

NOTES AND REPORTS OF CERTAIN OF THE INVESTIGATIONS

THE purpose of publishing these extracts is to show the technique and conditions under which the work was done. The reader should study these side by side with the diagrams given earlier. In order to facilitate this the extracts are arranged in the order in which the subjects and diagrams appear in the book and page references given. The objective nature of Mr. Leadbeater's clairvoyance appears very evident.

The observations were made by Mr. C. W. Leadbeater and the questioner was Mr. C. Jinarajadasa. All were made between 1922 and 1933 and took place in Australia or at Adyar, Madras. Miss K. V. Maddox was the stenographer in Australia.

Heavy Hydrogen—Deuterium, p. 41

The following observation of the electrolysis of water was performed at Adyar. Vessels containing distilled and tap water were used and two copper terminals attached to the house mains were placed in the water. The current was D. C. At 2-30 p.m. Mr. Leadbeater sat by a window with the two receptacles before him.

(The current is turned on.)

- C. J. Is this Hydrogen coming off here ?
- C. W. L. It is happening very slowly.
- C. J. The main thing is, is this the ordinary Hydrogen or a double variety ?
- C. W. L. I do not see anything different yet. Wait a minute. Wouldn't you do it more quickly if you gave it something to combine with, if you put in old rusty nails ? (There were no nails, so a rusty key was put in.)
- C. J. Here is distilled water. There is something coming. I can see the gas coming quickly.
- C. W. L. This probably is not particularly pure, you know.
- C. J. Plenty of Hydrogen coming out there.
- C. W. L. And it is supposed that one in a thousand will be double Hydrogen ?
- C. J. Double the weight, but what is its construction nobody knows.
- C. W. L. Well, wait a bit. We'll see. It does not form bubbles as quickly as the other did.
- C. J. This is ordinary water ; it has more dirt in it, and so more Hydrogen is released. Still all the same Hydrogens ?
- C. W. L. I have not seen anything yet that I can differentiate.
- C. J. Shall I slow it down ?
- C. W. L. No. If we have to wait for one in a thousand, we'll probably have to wait some little time. (After half a minute :) Are they supposed permanently to keep this double form ? Because there is one thing there—you know the shape of the thing ? Now sometimes two come out crossed, like crossing each other.
- C. J. Two what ?
- C. W. L. Hydrogens. They lie across one another like that (illustrates by making a cross with his fingers). They may separate again. It is only a temporary alliance I think. Ordinary Hydrogen when you have him is unmixed.
- C. J. Does he go like this ? (drawing two circles crossing).
- C. W. L. He is ovoid. In some cases there is another ovoid lying across him. You might say he had married, but I am afraid divorces are possible in that union.

- C. J. Well, will you investigate if both Hydrogens are alike. We found in Hydrogen two triangles. Is it that of these two Hydrogens one is a more positive variety?
- C. W. L. There are the two kinds that meet in that queer way.
- C. J. They do not hold?
- C. W. L. They do not necessarily hold, but I presume they might do so. They can apparently enter into that temporary alliance and then fall away again; but some of them do not.
- C. J. When they enter into alliance, do the separate sphere walls coalesce?
- C. W. L. No. They lie across one another. (Makes a drawing.) The Hydrogen is generally eggshaped, but there may come another fellow who for the time seems to be like that. (Draws). Yes, they coalesce, but they do not go into one circle like that.
- C. J. I see.
- C. W. L. You have raised only about three of these. How are they coming on now?
- C. J. Here I may get it out of distilled water. Do more come out of the dirty water than out of the distilled?
- C. W. L. Only three (double Hydrogen) altogether so far. Now I am waiting for another.
- C. J. Do you think it is generated by the electric current? Not a natural thing?
- C. W. L. The electric current breaks up the water.
- C. J. It may be an artificial product caused by the current.
- C. W. L. We would have to take averages, wouldn't we? That is very dirty water. Is it coming more quickly?
- C. J. Yes, much more quickly.
- C. W. L. Yes, now there is another twisted fellow, crossed. Is there any smell?
- C. J. Well, Hydrogen has not much smell anyway. Can you see any more in the stream coming out from the point?
- C. W. L. It is all rather a phenomenon, as far as I can see.
- C. J. And then?
- C. W. L. There is one fellow holding together with another that has gone up to the ceiling.

- C. J. Distilled water now.
- C. W. L. Not so rapid. Strange they should cross one another in that queer way. In the three or four we have seen, there are the two different kinds of hydrogen of course. That seems a fortuitous cross; but it must be something more than that, because there are always two different kinds.

Observation at a distance, Masurium, p. 53

Mr. Leadbeater soon found that it was not necessary for him to have an element before him for investigation, provided he knew where that element was to be located. Thus, for instance, in connection with the investigations at Adyar in 1933, one element hunted for was Masurium. It seemed likely that this new element might be found among Rubidium salts, but I had no Rubidium salts, and at the moment of investigation I could not procure any in Madras. It was therefore necessary to look for it elsewhere. I had with me several chemicals procured from Hilger and Co. Their address was on the samples, in Rochester Place, Camden Road, London. Mr. Leadbeater could find this street easily, and from Adyar he located the laboratory of Hilger and Co. He then saw where all the chemicals were stored in bottles on shelves. The next thing was to find out where were the bottles containing Rubidium salts, and for this he had to tap the mind of one of the assistants who was working among the bottles; he then located the salts, but Masurium was not among them. He promised to take up the investigation at night during sleep. Meanwhile I found that Masurium was discovered in certain oxides. These oxides were among the rare earths that I had procured from Hilger and Co.

Another instance of the way that an examination could be carried on at a distance was in the case of the Radium emanations. We had not Radium at Adyar but some was kept at the Madras Hospital. I went to the hospital and saw where the needles of Radium were kept in a lead cabinet. When I got back the picture in my mind of the room and the cabinet was sufficient and he then watched the Radium emanations.

Isotopes

One noteworthy fact recorded in these investigations was the existence of isotopes. It was in 1913 that isotopes were discovered by chemists. But already, in 1907, isotopes were recorded, and diagrams given, of the isotopes of the inert gases, Neon, Argon, Xenon and Krypton. One was noted of Platinum and another in 1909 of Mercury.

Isotopes were not specially sought for by the clairvoyant investigators but some were found and catalogued though no special names were given to them except to use the term "meta" before the name of an element or to speak of a Platinum B or Mercury B.

