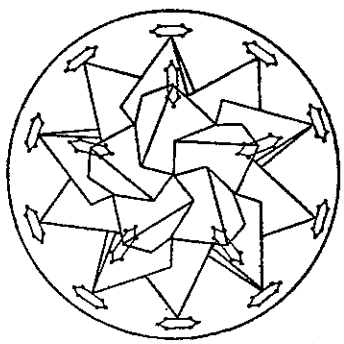


FIG. 103. GADOLINIUM CENTRE, Ne120

ATOMIC NO. 66. DYSPROSIUM

This element much resembles Gadolinium.

Central globe. The central globe is formed of the five interpenetrating tetrahedrons as in Gadolinium, Ne120. Fig. 104.

Funnels. The six funnels each contain four segments and these are of three types. Segment A is Sb128, Segment B is Sb113, Segment C is Gd93 with the addition of two Mo11 groups, making Ds115. Figs. 105, 106.

Three funnels are composed of 2A+B+C and the other three of A+2B+C.

Dysprosium = Ne120+3[2Sb128+Sb113+Ds115]
+3[Sb128+2Sb113+Ds115]

Central globe	=	120	Anu
3 funnels each 2A+B+C	=	1452	„
3 funnels each A+2B+C	=	1407	„
Total	=	2979	Anu