In April 1908 Mr. Leadbeater wrote to Dr. Besant, "It is quite possible that Radium being a heavy element there may be two or three forms of it differing only by a few Anu in each spike or funnel." He also sensed the possibility, which has now become an accepted fact, that the speed of a particle can change its mass. For in the same letter he writes "As to the matter of atomic weight, it occurs to me that that may not always depend entirely on the number of Anu. May it not conceivably be affected by their arrangement and the direction and rapidity of their motion"?

Search for an Isotope of Chlorine, p. 66

- C. W. L. Can we get hold of Chlorine? I have some impression that there is a male Chlorine and a female Chlorine. This is how he looks then. Has Chlorine 12 funnels at the top and 12 at the bottom?
- C. J. You would expect the atoms to be of the same weight.
- C. W. L. I do not know why they need to be the same weight. We do not know which of these things are on the whole positive and negative. Negative I suppose on the whole?
- C. J. Roughly speaking all Chlorine is.
- C. W. L. It is a dumb-bell thing with a little funnel running up here. A queer greenish looking thing. His funnels are exactly the same as ours and both his globes. This is the same as ours. I

will let him go and we must catch some more.

That is the same as ours. Here is one which looks a little more dropsical. He is a good deal fatter in the middle. His funnels are more stumpy. Look here, this is different. You have got this drawn as a cone, but really it comes down more like that and bends in more sharply. The thing is not an absolute straight cone, not quite so big a difference as that. It is according to what it allows for. Now the point of this fellow is—now just wait one moment. It is here; In the ordinary variety there are two two's, one above the other. In the Isotope the upper two becomes a three.

- C. J. That gives one extra Anu in each funnel, 24 extra Anu in all.
- C. W. L. And now wait a minute, you said he was fatter in the middle. Now, wait a minute, he is a little elusive. I have not got him quite in focus yet.
- C. J. I should think the central bar was the same.
- C. W. L. No, it is fatter, and I am trying to see at the moment why it careers about bewilderingly. I don't quite get it. Can you change one of these things into another.
- C. J. They say they are the same in weight. Let us try these globes at the top. Normally the globe contains four Anu in the centre and six Anu round him.
- C. W. L. No, you are looking at it edge wise. I am turning him round flat to you. Now the central part looks like a hexagon. If you turn him round, don't you see that there are really six Anu arranged not in a hexagon. I can't get him right.
- C. J. Six points of an octahedron?
- C. W. L. That is it. You are right. There are four of them on one plane and when you look at it edgewise you see only three. There are six Anu in the middle of this creature, in the middle of each globe instead of four. Yes, that is it. There are six in the middle of each of those and that somehow makes a fatter

cigar. I don't see that the cigar is different, but the cigar is thicker and that is because of the action of the two globes. It shortens him in proportion to his length. Let this fellow go and let us get another.

C. W. L. We have got six Anu instead of four in each globe. That makes 28 extra. That is all I can raise. Let us catch another. We had better catch about forty. Look for another fat one. They are coming floating up from the sea. The thinner things are what we dealt with before. I get only a few of those. That thing is not pure in some way. Its numbers are the same, but it has that curious effect. It has been acted upon by something, and it has not sharpened it off. We can clean one of those things. I can take him and shake him free on the physical plane. You would call it green scum. You can blow it off; wash it away, and then it appears to be an ordinary globe. It has the effect of that, but what that was I don't know. But it does not alter the thing fundamentally. He has been in some condition or some combination and has only just escaped from it and he has not shaken it off. Only a very few. Let us get another fat one. Here is a fine pot-bellied creature like a mandarin. He is rather sluggish. His funnels are of the larger kind. The triangle is askew. It is a triangle in three dimensions. There are only those three and they are arranged at the corners of some. The three is all right and his globes are of the six variety. Right at the centre of the bar there is a fellow five; the reason why he is there is because the six of the globe is especially attached and they try to get together and they crush the bar.

C. J. Do you see if there is any pull between the five of the centre bar and the top and bottom.

C. W. L. It is always to the centre and the bar with the end globes are attached. That is the thing that holds them spinning. The six either pulls more strongly or

offers more to pull. It is the same number, but it is drawn. I believe you are right there because that would account for the fattening of the bar that he is a more stumpy bar.

C. J. How are the six arranged, because we have not got them in the others?

C. W. L. Yes the corners of an octahedron.

C. J. Those are the outer six?

C. W. L. But the inner six also.

C. W. L. The inner six is a sphere by itself. The whole thing is not flat like this, it is an octahedron set askew to the other. It is like so many guns arranged not to interfere with one another's fire.

C. J. That is Chlorine. We have found two varieties.

We might just as well have hit on one of those fat ones first. There is a good deal of chance about this business.

C. J. Do you think he would get into salt?

C. W. L. You can try. Think of the holy water. Now hold steady because I am going to fetch it. I am getting mainly out of that particular salt the 35 varieties. He is not 35; he is 35.5.

C. J. When you did the original investigations we got them out of mineral water bottles.

C. W. L. I think the salt we used this morning seems to be mainly of the 35 variety. Sea salt does not appear to be this; it has traces of all sorts of other things. That is refined salt.

We will go to mother ocean. The sea is rather mildly salt. Here is a molecule, no, he is the 35 variety.

Yes, we can find your 37 in the salt from the sea, at least I have found one, let us hunt further. It means bringing one down from the etheric to the physical.

Yes, there are both kinds anyway.

I think there are some, but I think there are very few. I did find some but only comparatively few. There are some of the fatter kind also.

C. J. Is he Chlorine B?

C. W. L. Can these things be changed one from the other at all? They are two different

weights. They behave just the same chemically. Perhaps they were originally all alike.

I can imagine any number of transitional conditions, but they would die out. They would not be permanent, there would be some left.

Artificial and Natural Erbium, p. 70. Help from Nature Spirits

Mr. Leadbeater could investigate at any time, provided his brain was not tired. Several of the investigations in 1933 took place in the evening while he was lying on a sofa and a masseur was working on his legs and feet. One particular evening while the old masseur was pounding him, we were trying to locate Erbium. Erbium is of the same family as Samarium and Iodine which had already been described. C. W. L. thought he would make an experiment as we had no Erbium at the moment. He put together the parts that appeared in the central rod of Samarium, this time three of them instead of two, to see if they would cohere. They would not; but when the connecting rod of Silver, of 19 Anu, was placed in the middle of the three, there was not only perfect cohesion but also a very great vitality. Then the funnels of Samarium were stuck on; everything held. This seemed to show that the experiment was a success and that what was put together was really an atom of Erbium.

But obviously this was not enough, and so the search continued. What was to be done next? We knew that Iodine exists in the sea. Immediately it occurred to him to look into the sea for Erbium. He got into touch with a sea nature spirit, a Triton, who, he knew, lived in the sea near Adyar beach. He asked the Triton if he knew anything of the kind in the sea, and showed him the alchemically constructed Erbium. The creature answered, "Yes, we will bring it," and quickly brought a handful of natural Erbium. The atoms of Erbium which the Triton brought were like spiculae, or a handful of tiny pencils held in the hand.

Another case when nature spirits were used by Mr. Leadbeater was when he investigated Polonium in August 1933. Polonium exists in pitchblende and pitchblende is found in some mines in Ceylon,

in the district of Sabaragamuwa. Mr. Leadbeater had been in that district in the early years of his work in Ceylon; so that night, while asleep, he went to Ceylon and located the mines. He arranged for some nature spirits to act as scouts and look for the element. This was a kind of game for the creatures. At last they found three Polonium atoms.

An Artificial Element created from Gold and Sulphur, p. 72

Mr. Jinarajadasa once took, as a tonic, a particular preparation made according to the Ayurvedic or Indian system of medicine, a compound of Gold and Sulphur. After the many processes of fractionation according to the Ayurvedic compounding, the Gold ceases to be colloidal and exists in some other form. When this compound entered the body, the life forces in the body were discovered to have made a new combination. The funnels in Gold had disappeared, leaving only the central "solar system" made from Occultum. The funnels of Sulphur had been separated, and two funnels floated above the top of the system and two funnels at its base. This was a new artificial element, which circulated in the blood stream. No investigation was made as to what happened afterwards to the artificial combination.

Ozone, p. 96

- C. J. Now, what about Ozone?
Are there two types, one male and a half, and one female and a half?
- C. W. L. We must try to look at the production of Ozone and try to make three Oxygen into two Ozone.
- C. J. Or pick up one and describe him.
- C. W. L. What we want to know is how he is produced.
- C. J. No, what we want to know is, are there two kinds?
- C. W. L. It looks as though there must be. Are the atomic weights of the Oxygen snakes the same?
- C. J. Yes, we have taken them to be so.
- C. W. L. I think we may take it that there are two kinds of Ozone. Yes, but what

- I do not understand is that one kind appears to be lighter than the other. It cannot be that it is lighter, but there must be some repulsion.
- C. J. Otherwise they look the same, I suppose.
- C. W. L. You have them arranged in a triangular way. You see that these two cross one another like that. They come nearer together and the other takes up its place so that the three are equidistant.
- C. J. I suppose that the first two are inter-twined.
- C. W. L. Yes, but you know how they are inter-twined. One goes round this way to your right. The other goes that way, do you see, and here is another which goes the same way, but half way between the two. But they all come together at the same nodes, they all come together there. Your original two cross one another at a point and this is the same.
- C. J. That is important.
- C. W. L. But what is odd is that each unit which has two positives and one negative, two males and one female, these promptly rise as though they were lighter. But they are not lighter because the number of Anu must be the same.
- C. J. Here is the scheme.
- C. W. L. Yes, there ought to be three equidistant as you look at them. That is the impression which it gives me, but remember that exists in many dimensions. What I want to know is whether what you call Ozone down here on this level is one male and two female. There is also other Ozone which is one female and two male, but that goes to higher levels. I mean that physically it ascends.
- C. J. Is the upper region of the atmosphere made of that?
- C. W. L. It does not become lighter than Hydrogen, but it ascends. It does not go very high. I am going to try the Blue Mountains. Have they never discovered Ozone at higher levels?
- C. J. I do not know. I do not see why not.
- C. W. L. Is this Ozone supposed to be permanent?
- C. J. I should not gather so.
- C. W. L. It seems to me that it has a tendency to revert.
- C. J. The main thing I gather is that it is unnatural to hold these extra male and female Oxygens together.
- C. W. L. Yes, but I do not yet see why the masculine Ozone ascends, because the number of Anu is the same. It is probably a question of polarity.

*The five interlaced tetrahedrons, Ne 120, p. 29
and p. 250*

From the days of the Pythagorean School, certain relations among the Platonic solids have been known. Thus the primary solid is a tetrahedron composed of four triangles, with one as the base, making a three-sided pyramid. When two of these tetrahedrons interlace symmetrically, two more Platonic solids can be constructed. First by joining the eight points of the two tetrahedrons we have the cube, then by joining the intersecting points of the two tetrahedrons we have the points for the octahedron. As already mentioned, the dodecahedron and the icosahedron can be derived from five intersecting tetrahedrons. This complicated figure is that which we identify as Ne 120, and it was known to the investigators when they were doing their work in 1907. A striking fact to be noted is that there are two forms of this group of five interlaced tetrahedrons; dextro and laevo, one turning to the right and the other to the left.

Sodium Hydroxide NaOH, p. 268

- C. W. L. Does this eat things, is it like an acid?
- C. J. Yes, it eats fats and such things; it is caustic and burns.
- C. W. L. Then I have to mix these two things together as it were?
- C. J. No, I had it as a solid, but now it has changed. It was in pure white bars. I must get some more.
- C. W. L. Was it sealed up in any way?
- C. J. Only with a cork.
- C. W. L. Moisture has got in, for there is a good deal of water here. It is not water, it is OH. It has acquired fresh Hydrogen. You do not suppose that it has resolved