Number weight $\frac{2979}{18} = 165.5$

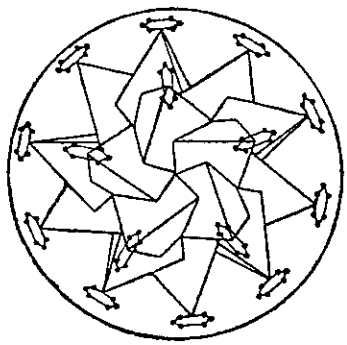


FIG. 104. DYSPROSIUM CENTRE, Ne120

DYSPROSIUM

FUNNEL A

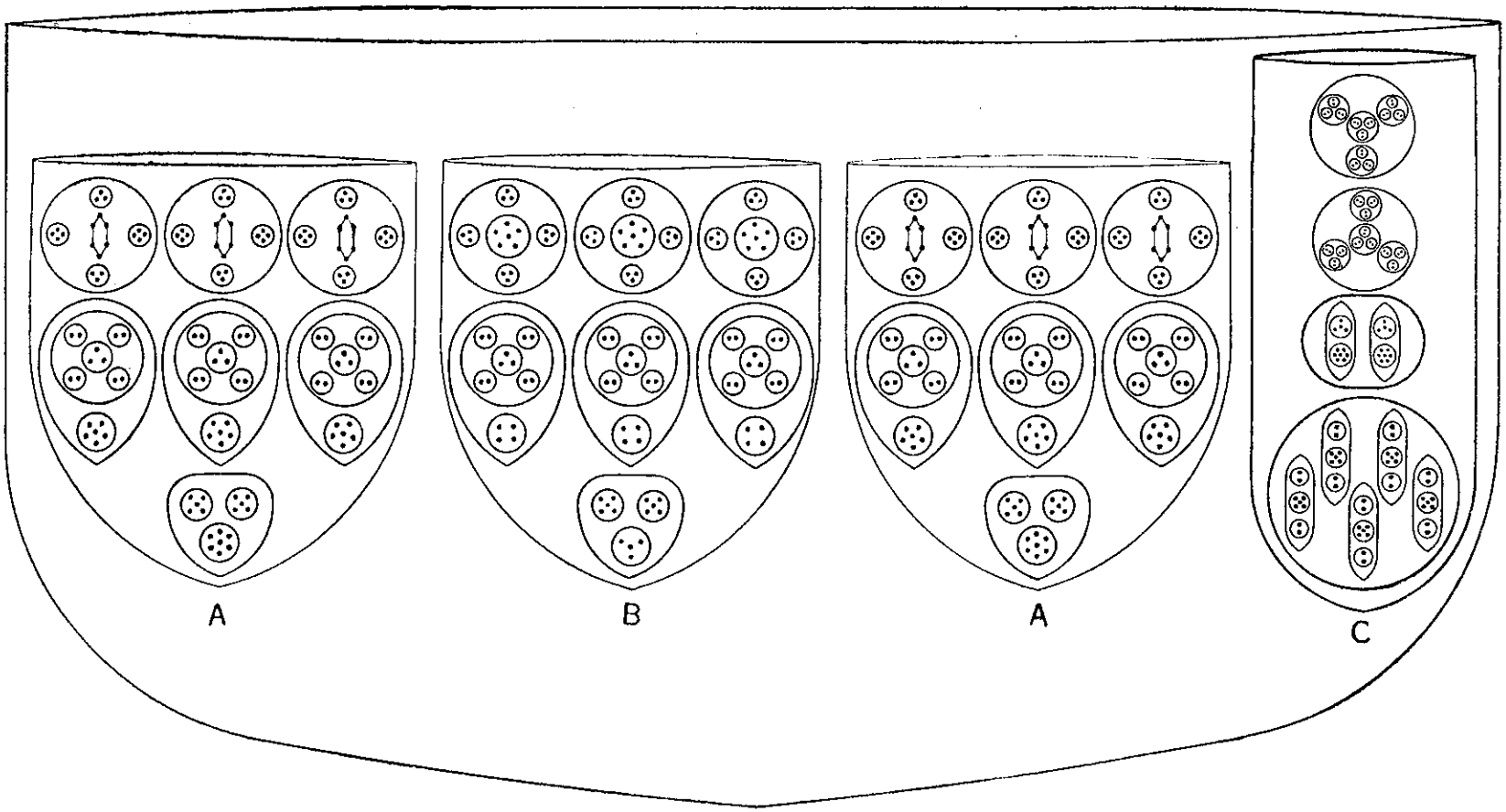


FIG. 105. DYSPROSIUM, FUNNEL A

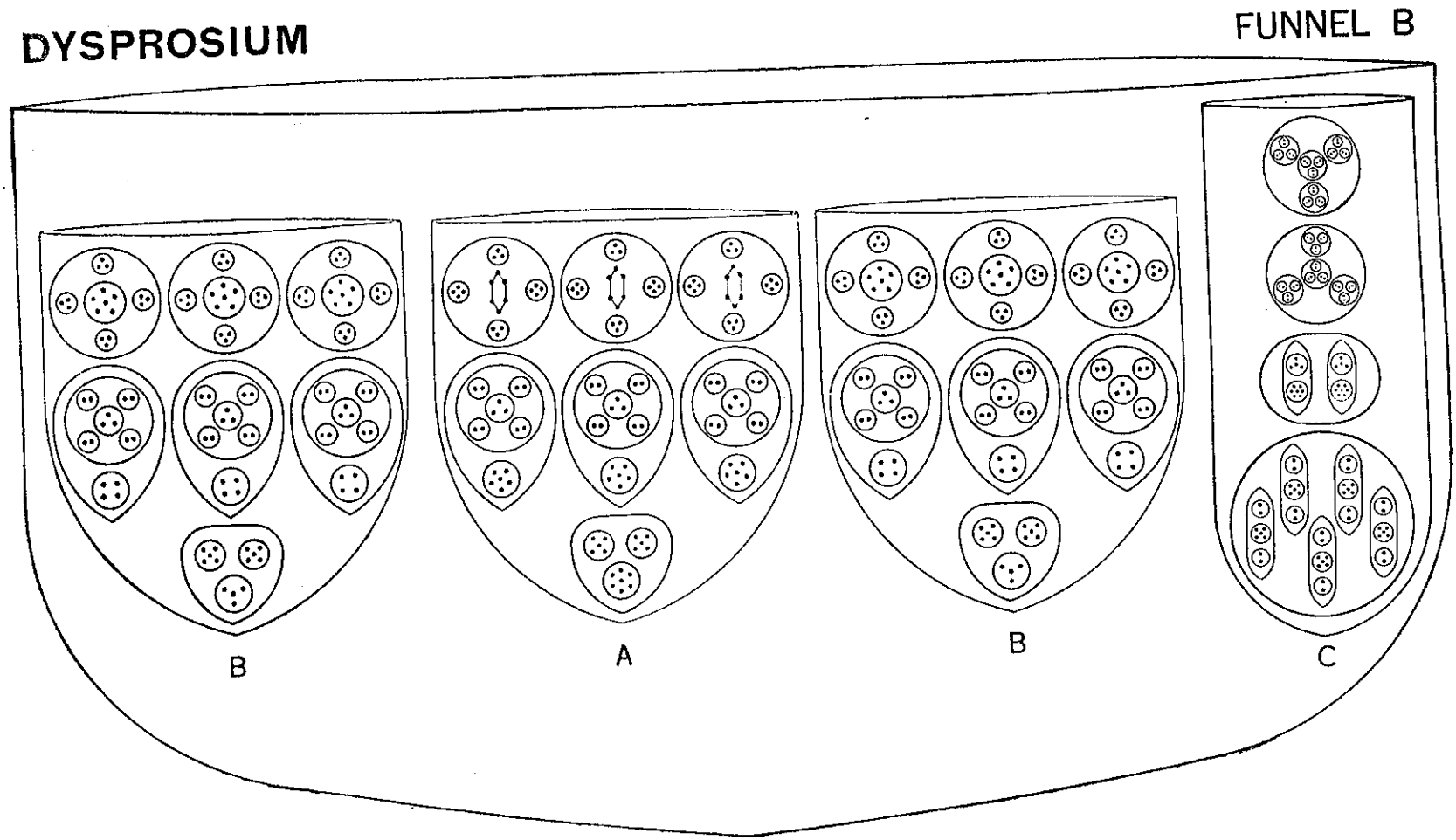


FIG. 106. DYSPROSIUM, FUNNEL B

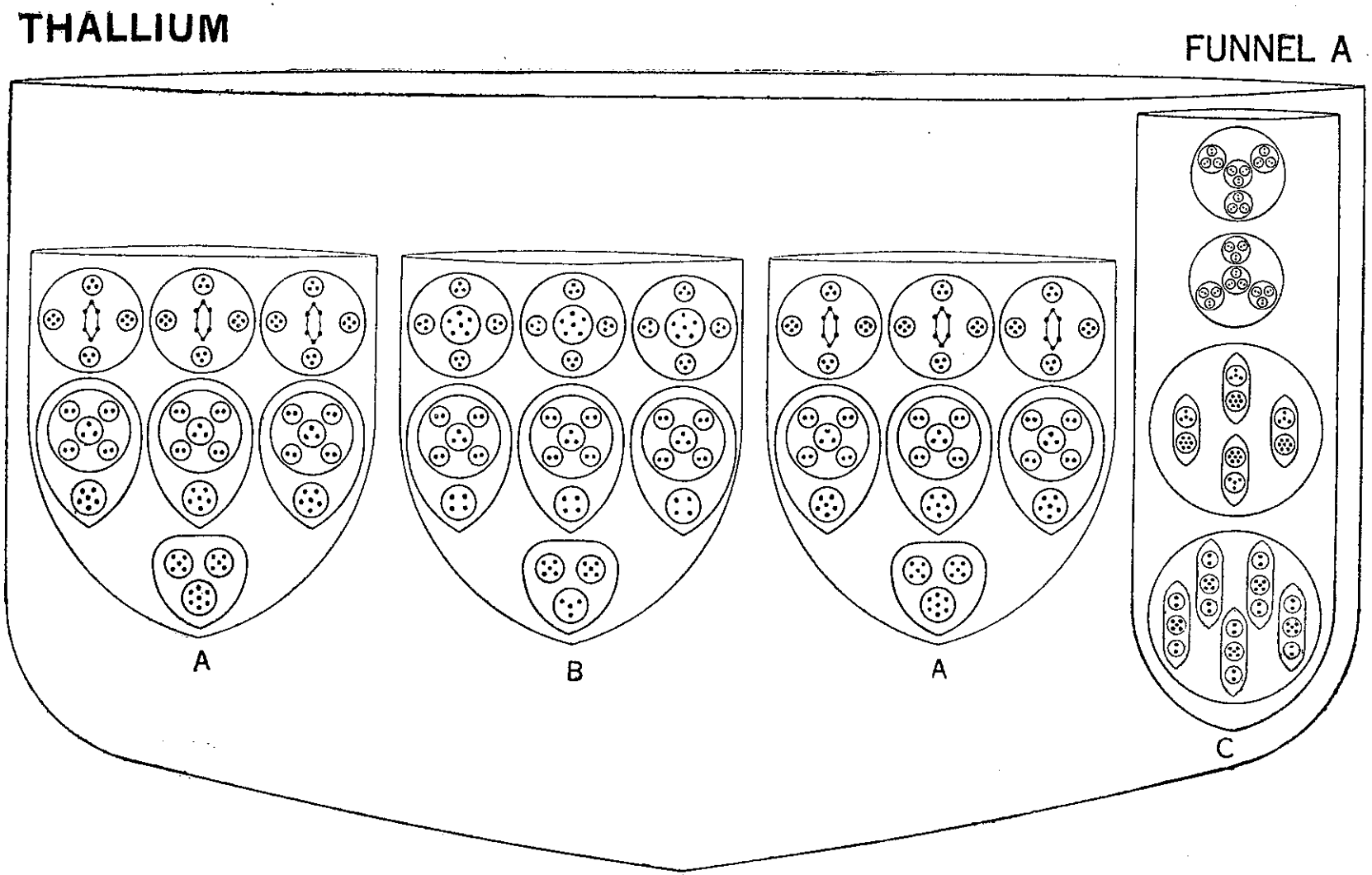


FIG. 107. THALLIUM, FUNNEL A

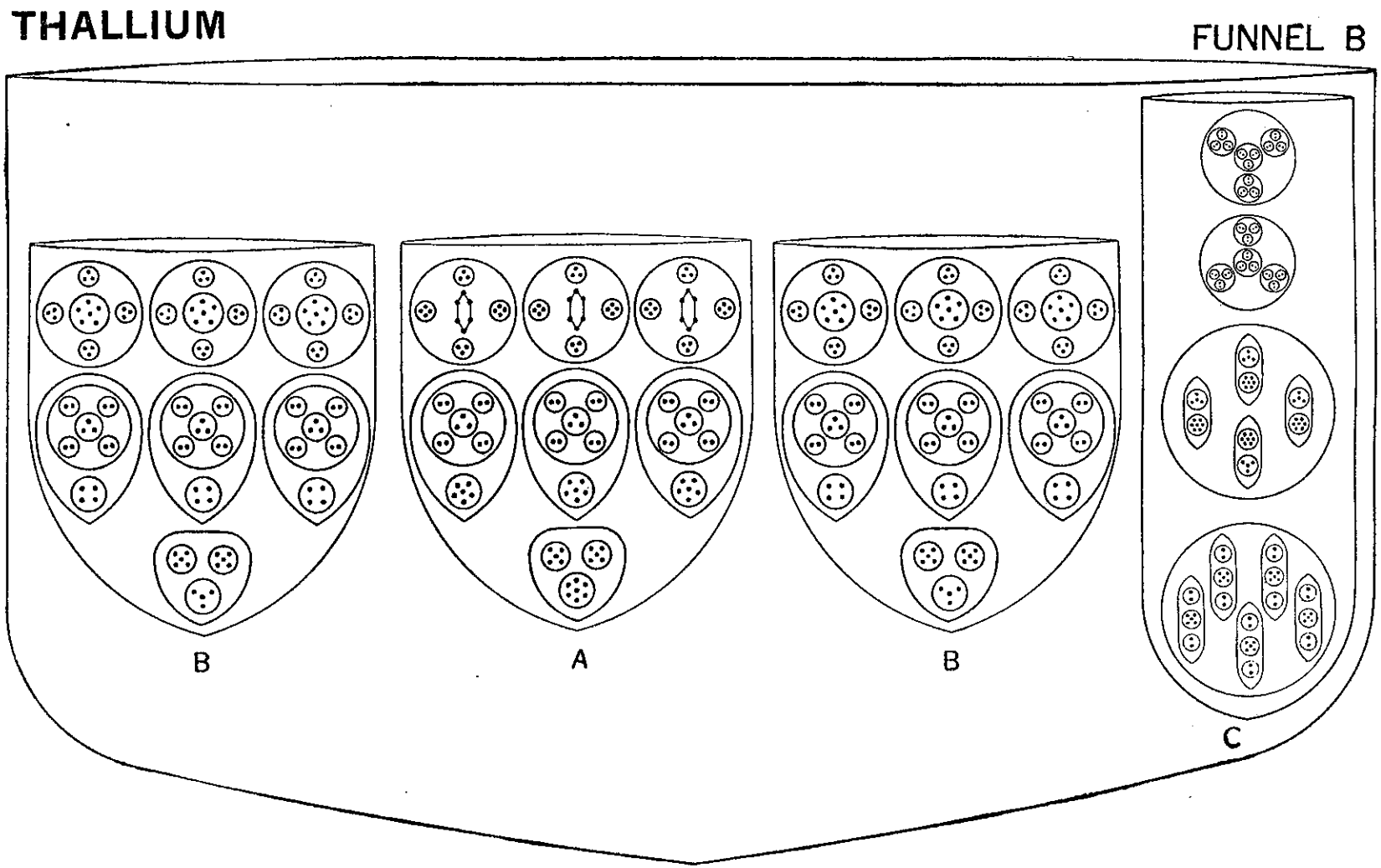


FIG. 108. THALLIUM, FUNNEL B

ATOMIC NO. 81.