- itself into its elements? I expect that I can do something. It has eaten away the whole cork. Ah, this must be the caustic at which I am looking by its intense activity.
- C. J. What is it like? I imagine that the Oxygen would not change.
- C. W. L. It has arranged itself differently. Wait till I get it clear. Sodium also is a thing which rather clings to its original shape. It does not very easily change.
- C. J. It did with Chlorine in common salt, NaCl.
- C. W. L. It was the Sodium there which broke up.
- C. J. Both of them.
- C. W. L. I wish I could draw; I have not the right curves. How does it curve? These are funnels whose ends come in much more than normally. They would be flat normally, but they are not now. There ought to be twelve of these we know.
- C. J. The Oxygen goes round the regular Oxygen curve.
- C. W. L. Yes, it is flattened down. The Oxygen is widened out and this goes into the centre instead of leaving it hollow. Here we have Hydrogen distributed rather oddly. You may say that that thing is floating there, but the thing is that each of these seems to belong to, to be connected with, four of those funnels. I do not know, but I think its real direction may be more to this central ball. Its lines of force are running among them like this.
- C. J. That is practically the same as in OH.
- C. W. L. Of course, but this is NaOH. How is this going to get clear when they break up? Do they break up easily?
- C. J. It combines.
- C. W. L. Yes, I see that it does that. In that of course there is no Oxygen. The difference is that the Oxygen winds round the Sodium, and instead of the bar being ovoid, it becomes cigar-shaped owing to the Oxygen around it.
- C. J. Has the Oxygen become fatter?
- C. W. L. Shorter and fatter. Fatter it must be, unless the particles are much further apart. This is about the curve. They do not come further than this proportion from the central thing. What is this anyhow? NaOH. It is not a pleasant thing.
- C. J. No, they use it for washing pots and pans and making soaps.
- C. W. L. It is unpleasant and feels as though it would burn one.
- C. J. Yes, of course it would, it is caustic.
- Hydrochloric Acid, HCl, p. 269*
- C. J. This is Hydrochloric Acid. Can you feel it is powerful?
- C. W. L. I feel power radiating from it.
- C. W. L. I have no Carbon in this, apparently only Hydrogen and Chlorine. I have a dumb-bell here.
- C. J. You have two half Hydrogens floating top and bottom or dancing round the middle bar?
- C. W. L. The curious thing is—of course it ought to be a gas because Hydrogen and Chlorine are both gases, but the Hydrogen appears to set up a tension underneath it. You see rather the two central globes of the ends of the dumb-bell.
- C. J. How does it set up a tension—as in Hydroxyl?
- C. W. L. In Hydroxyl it floats very loosely. In this case, it does not at all; somehow it is drawing up the central ball towards it. You are getting the thing in a tense condition like a string. If I take away the Hydrogen, the Chlorine jumps back into its ordinary form. In Hydroxyl it kept up its line down the centre of the Oxygen snake, but does not make any difference to the Oxygen snake. In this case it does make a difference to the Chlorine atom. It is like the centre of a sphere, the little globe with the funnels running up from it, the globes are drawn up and down and yet at the same time the whole dumb-bell is somehow compressed—now why? I suppose when the Hydrogen is separated in two triangles a tension is set up between the two. They are trying to get together

again. Now that compresses the central bar of the dumb-bell, but instead of pressing in the two flower centres, as it were, the two globes at the end of the bar and in the middle of the funnel, it draws them up towards it. How does that work? Why should it at the same time draw the balls towards it and compress the central ball of the dumb-bell? It looks like an exactly opposite action.

C. J. Evidently the two ends of the Chlorine dumb-bell must be of a differing electrical quality, so that when the positive half of Hydrogen goes to the top of the negative end they pull to each other naturally.

C. W. L. They pull each other, but then why do they exercise such an attraction? I am beginning to see—these two central globes, they also have a tension between them.

C. J. You know that they really belong to the central rod of five spheres.

C. W. L. They have an attraction to it and while they are pulled away by the Hydrogen they are yet trying to get back to one another.

The effect produced is as though those two central globes were connected by a bar and so when you pull them up they must remain the same distance apart, although they are pulled up beyond their funnels, and consequently the central thing has to be shortened. The effect is as though the funnels and the central bar were all round an axis that ran between these two and you pressed the funnels a little nearer to one another without interfering with the central globes.

C. J. Do the funnels droop down?

C. W. L. The funnels appear to remain just as they were, alternately pointing up and down, but they are nearer to one another and the central bar is shortened by this procedure.

That thing is like a spring coiled up. It wants to go back and there you may have an explanation of its power to eat into things, that it is in this condition

of tension, and probably as it eats into things the spring extends. That would account for its extraordinary power; at least it might. When you see two or three of these things together I never know which is the cause of the others or which is the effect of some other cause which I do not see.

Carbon Dioxide, CO₂, p. 271

C. J. Can you get hold of Carbon Dioxide and see how Oxygen behaves there?

Do the Carbon funnels get broken up?

C. W. L. Yes, but there is a centre piece of sorts in Carbon?

C. J. Only four loose Anu.

C. W. L. Is Oxygen ever broken up? I don't think we have ever met with it yet? Carbon ought to have eight funnels, ought it not?

C. J. Yes, it has eight funnels in pairs.

C. W. L. Yes, I can't get the hang of this quite. I don't seem to be able to get the Carbon right.

C. J. He is broken up, I suppose.

Does it put four funnels on top and four below like a dumb-bell?

C. W. L. No, he seems—I don't get it clear. You say I am not likely to see CO, what about CO₂?

C. J. CO₂ is the thing which makes Carbonates.

C. W. L. But is not seen alone?

C. J. I think not. It is perhaps.

C. W. L. No, I am at present acquiring a thing in which the two Oxygens stand side by side, and they seem to distribute the Carbon at each end of themselves.

C. J. Two funnels over each end?

C. W. L. Or are they balls now and not funnels? The thing rotates. What part of it then does the plant use?

C. J. Carbon, I should think.

C. W. L. I must try to follow him into that.

C. J. The plants take the Carbon and give out the Oxygen. They are useful because they release Oxygen.

C. W. L. Yes, it would be easy enough to take the Carbon away. I don't see exactly

- why the two Oxygen snakes remain together. Why they break away when you remove the Carbon funnels.
- C. J. Do they keep together?
- C. W. L. It must be the coherence of the Carbon in some way.
- C. J. What has happened to those four loose Anu at the grand centre?
- C. W. L. I must go through the reconstruction of the thing and see where they go. Possibly they are the link.
- C. J. I was going to suggest that they perhaps keep the two Oxygens in place.
- C. W. L. Yes, only the Carbon is no longer projecting all round as it did before but is gathered at the ends.
- C. J. At each end of these Oxygens? That means two funnels to each end. Two funnels at each end of each of the Oxygens.
Are they funnels and not spheres?
- C. W. L. They are truncated beasties; they are flattened, but not exactly spheres. More pear-shaped.
- C. J. And two side by side?
- C. W. L. Yes.
- C. J. Those two have not got their joining Anu there, but the joining Anu has gone to the centre, the bar of the "H"?
- C. W. L. Yes, but it is a different arrangement from those we have had before.
- C. J. How are those four Anu placed in the centre—flatwise?
- C. W. L. It is very difficult to get directions—they are whirling about and there is no top or bottom. You would have to represent them—no.
- C. J. Are they at the ends of a tetrahedron?
- C. W. L. No, I seem to have one in the middle and three arranged askew round it.
- C. J. They are all positives, those four?
- C. W. L. Yes. That is Carbon Dioxide. It is in a kind of shell spinning round vigorously.
- C. W. L. The Oxygen has broken up the Carbon thing badly.
- C. J. Rearranged it?
- C. W. L. It is very broken up. It sends two funnels to the bottom and two to the top. The whole thing is a kind of fire-work effect. It is less like a molecule than any of the others. All the others have had a certain regularity in form. It has one side up. It looks like an "H" from a certain point of view. All the other things have been capable of being turned about. As you turn him endwise, he is more like a line. This Carbon Dioxide must belong to a lower order of things. It is stable, is it not?
- C. J. Yes, I think so.
Now here is Carbon Dioxide, four Anu in the middle.
Now what I want to know is do the funnels stick out or are they side ways or revolving on a plane?
- C. W. L. I think sloping upwards; remember the whole of this thing revolves, the whole lot of it goes round like that. What is this Carbon Dioxide? Now let us see. First you want Carbon Dioxide. Now see here I will catch one. We are breathing them out ourselves all the time. I don't understand exactly how these things act. They rise very equally. Here is one anyhow. You see he has that double arrangement on each side of the centre.
- C. J. Four Anu in the middle.
- C. W. L. Yes, the Anu in the middle are like tiny points of light. The whole thing is swirling round. Up at the top there are two funnels. They seem to me to stand up like a creatures' ears and then they are twirling round all the time. They stick up looking to me like a pair of rabbits' ears, but the whole thing is spinning round.
- C. J. Get one of these CO₂ and remove one Oxygen and then see what happens to the other funnels.
- C. W. L. But, see here, you can't remove the funnels. The funnels stay behind. You can pull out the Oxygen, but the funnels stay behind and they go and join the rest of the outfit. They go and join the rest and the whole seems to me to break up. I can't hold it together. If I withdraw one Oxygen the other Oxygen slips away.

Wait a minute, perhaps I can hold it when I take one away. The whole tendency is for the whole thing to go off like an explosion. The Carbon funnels reunite themselves and the tendency is for the other Oxygen to fly off. Suppose I hold him and put him together with the Carbon. I think I can artificially make him into your Monoxide. But he is very volatile, not a secure creature; he does not very readily take up that combination.

Carbon Monoxide, p. 271

- C. W. L. You say I can get Carbon Monoxide. Where will I find him?
- C. J. I can't produce him, I am afraid. Monoxide is a rare thing unless you knock out one of those Oxygens and see what happens.
- C. W. L. The Carbon would go back more. You would then have the Carbon in two groups, top and bottom of the Oxygen. Yes, in that case with four funnels at each end.
- C. J. Yes, and then I have four Anu.
- C. W. L. They had four of those Anu together, because there is no other place for them. I do not know what else they would do. Can these lose Anu? It is rather a fresh order as far as arrangements go.
- C. J. How are the four funnels? Merely flat-wise with four of these loose Anu in the middle, making a centre?
- C. W. L. Yes, I was trying to see why they did not fit. It is an unsatisfactory looking thing. It is different from all of the rest.
- C. J. I want to know where these four Anu are.
- C. W. L. The four Anu appear to be balanced round the centre of the Oxygen.
- C. J. Down inside?
- C. W. L. No, outside and equidistant round it like a cross in the middle of the thing, outside but equidistant from the two ends. But this is a thing I have made myself and I am not prepared to say it would come out like that in nature. I have taken one; this thing is

all the time trying to escape apparently to get another Oxygen. My CO is an artificial beast entirely and may not represent the genuine thing. I have let him run his own way. That is the scheme of it. Can I make CO₂? I can't make the thing stick together. Is CO₂ a thing you can get by itself, because I can't make my fellows stick together. When I add this third one he simply won't add at first, but if I hold him steadily together a bit, then the four will more or less adjust themselves to go round between in the middle of three instead of two making three legs to a stool, in three parallel lines. The four Anu will go into the middle of that lot, but I cannot distribute the funnels at all. They stick where they are. I have got this Oxygen stuck on, and this Oxygen is free. It has nothing to balance it at either end. Secondly, it is all the time spinning the arrangement round, and if I take my will off it, it will not hold together.

Calcium Carbonate, CaCO₃, p. 274-6

- C. W. L. This is one of those CO₂ things. How is the Calcium distributed? Had we any drawing of that?
- C. J. Yes, we were looking at Sodium Carbonate, (p. 272). Here is an Oxygen and the Sodium went right through. And then here was a third Oxygen, which seemed to break up the Carbon.
- C. W. L. The two of these things each have one Sodium, and the third Oxygen got the Carbon funnels, but the four Anu of the Carbon centre became a grand centre in the middle round which these other things revolve.
- This is the same thing; but substitute Calcium for Sodium; you have only one Calcium and you have two Sodium.
- C. J. Calcium consists of four funnels and a grand centre.
- C. W. L. A much bigger centre. This is quite a different thing, a central globe of eighty Anu; this is a much bigger business.