THALLIUM

Central globe. There is here a central globe very similar to that in Cerium. It consists of a central group, Ce27, surrounded by 20 ovoids of 33 Anu, making 687 Anu in all. Fig. 109.

Funnels. Here again we find two types of funnels. Each funnel contains four segments made up of types A, B and C. Segment A is Sb128, segment B is Sb113, and Segment C contains Ca45, plus a sphere containing four Mo11, Tl.44, and then two N24, making Tl.137. Figs. 107, 108.

Three funnels consist of 2A+B+C and three of A+2B+C.

Thallium = Tl.687+3 [2Sb128+Sb113+Tl.137]
+3 {Sb128+2Sb113+Tl.137]

Central globe	=	687	Anu
3 funnels of 2A+B+C	=	1518	„
3 funnels of A+2B+C	=	1473	„
Total	=	3678	Anu

Number weight $\frac{3678}{18}$ = 204.3

ATOMIC NO. 83. BISMUTH

Central globe. The central globe is similar to that of Thallium, Tl.687. Fig. 109.

Funnels. Here again there are two types of funnels, each containing four segments, made up of types A, B, C and D. Segment A is Sb128, segment B is Sb113. Segment C is composed of Ca45, Mo46 and two N24 groups making 139 Anu. Segment D is part of the arm of Zirconium and contains 160 Anu. Three of the funnels contain 2A+B+C and three A+2B+D. Figs. 110, 111.

Bismuth = Tl.687+3[2Sb128+Sb113+(Ca45+Mo46+2N24)]
+3[Sb128+2Sb113+{Ti88+(Ga20+4Zr13)}]

Central globe	=	687	Anu
3 funnels 2A+B+C	=	1524	„
3 funnels A+2B+D	=	1542	„
Total	=	3753	Anu