- Can you double this and have two Calciums? I don't quite see how you could have two of Calcium. If so, the arrangement would have to differ. I can see the one, but I cannot quite see how you could have two.
- C. J. Then don't bother. There is no need, because Calcium has a particular valence.
- C. W. L. Yes, but your three Oxygens, one of your three Oxygens has Carbon just as it had before. But your two other Oxygen pillars divide the Calcium between them.
- C. J. Well, Calcium is composed of four funnels and how do they divide?
- C. W. L. I have four funnels, one at each end of the two pillars of Oxygen, but the thing in the centre is a queer complex looking beastie. Those four Anu revolve round their common centre.
- C. J. Which four? In Calcium?
- C. W. L. No, when we broke up something else.
- C. J. Yes, four Carbon Anu, the nucleus of the Carbon.
- C. W. L. But here I have the nucleus of the Carbon forming apparently satellites to the centre of the Calcium which is a much bigger globe.
- C. J. Is the central globe from Calcium?
- C. W. L. The central globe of Calcium takes the central position in this scheme and has apparently four Anu revolving round it like moons, like satellites. The Calcium centre globe does not break up. But because of this central thing it seems to me that there is a slight curvature of the Oxygen pillars. It looks to me the central thing is so big comparatively that the others seem to curve a little; it is very slight. It is spinning all the time, and the way the thing seems to me to show itself is in a certain waving of the two ends, instead of going round absolutely on its axis like that, it seems to me as though it were going a little like that at the two ends. All these things appear to either generate or to be accompanied by mild electrical discharges or phenomena, This thing is either generating electricity in its spinning or it is being spun by electricity.
- C. J. They postulate electrical phenomena; there is a sort of exchange of electrical qualities.
- C. W. L. I am not at all sure that electricity is not keeping the whole thing going. Either it is that or in its action it is generating electricity; which is likely, either, neither or both, I suppose you can't tell?
- C. J. I could not answer, but I could well imagine that wherever there is a combination you might have a new type of force, flowing from the superphysical.
- C. W. L. Because that would be the work of the Second Outpouring, the work of the Second Aspect of the Logos. The only thing is I wish I knew which is the cause and which is the effect. As far as I can see it is equally possible that electricity may be producing or driving these things. Producing the phenomena or that the phenomena may be producing the electricity, because though the things, the spinning posts of Oxygen and this little central ball, do not touch one another, remember their auras, so to speak, their fields of activity do, and that there is friction between all that. The friction may be producing the electricity or on the other hand the electricity may be causing the rotary motion. So far as I can see, you may have it either way. How am I to find out? Don't you think this is some higher grade or more primitive type of electricity with which we are dealing. This is another atomic thing, molecular electricity. Would not that be something finer, (if one can think of electricity being finer) than what is produced by machinery. Is electricity known to exist in different layers, I have not heard of it? You see the electricity with which we generally deal is emphatically physical electricity. But there is that which corresponds to it on the astral plane which we have always

- called astral electricity, but that may not be the right name for it.
- C. J. There must be on the astral plane the energy of the Third Logos, and electricity is one form of it on the physical.
- C. W. L. Yes, it is supposed to correspond to Fohat.
- C. J. It is the astral Fohat.
- C. W. L. This is not exactly that. I think I can get at that. The electricity which you produce by friction, the thing you produce that way has a connection through the lowest ether. It will attract purely physical objects, bits of paper, anything. Now, I think that we can manufacture and utilize a kind of electricity, if the name is applicable to it, it looks like it in every way. Yes, do you remember when she (Dr. Besant) breaks up the elements, she has four stages, corresponding to the four etheric levels. I am not quite sure, but I think that all the electricity that we normally use works on that fourth level. But that if you break up your chemical atoms, that is the chemical atoms of the thing, the electricity which is generated by them is on that next third level, and therefore I do not think it would be perceptible to your instruments down here. But if it were, you would consider it a very weak and infinitesimal charge down here, but it is not in the least infinitesimal on its own plane. It seems to produce or be produced by very rapid motions indeed. So it is a very strong thing on its own level, although it amounts to a very weak imperceptible trickle down here. Do they know anything about any finer kind of electricity?
- C. J. I have not heard of it.
- C. W. L. It is just possible that the usual kind, I take it as certain that it exists, is on the fourth ether and a different kind on the third ether. I take it as practically certain to be finer kinds on the second and the first. Would any of those produce a perceptible effect on the physical plane?
- C. J. The effects produced would be very slight.
- C. W. L. They would be enough to affect things in a vacuum tube.
- Sulphuric Acid H₂SO₄, p. 281*
- C. W. L. It is a tremendously powerful thing evidently. This is one of the things which eats other things away. How does it act? The Oxygen must get out and combine.
- C. J. Then the Oxygen is fairly free to go off?
- C. W. L. I am not quite sure about that. It is a different arrangement somehow. Let me look. Yes, this is odd. How do you make this thing anyhow? How do you imprison this Oxygen in this peculiar way?
- C. J. This is a tetrahedron evidently. The Hydrogen is evidently at the corners of the tetrahedron floating about.
- C. W. L. They have got that the wrong way round. They have got Sulphur in the middle. It does not seem to go that way. The four Oxygen lie flat and make a star in the middle radiating out from one another. We generally think of them as constantly upright. If you stand them upright you have a cross. Outside of each of those is the Sulphur funnel, but instead of having three slices in it, it seems to have nine. That is to say your three are broken up in each funnel. There is one funnel to each Oxygen. Here, let me draw the thing. The Oxygen is a snake, but the snake is in a kind of arrangement like that. The nine things are arranged in a circle round this point only they do not lie flat, but in a circle. Then over here floats half a Hydrogen. But the Oxygen is in the middle and here in the middle there is nothing visible, but the force wells up there.
- C. J. Is it a force which comes up from the underworld? It would be a negative

- force as there is no centre in the middle.
- C. W. L. There is no visible centre, but there is a very tremendous force.
- C. J. The whole thing is negative, the whole compound is acid.
- C. W. L. It does not act negatively. Its action is very vigorous.
- C. J. It is force, then, which is coming from the super-physical. We have called the force which comes from the super-physical down on to the physical the positive and the other the reverse, the negative.
- C. W. L. The whole thing seems to me a very powerful and active thing. I don't know how much is involved by the use of the term negative, but if you mean thereby a sort of passive thing lying there and doing nothing, I don't think it is. It is a very powerful thing, but nevertheless it may be negative from your point of view.
- C. J. What I mean is, that sort of formation would jump at a union with a positive thing. Does this?
- C. W. L. That is what I am going to see.
- C. J. The suggestion is that four Oxygens with the four funnels of Sulphur together make a negative group. That is why Hydrogen comes along and, being positive, combines and similarly Calcium will combine and Sodium. The attraction is between positive elements and this thing which is a negative form. I don't know whether it will work.
- C. W. L. This thing breaks up most other things. Of course it can do that by attraction as well as by repulsion. It does not follow that it breaks up by the force it throws out, it may do it by sucking in.
- Ferric Chloride, FeCl₃, p. 286*
- C. J. Here is Ferric Chloride, with Iron and three Chlorine atoms. I gather the Iron would remain just the same?
- C. W. L. It is a very queer thing with Iron, it is so spiky.
- C. J. I have never yet solved why 14 bars, because it seems such an odd thing. It looks, what shall one say, not proportioned.
- C. W. L. Iron does not seem to have any centre of its own. The fourteen pairs are not radiating from a centre. It is as though seven pencils had been put through.
- C. J. That is not the way we have got it. We had six balanced, and then one grand top and one grand bottom.
- C. W. L. You mean, one with six round it, and one at the top, but sufficiently opposite one another?
- C. J. They are not symmetrical.
- C. W. L. Not equidistant?
- C. J. No, because the top and bottom cannot be equidistant, because you cannot get fourteen equidistant in a sphere.
- C. W. L. There is another four just like this on the other side which does not show. I am getting the idea of that.
- C. J. Unfortunately we have three Chlorines to go into the thing which is a very heavy business.
- C. W. L. That will make a total of about nineteen hundred Anu. It is a little complicated, but I think we can sort it out. Only it will not go into the ordinary perspective. You see I have a mass of funnels here which radiate round my bars, only I can't exactly arrange them in relation to each other. I have an arrangement which I have not seen before. You see in the case of the dumb-bells in each of my Chlorines I have central forms for the flower at the end. You have six flowers. I have six centres of flowers. The funnels make the petals. The funnels are scattered off differently. I have got these six centres and I have also three bars, but they are shut in from themselves into something like eggs, as it were, rather than bars. I get a curious central grouping which appears to get inside the Iron—a grouping of a number of those spheres. The centres of the flowers appear to have got inside the Iron. But then outside apart from that here are

all these radiating funnels. It is as though the centre thing was separate, and these others were equidistant. They do not seem to have any connection with individual bars, but the bar business is spinning round on its own account in the middle, and the other funnels are radiating roughly about equidistant. The groups are not connected with the bars.

- C. J. How many groups are there ?
 C. W. L. Now wait a moment; they are not particularly grouped. They are about equidistant. They are sticking out, like an echinus, like spikes all round. The thing that bothers me is that though they appear to project, the distances between them are practically equal all round.

Phosphoric Acid, H₃PO₄, p. 294

- C. W. L. I will tell you what I get here, but I don't see why I get it. I don't understand why it is sometimes one and sometimes the other. I have two combinations which make H₃PO₄. From one point of view he looks like a cross; from another point of view he is radiating towards the centre of a tetrahedron. If I flatten him out so as to draw him he becomes a cross, but if I don't he is hopeless to draw, because some of the things are sticking from you, and some toward you. But it is as though from the centre they were pointing towards the sides of a tetrahedron. That is your O₄ which appears to be a body itself as it were.
- Now, in some cases that breaks up the Phosphorus and it would appear that in some cases it doesn't. I have an arrangement in which the six funnels of Phosphorus disappear and their twelve constituent cigars or whatever you call them, wine-cup arrangements, themselves corresponding to the ends of the four Oxygens. That is to say three to each, and then your Hydrogens float properly divided above those. But

I have another arrangement in which the Phosphorus does not break up like that but retains its six funnels and they point not to any particular Oxygen snake, but to the centre of the whole, and meantime, the Oxygen inside the group of four Oxygens are revolving much more rapidly than they are.

- C. J. The six funnels pointing practically like a cube ?

- C. W. L. The four all acting like a centre, all spinning round violently—the others moving but not spinning with them. In the other case the Oxygen had broken up the thing.

In one case as the Oxygen went round, the four little wine glasses went with it. But now the Oxygen is spinning very rapidly on itself and these other things moving more slowly, pointing to the centre of the Oxygen. The Oxygen set of four is revolving by itself in the middle. These others are pointing at the centre round which it is revolving, but not apparently attached to the Oxygen spinners.

You have got two Hydrogens in some cases, you know. In that second case when the Oxygen is spinning so much more rapidly, the Hydrogen is removed to another subplane, broken up further. Your threes are then broken up.

- C. J. Which threes ?
 C. W. L. Our Hydrogen splits into three triangles. But your triangles in that case break up so that you get each triangle made of three balls. Well, two of those balls float above each of the Phosphorus funnels, but that has taken it up another subplane of the physical.
- C. J. Two of them, what about the third ball ?
 C. W. L. That is planted over another ball, over an intermediate funnel, and there are six funnels in this scheme, and over each of those float two Hydrogens. It is all on another subplane, because the triangle which is on a subplane above has now been broken, so it has gone one stage further back. You have

two Hydrogen atoms here. That gives you four triangles, but instead of four triangles you have six groups of two.

Why should there be those two things which have the same constituents, but differently arranged chemically? Those things will analyze exactly the same practically, though of course they are different. Why different and what is the result of the difference, I don't know.

- C. J. You said there were six groups, taking Hydrogen at a higher stage.
- C. W. L. Look here, Hydrogen contains 18 Anu, and they are arranged, I think, in six groups of three. And two of these float over each funnel, only sometimes they are these two and sometimes one of those and one of these. But why? We can only note the facts and sort them out.

Ammonia, NH₃, p. 297

- C. J. I cannot image the Nitrogen ever being broken up.
- C. W. L. The three Hydrogens will float round him. The Nitrogen is a very inert beastie.
- C. J. How does the Nitrogen arrange itself?
- C. W. L. The Hydrogens distribute themselves quite evenly round. You can have three double triangles.
- C. J. It is quite easy, a three-decker affair.
- C. W. L. There is the egg and in the middle there would be the balloon. You would get three negatives. I am getting almost a dumb-bell effect, because here are three negatives on a plane circling round that, and three positives on a plane circling round this. They are on a plane. I put this at the end, but really those are going round this that way. Supposing this to be your egg, there is one lot going round here which are negatives and there are another lot going round here which are positives, outside this thing which is apparently unchanging except I see an unfamiliar layer inside the Nitrogen.

These things act from outside rather magnetically, affecting the movements inside the Nitrogen, directing them, getting them, as it were, out of place. The whole thing is rolling round. They have lengthened the balloon somewhat. If we could suppose that the three things circling round here have set up some sort of funnel or strain here and these others have set up a strain, then that thing between the two is somewhat lengthened, is drawn in some direction towards the strain.