Number weight $\frac{3753}{18} = 208.5$

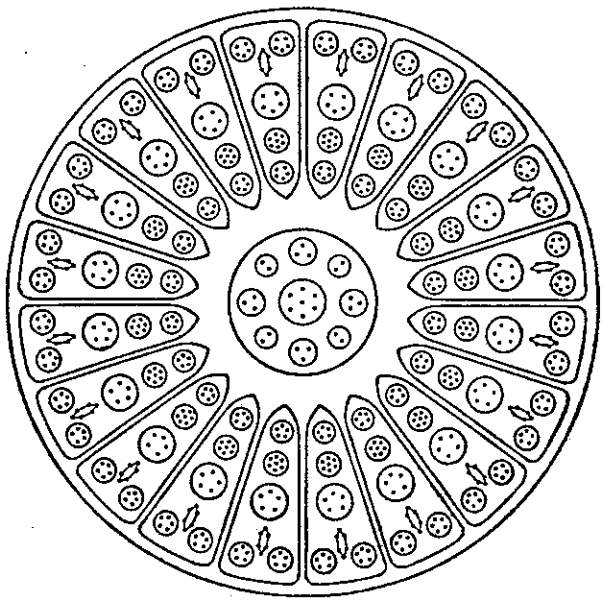


FIG. 109. THALLIUM AND BISMUTH CENTRE, Tl.687

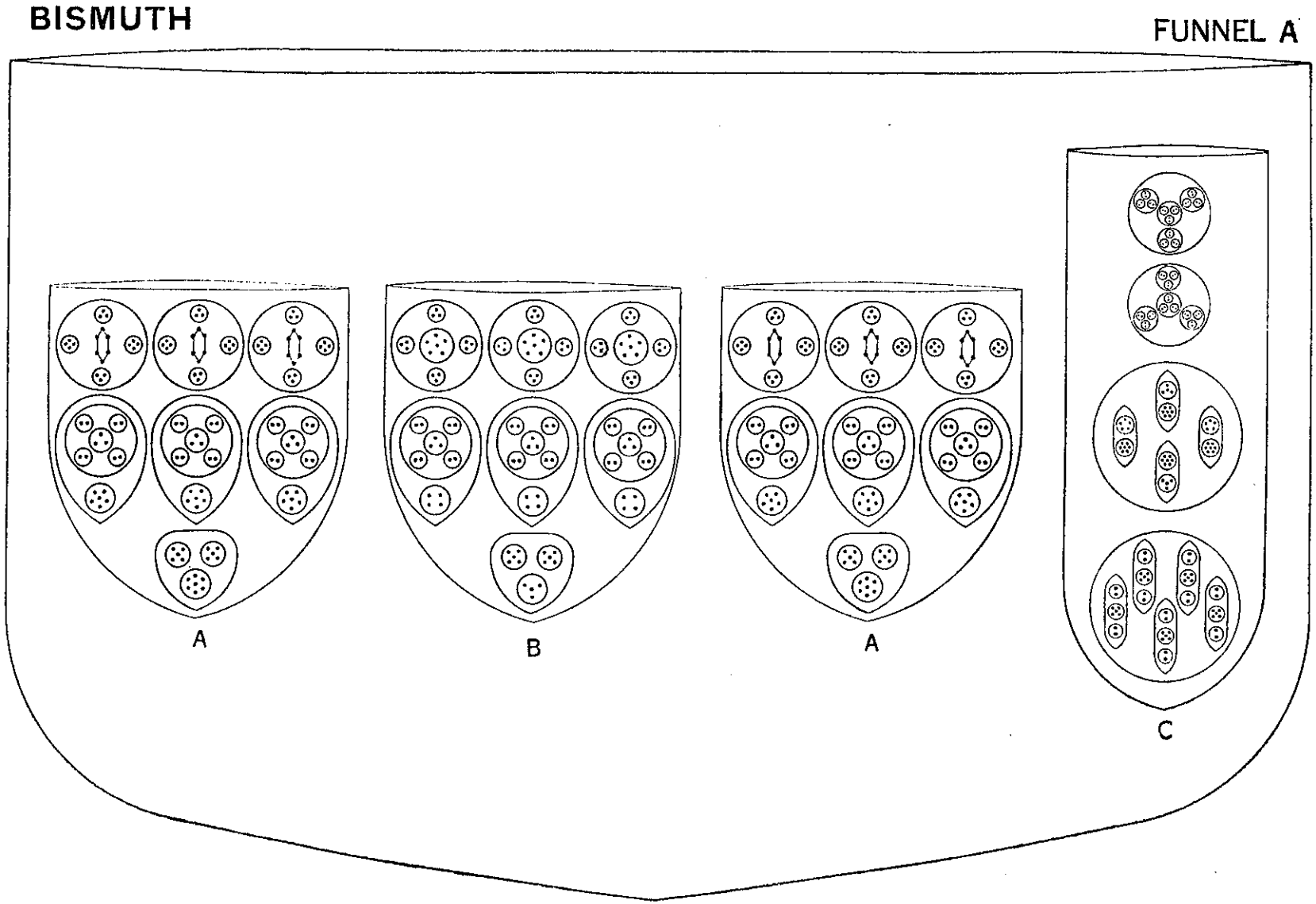


FIG. 110. BISMUTH, FUNNEL A

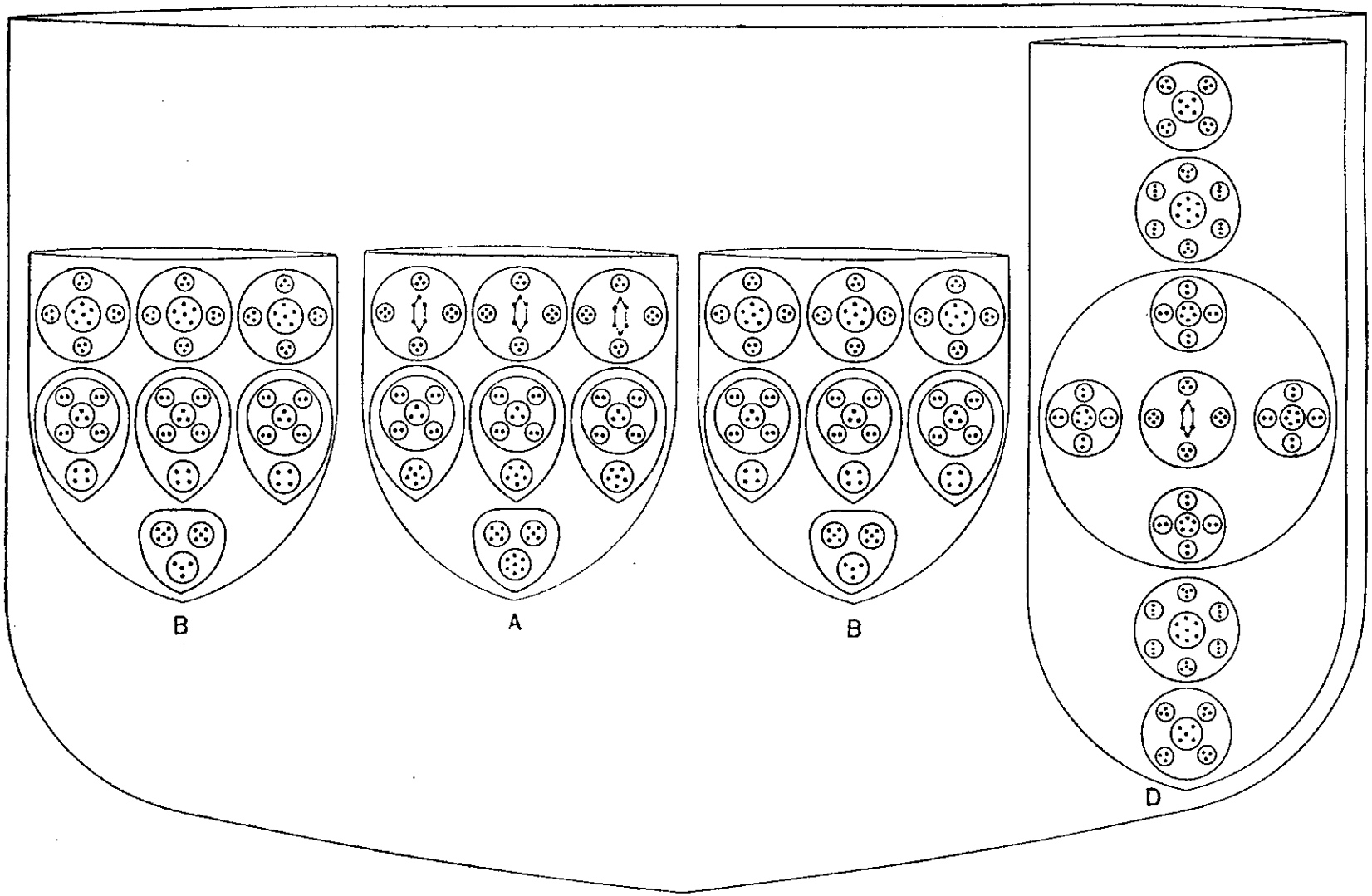


FIG. 111. BISMUTH, FUNNEL B

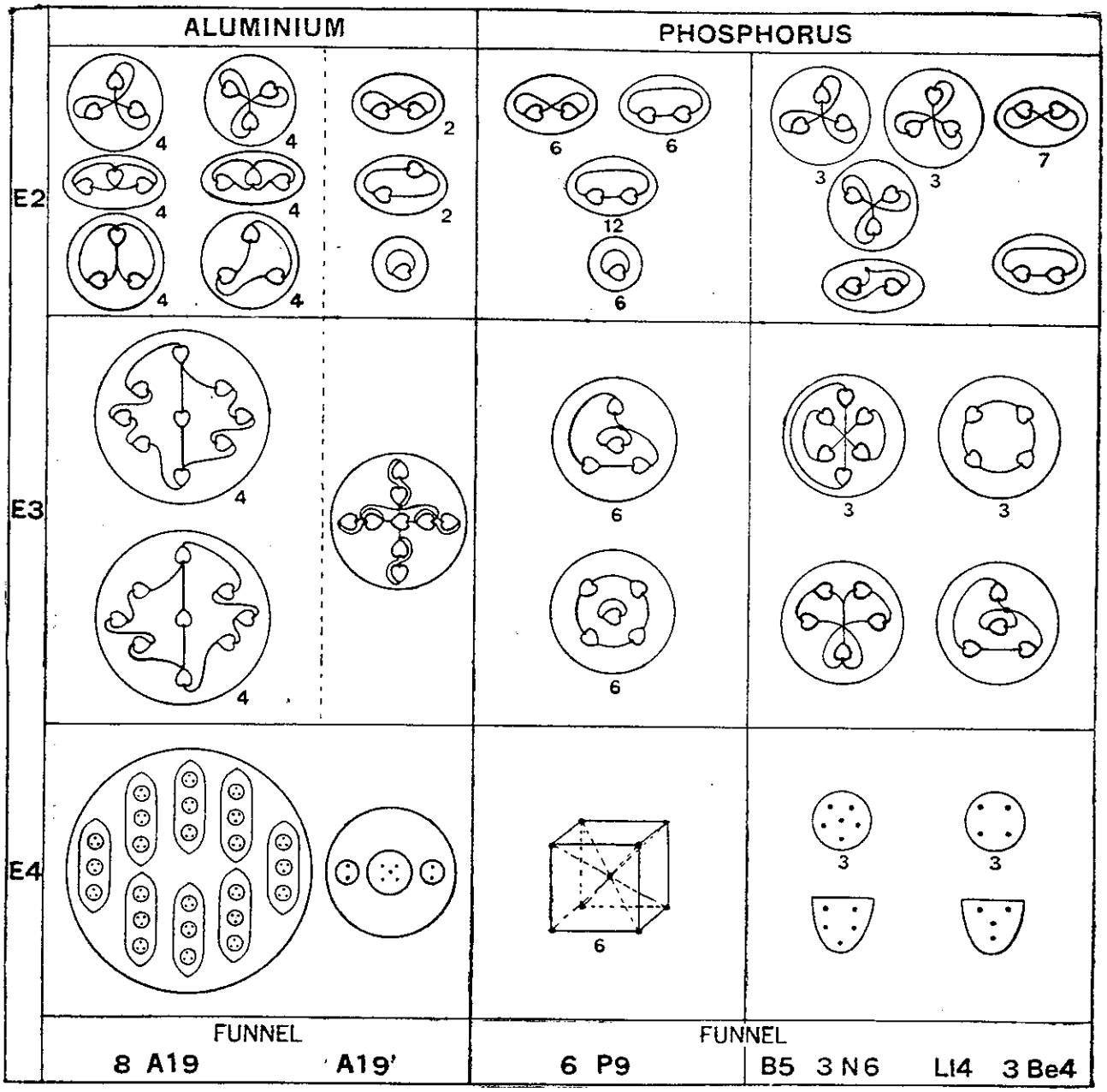


FIG. 112. DISINTEGRATION OF ALUMINIUM AND PHOSPHORUS

DISINTEGRATION OF CUBE GROUP B

DISINTEGRATION OF ALUMINIUM

The funnels separate and the contents are liberated. The eight ovoids remain together in a sphere ; so two bodies from each funnel are set free on the E4 level. Fig. 112.

On the E3 level the eight ovoids are set free and become spherical, forming bodies containing 9 Anu as shown in Fig. 112.

On the E2 level each of these breaks up into three triads.

The globe from the funnel becomes a cross at the E3 stage, with one Anu from the duads in each arm in addition to its own. On the E2 level these form four duads and a unit.

DISINTEGRATION OF PHOSPHORUS

On the E4 level segment A sets free three P9 groups, three sextets, N6, and a quintet, B5. The P9 groups form a cube with one Anu at each corner and one in the centre attached to all the others. Fig. 112.

Similarly segment B, on the E4 level, liberates three P9, three quartets, Be4, and one quartet, Li4.

On the E3 level the P9 groups each form two bodies. Five of the nine Anu hold together and place themselves on the angles of a square-based pyramid ; the remaining four set themselves on the angles of a tetrahedron. The other groups form three sextets, and a quintet and three ring quartets and a pyramid as shown.

On the E2 level each P9 yields 4 duads and a unit, while the other groups form triads and duads as shown.

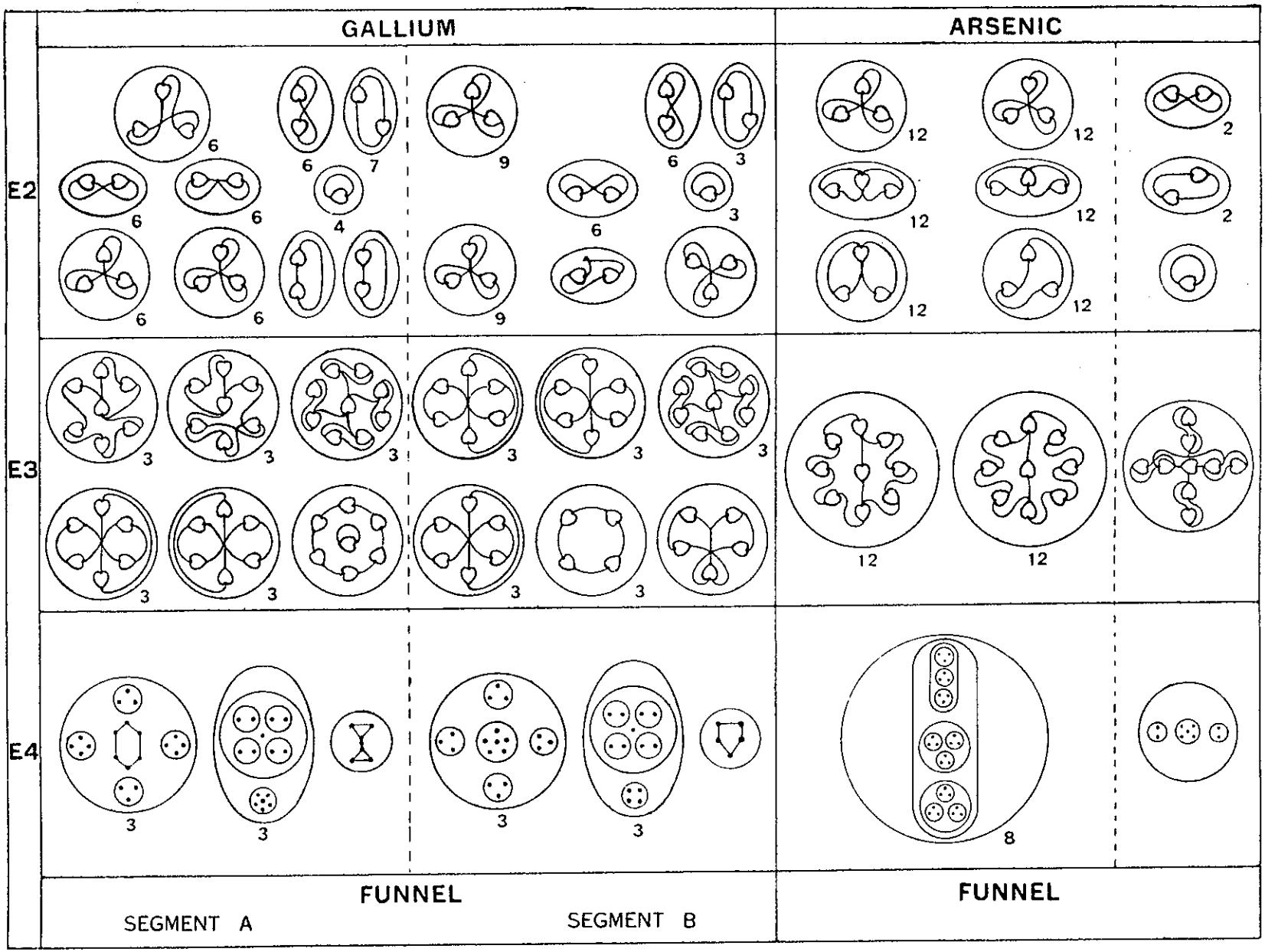


FIG. 113. DISINTEGRATION OF GALLIUM AND ARSENIC

DISINTEGRATION OF GALLIUM

In Gallium the funnels are liberated and then set free their two containing segments, each of which forms a cylinder. Thus each funnel yields two bodies at the first stage of the E4 level. This is not shown in Fig. 113. At the second stage the segments liberate their contents, each giving seven groups. Fig. 113.

Segment A. On the E4 level this gives the three Ga20, three Ga15 and the small group of 7 Anu, Ga7.

On the E3 level each Ga20 forms a sextet and two septets, the quartet and triad uniting. Each Ga15 forms a sextet and a cross with nine Anu having a duad in each arm and one Anu in the centre. The Ga7 forms a ring of six Anu with one in the centre.

On the E2 level these all break up into triads, duads and units.

Segment B. On the E4 level we find three Ga18, three Ga13 and a B5. On the E3 level each Ga18 gives three sextets, each Ga13 gives the cross of nine Anu as before and a ring quartet, and the B5 gives a quintet.

On the E2 level these act as usual, giving triads, duads and units.

DISINTEGRATION OF ARSENIC

Arsenic resembles Aluminium in having eight ovoids in its funnel. These are set free as spheres on the E4 level, as is the globe of nine Anu, Al.9'. Thus we have nine spheres on this E4 level. Fig. 113.

On the E3 level the three groups of nine Anu from the ovoids are liberated and form groups having the same design as those in Aluminium. The globe Al.9' gives a cross of nine Anu. On the E2 level triads, duads and units are formed as shown in Fig. 113.

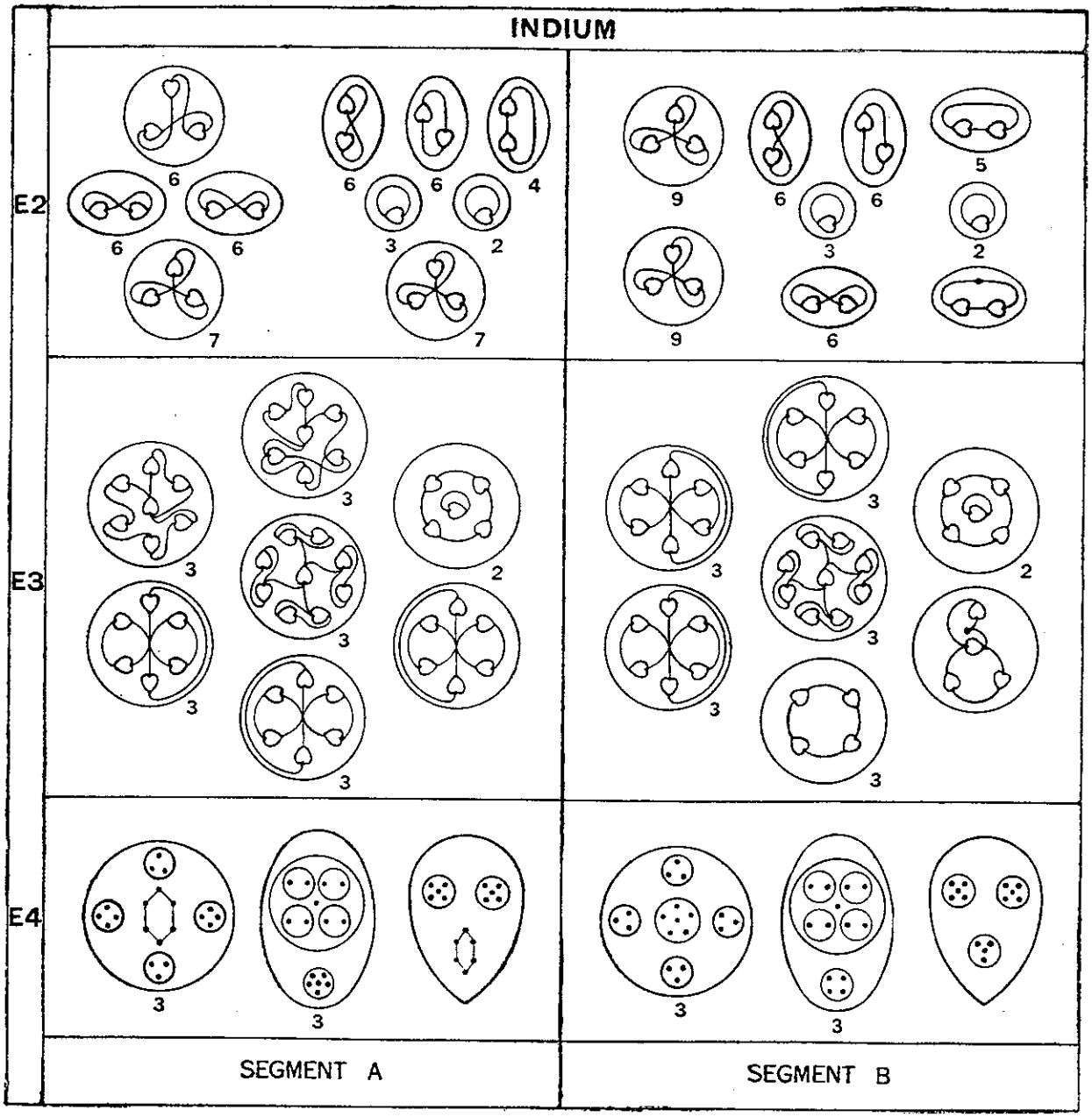


FIG. 114. DISINTEGRATION OF INDIUM

DISINTEGRATION OF INDIUM

After the funnels of Indium separate they set free their segments and these in turn liberate their contents. Each segment gives seven bodies.

Each funnel contains three segments, these being of two types, A and B. Fig. 114.

Type A. On the E4 level type A gives three Ga20, three Ga15 and an In16.

On the E3 level each Ga20 gives a sextet and two septets as before. The Ga15 also acts as in Gallium giving a sextet and a cross of nine Anu. The In16 gives a sextet and two quintets formed of a ring of four Anu with one in the centre (a square-based pyramid).

On the E2 level these form triads, duads and units.

Type B. On the E4 level we have three Ga18, three Ga13 and an In14.

On the E3 level each Ga18 gives three sextets and the Ga13 gives the cross of nine Anu and a ring quartet as in Gallium. The In14 gives a tetrahedron quartet and two quintets (square-based pyramids).

On the E2 level they give triads, duads and units as before.

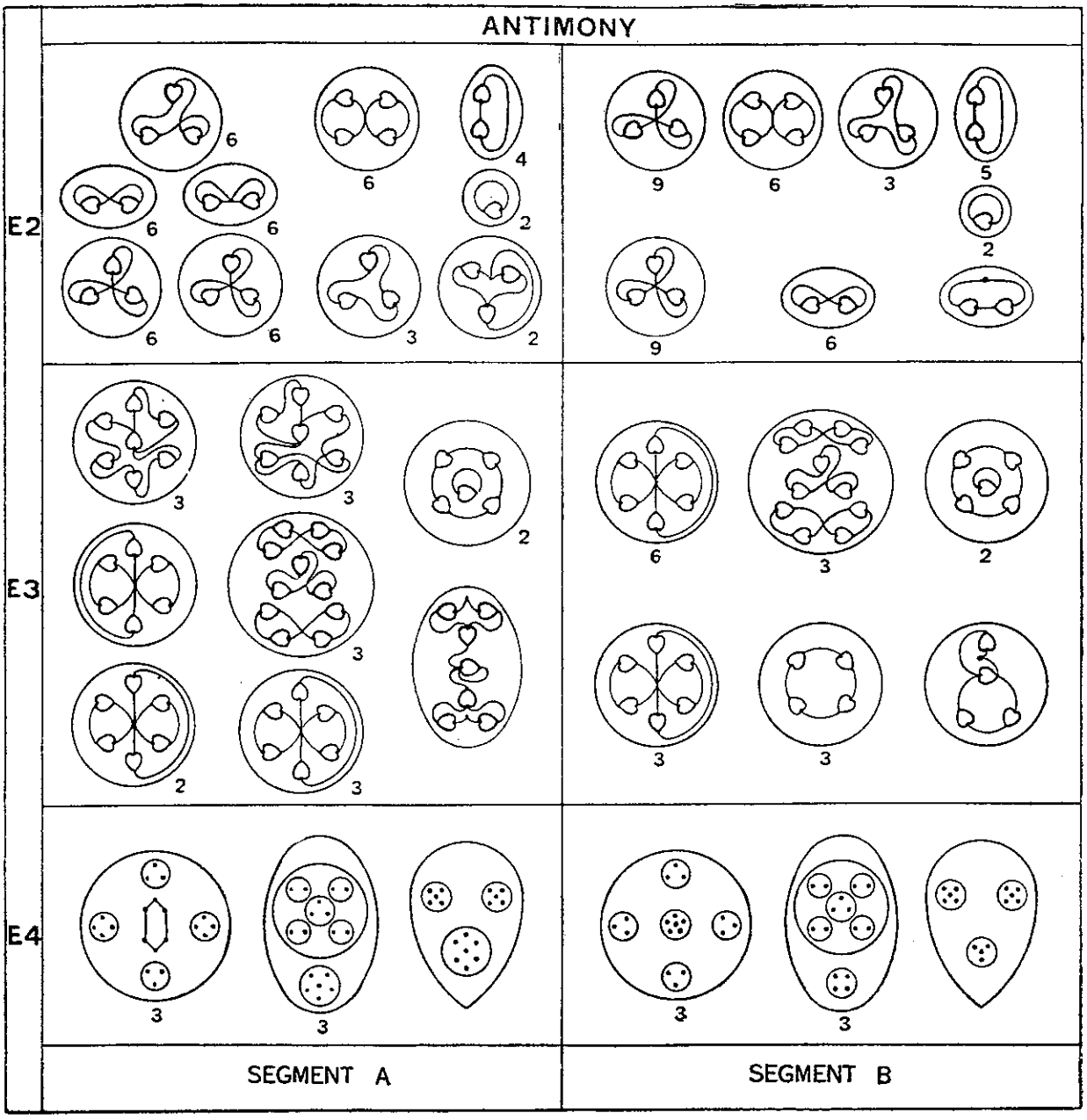


FIG. 115. DISINTEGRATION OF ANTIMONY

DISTINTEGRATION OF ANTIMONY

This element follows Gallium and Indium in its disintegration. There are three segments in each funnel and these segments are of two types. Each liberates seven bodies on the E4 level. Fig. 115.

Type A. On the E4 level we find three Ga20, three Sb17 and one Sb17'. On the E3 level each Ga20 gives a sextet and two septets. The Sb17 is like the Ga15 except that a triplet is substituted for the unit in the centre of the P9 group. This apparently throws the cross out of gear for we have a new figure of eleven Anu containing two quartets and a triplet. In addition to the body of eleven Anu each Sb17 liberates a sextet on the E3 level. The Sb17' gives a septet and two quintets of the square-based pyramid type.

On the E2 level we find quartets, triplets, duads and units.

Type B. On the E4 level we find three Ga18, three Sb15 and one In14.

On the E3 level each Ga18 gives three sextets, the Sb15 is similar to Ga13 except for the substitution of a triplet for the unit in the centre. Each Sb15 gives the group of eleven Anu as in the A type segment and a ring of four Anu. The In14 gives a tetrahedron and two quintets of the square-based pyramid form.

On the E2 level we find quartets, triplets, duads and units.

Fig. 116 shows the Cube Group B in a condensed form, from which the relationships in the group can be studied.

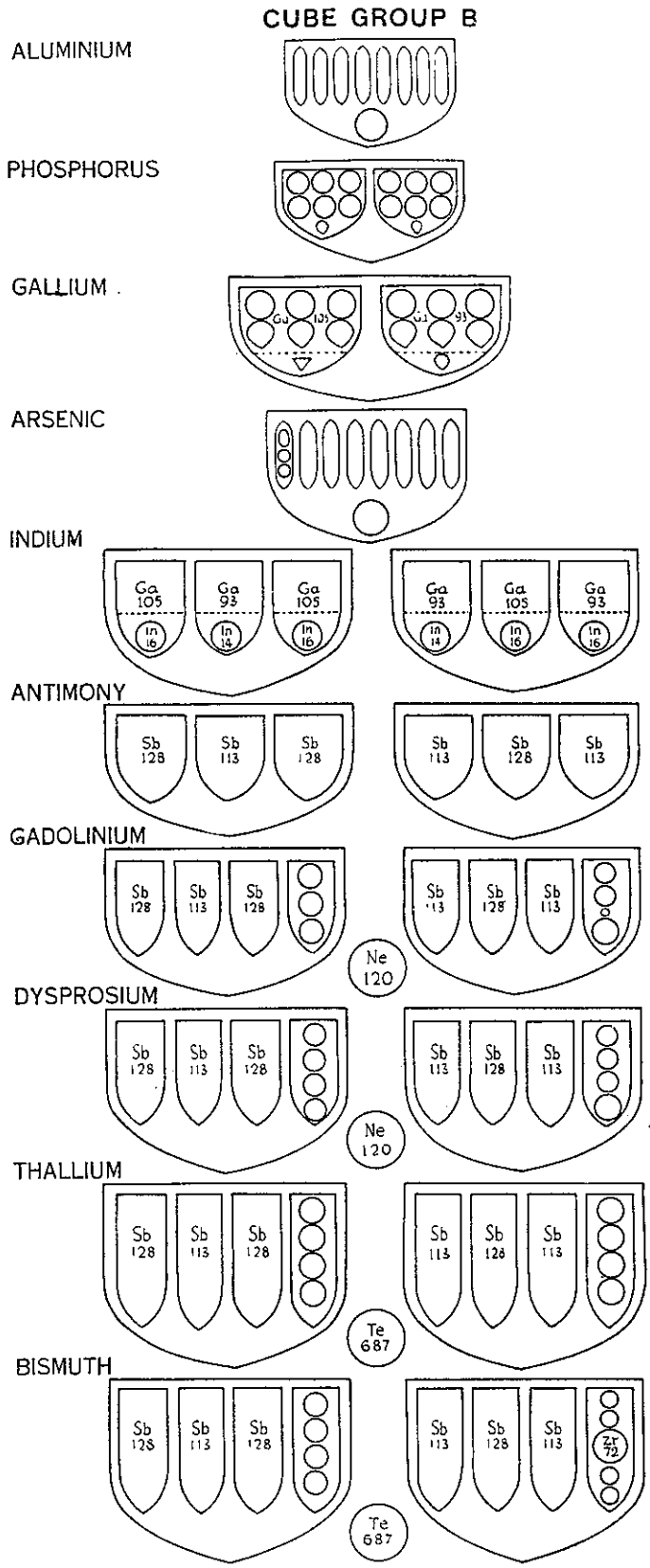


FIG. 116. CUBE GROUP B

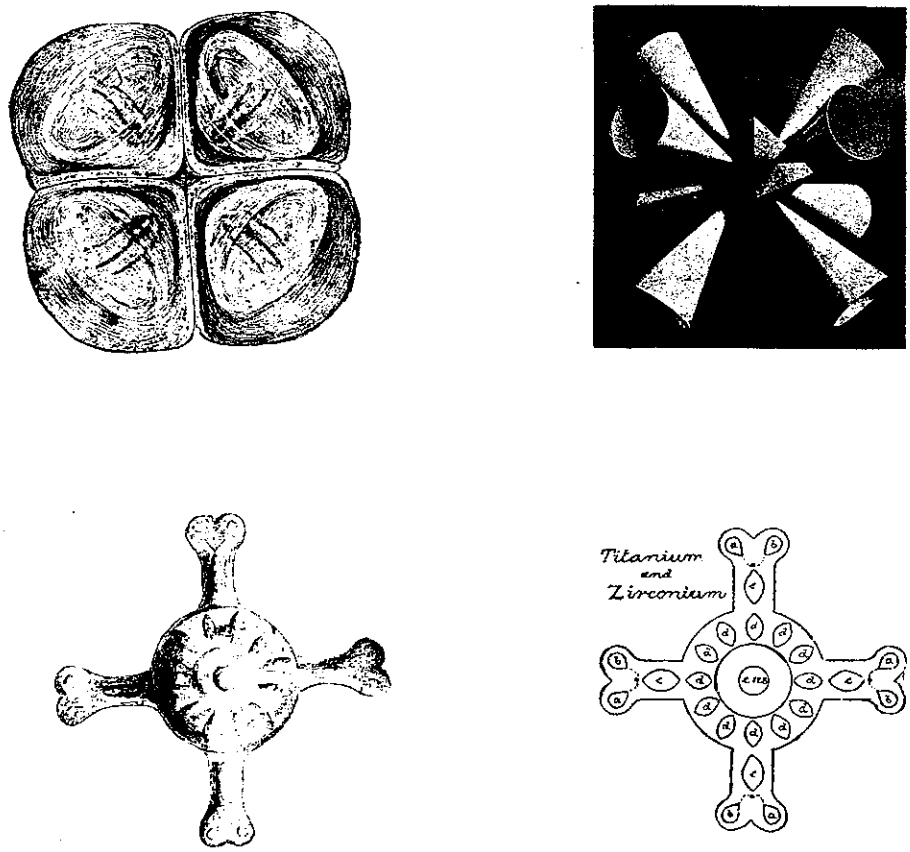


FIG. 117. TYPES OF OCTAHEDRONS

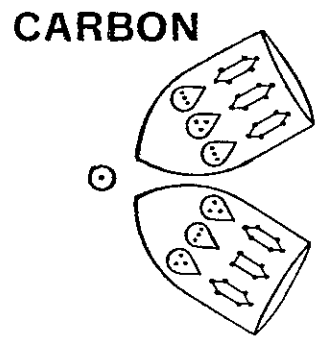


FIG. 118. TWO FUNNELS OF CARBON WITH LINKING ANU.

CHAPTER IX

THE OCTAHEDRON GROUP A

THIS group is a very interesting one, containing as it does the element Carbon, so important in organic chemistry. The members of the group occur at the extreme limits of the left-hand swing of the pendulum. Their characteristic form is that of an octahedron, rounded at the angles and a little depressed between the faces in consequence of the rounding. In fact, it was not at first recognized as an octahedron, and was called the " corded bale ".

All these elements are tetravalent and have eight funnels opening on the eight faces of the octahedron. Here, as usual, we find that the number of funnels is twice the valence.

The conception of the four valencies of Carbon pointing to the four corners of a tetrahedron, so much used in organic chemistry, at once comes to the mind. It is obvious that if four of the eight funnels are used, these would give forces pointing in the required directions in space. This subject is further illustrated in the descriptions of the Carbon compounds in Chapter XIII.

ATOMIC NO.	ANU	ELEMENT	CENTRE	FUNNELS
6	216	Carbon	4	4 C27+4C26
22	864	Titanium	(Ne120+8) +12Ti14	4 (Ti88+C27+C26+1)
40	1,624	Zirconium	(Ne120+8) +12Zr36	4 (Zr212+C27+C26+1)
58	2,511	Cerium	Ce667	4 (Zr212) 4 (Ca160+Ce36+C27+C26)
72	3,211	Hafnium	Hf747	4 (Zr212+4Hf36) 4 (Ca160+Ce36+C27+C26 +Ge11)
90	4,187	Thorium	Lu819	4 (Zr212+Sb128+Ac116) 4 (Ca160+Mo46+2Li63+C27 +C26+1)

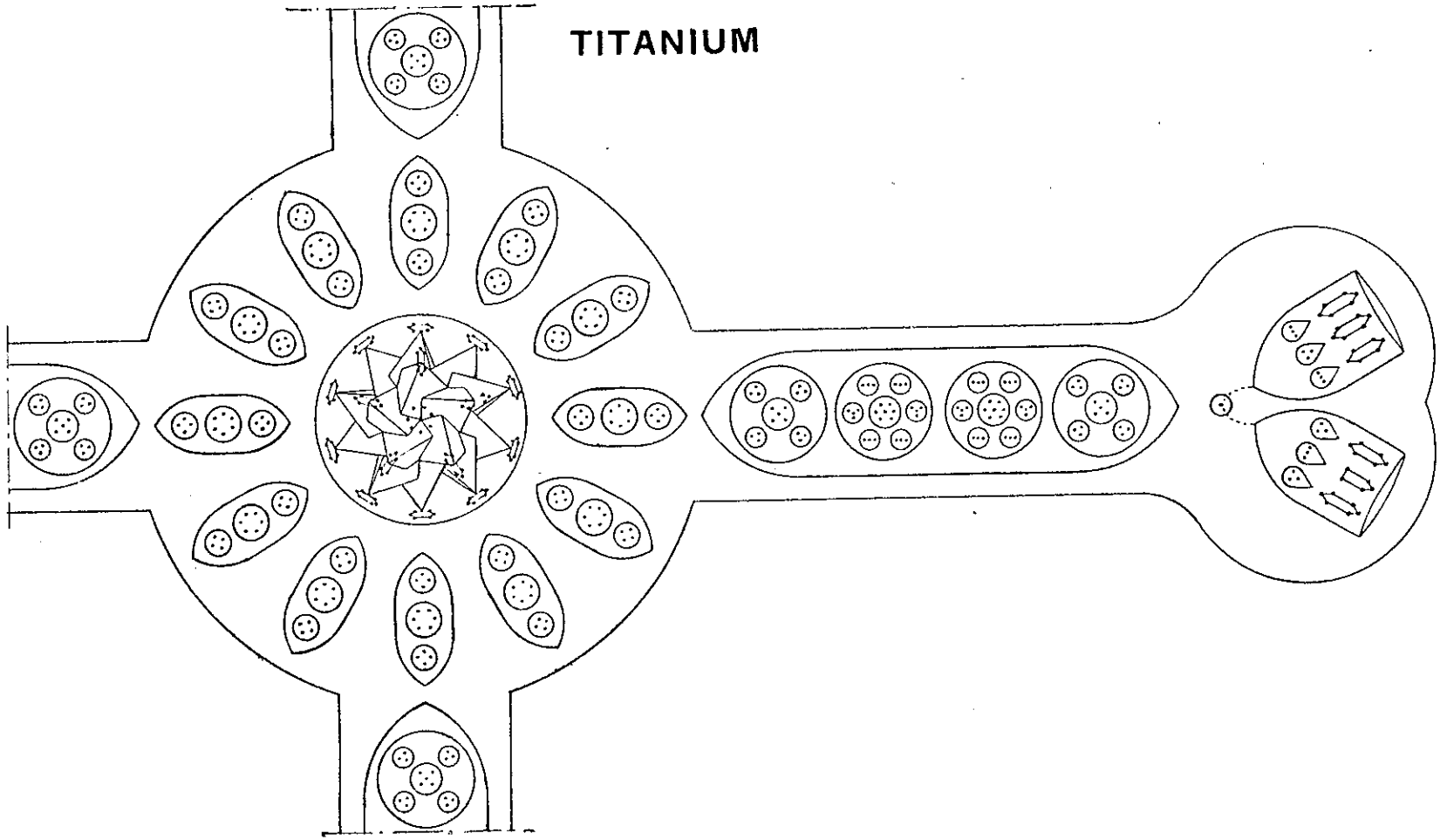


FIG. 119. TITANIUM

ATOMIC NO. 6.

CARBON

Carbon gives us the fundamental octahedron form, which becomes so marked in Titanium and Zirconium.

Central globe. In the centre of the octahedron is a globe containing four Anu, each within its own wall; these lie on the dividing lines of the faces and each holds a pair of funnels together. It seems as though this Anu had been economically taken from one Ad6 in the funnels, to form the link. Fig. 118.

Funnels. The funnels are in pairs, one of each pair showing three "cigars" and having as its fellow a funnel in which the middle "cigar" is truncated, having lost one Anu. Each Ad6 has a leaf-like body at its base, the six together making up one Hydrogen atom.

Carbon = 4+4C27+4C26

Centre	=	4	Anu
4 funnels of 27 Anu	=	108	„
4 funnels of 26 Anu	=	104	„
Total	=	216	Anu

Number weight $\frac{216}{18} = 12.00$

ATOMIC NO. 22.

TITANIUM

Central globe. The central body is made up of the five interlaced tetrahedrons, Ne120, with a ring of seven Anu round an eighth, that forms the minute centre of the whole. Into this elaborate body one hundred and twenty-eight Anu are built.

Round this centre comes a ring of twelve ovoids each holding within itself fourteen Anu, distributed among three contained spheres, two quartets and a sextet. This is a new device for crowding in material. Fig. 119.

Funnels. Titanium has a complete Carbon atom distributed over the ends of its four arms, a pair of funnels with their linking Anu being seen in each. Then, in each arm, comes the elaborate body Ti88, with its eighty-eight Anu.

The protrusion of the arms in Titanium and Zirconium suggests the old Rosicrucian symbol of the cross and rose, but since they show at their ends the eight carbon funnels with their characteristic contents they justify their relationship.

Titanium = (Ne120+8)+12Ti14+4(Ti88+C27+C26+1)

Central globe	=	128	Anu
Ring	=	168	„
4 arms	=	352	„
8 funnels	=	216	„
Total	=	864	Anu

Number weight $\frac{864}{18} = 48.00$

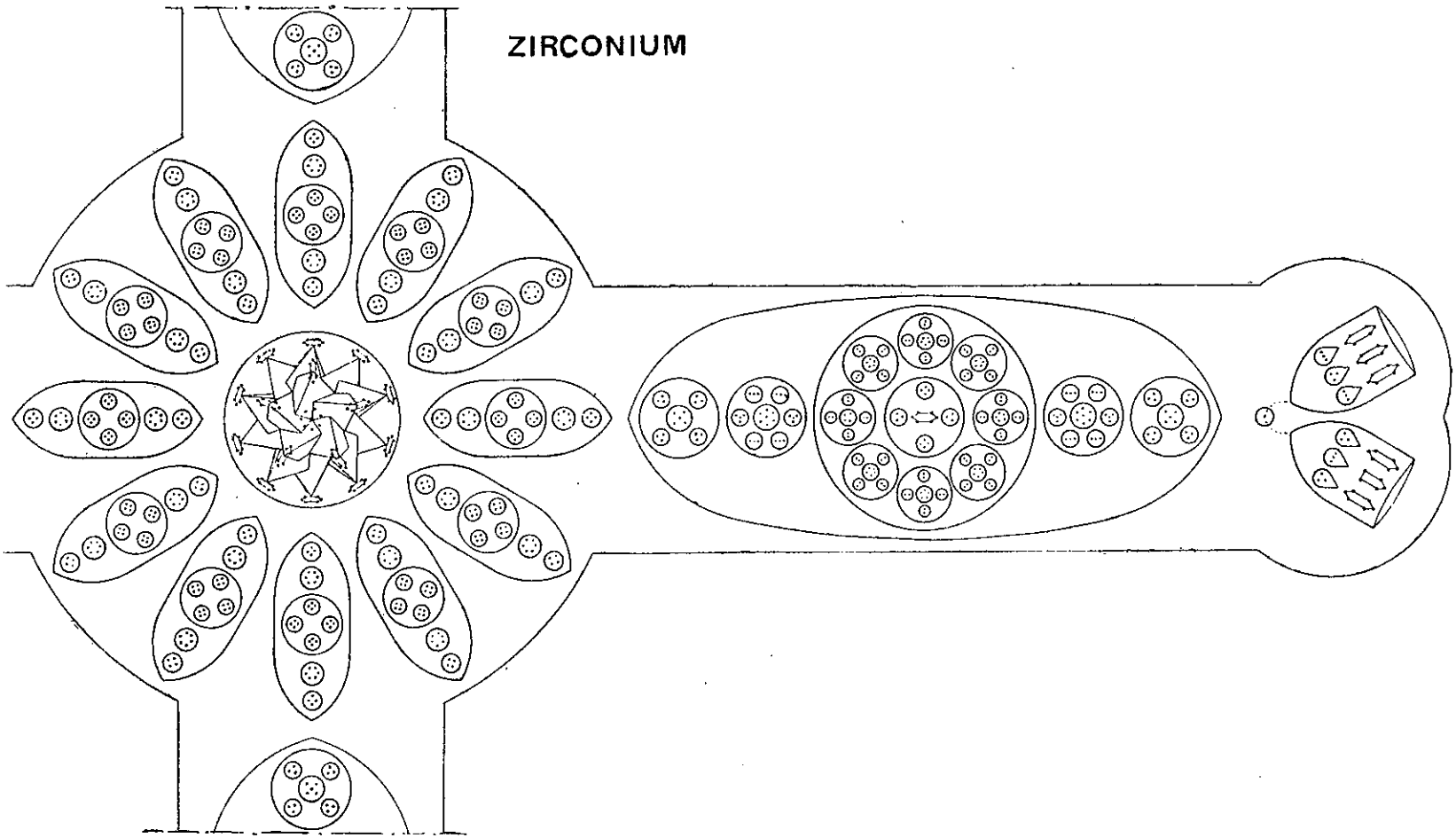


FIG. 120. ZIRCONIUM

ATOMIC NO. 40.

ZIRCONIUM

Zirconium has a similar design to Titanium, the Carbon atom being similarly distributed and the central body identical in pattern. Fig. 120.

Central globe. The central globe resembles that of Titanium, being Ne120+8, but the 12 ovoids in the ring are more elaborate, each containing 36 Anu instead of 14.

Funnels. The ovoid in the arm of Zirconium shows no less than thirteen secondary globes, four of which make Ti88. These in turn contain altogether 69 smaller spheres. So we have 212 Anu in each arm, Zr212. A whole Carbon atom is distributed over the ends of the four arms, as in Titanium.

In this way the clever builders have piled up in Zirconium no less than 1,624 Anu.

Zirconium = (Ne120+8)+12Zr36+4(Zr212+C27+C26+1)

Central globe	=	128	Anu
Ring	=	432	,,
4 arms of 212 Anu	=	848	,,
8 funnels	=	216	,,
Total	=	1624	Anu

Number weight $\frac{1624}{18}$ = 90.22