- C. J. Look at these two things revolving. There is one revolving clock-wise and the other opposite-wise?
- C. W. L. I don't think they do. If they did, they would twist the Nitrogen atom and set up a strain in him?
Which is the negative half?
- C. J. Presumably that top fellow is the positive and the bottom is the negative.
- C. W. L. The Hydrogen on the whole is positive.
My impression is that these Anu arranged in a triangle are positive and the things arranged in a line are negative. Wherever there are two of them—there is a mistake there and I will show you the mistake in that drawing. I would have expected that there ought to be two lines in one. In one triangle, that is all right in one triangle, the things are all pointing to a centre. That is negative and that is positive.
- C. J. There are two negatives and one positive.
- C. W. L. Then you would say that the triangle arrangement does not matter. It is a question of whether the Anu are pointing inwards or outwards. Then the one that has two negatives is the negative triangle obviously.
- C. J. In this thing this lower triangle is the positive and the upper triangle is the negative
- C. W. L. Then it will be the positive which is directed towards the negative and the negative which is directed towards the positive.

Ammonium Hydroxide, NH₄OH, p. 298

- C. J. We have had one where there are three Hydrogens. This is NH₄ and an additional OH.
- C. W. L. Do you know why they put that OH separate?
- C. J. Because, through processes, you can remove it.
- C. W. L. That is that Hydroxyl stuck on again, so the only thing is that here are four Hydrogens instead of three. This is not very different. You seem to have a sort of cross.
- C. J. What of the Hydroxyl?
- C. W. L. No, I have not got the Hydroxyl at all yet. I am trying to sort out the other part. It seems to me that you get more of these things going round. Your Oxygen and your Nitrogen waltz round one another and the other fellows make rings round them. You have got your five Hydrogen all right. One of them seems to be occupied in the Oxygen and Hydrogen group I think. There are four in this dance apparently and when the thing holds together they dance round the two and if you pull that away they adhere to the Nitrogen and the other fellow is linked to the Oxygen. But even he would break up if you pulled them apart.
- First of all those three bodies come off with this. The three at the top and the three at the bottom, but they are very liable to break away altogether. When you pull him apart I rather think he returns to Oxygen and Hydrogen and Nitrogen.
- C. J. Those other two things which go round are in two circles. Are there four negatives on top? If you look at one of the Hydrogens you will find three balls in a straight line.
- C. W. L. Yes, that is all right. You mean the straight line keeping to one end of it and the triangles to the other? Now we have four triangles.
- C. J. Are all of them negative?
- C. W. L. I don't think they are. I think there are three negatives and one positive. I think I can shift them about. I can change them round and it does not appear to make any particular difference. I can take out that positive and change him for a negative and the thing spins just about the same, except that it does not get that wave round the surface. Does that matter?
- C. J. No, but if you look at this thing where there are three there in the top three they are all negative. I took for granted they were. How are they distributed in the rings?
- C. W. L. There are three above one another, one being two straight lines of three. The top one being two straight lines of three.
- C. J. Two triangles of three?
- C. W. L. Yes, but sometimes they are triangles and sometimes they are straight lines. That is what you call negative and positive. There are two positive in one ring, and two negative in another, and a negative and a positive in the middle. But in this other scheme you have four of those bodies in each ring and only two rings. But as I found it that time, I had three straight lines and one triangle at one end of it and three triangles and one straight line at the other. But I changed the places forcibly so that I had four triangles at one end and four triangles at the end. It does not make any difference except in the interior. The thing follows round, the rotation. We will call them positive and negative. The triangle as he goes round affects the surface of the thing round which he is rotating, and makes a tide in it. The straight line does not, so you have tides running round the surface of your Nitrogen. You have a tide following him round as the thing revolves and if you don't get that tide, then because of that he swells a little more at one end. Does that make any difference? I don't myself see that it makes any difference.

but there is that fact, if that is of any use. It might be worth while making a note that there is a kind of tide on the surface of the interior atom which is made by the attraction of that Hydrogen. The straight line does not make the attraction.

Urea (NH₂)₂CO, page 301

- C. J. This is a very interesting investigation. You have got Carbon Monoxide, that is this thing—the Oxygen and the four Anu circulating round the middle. Now also we have the Nitrogen balloon with two Hydrogens, NH₂.
- C. W. L. I don't remember NH₂.
- C. J. What is the general description of the figure of Urea?
- C. W. L. Well, Carbon and Oxygen in the centre, and these other things, the two Nitrogens each with a Hydrogen.
- C. J. On either side like supports?
- C. W. L. Yes, with the Hydrogen floating about them. The central thing can draw away the Hydrogen under certain conditions, I think.
- C. J. You remember in the Water molecule the way the Hydrogen is distributed. Is that the same distribution here or is it more like in Ammonia?
- C. W. L. We start with them attached to the Nitrogen in the regular way as in Ammonia. They always attach to Nitrogen—two rings, you can't reproduce that scientifically. If you throw your force into the Oxygen it will draw the force away from the Hydrogen and keep the Hydrogen floating over its ends above the Carbon. You run the risk of losing your Nitrogen. Would anything corresponding to that be the difference between the two kinds, artificial and natural Urea, at which you are aiming? Is that which they make chemically as stable as this produced naturally?
- C. J. Yes, I think so. It is the same thing as far as they know. In any living thing or a thing taken from living tissue I

think there would be that difference, that the factor of life would come in, and would draw the Hydrogen more to the Oxygen.

- C. W. L. If that life, whatever life is, vivified the Oxygen, won't you have, in anything taken from living tissue, that factor of intensification by the vitality globules?

Nitric Acid, HNO₃, p. 302

- C. W. L. There is only one Hydrogen here. We had this before.
- C. J. No, it was Hydrochloric Acid.
- C. W. L. But there is no Chlorine in this.
- C. J. NO₂ ought to be a group by itself.
- C. W. L. This appears to be a liquid.
- C. J. Yes, but it is only held in water.
- C. W. L. If that is the case, then this is likely to explode.
- C. J. No, it is diluted.
- C. W. L. There is Hydrogen in that.
- C. J. Yes, Nitric Acid is HNO₃.
- C. W. L. It is the Nitrogen which seems to suffer and not the Oxygen particularly. There are three Oxygens. They seem to be very little affected, but the Nitrogen practically disappears.
- C. J. How are the three Oxygens arranged? In the form of a triangle?
- C. W. L. They stand round the remains of the Nitrogen, but the Nitrogen is broken up rather badly. These balloon arrangements we have destroyed practically. It is a little difficult to follow the condition of it. How are we to arrive at it? See here (diagram). I cannot make it quite clear; it is so askew. The spirals are the Oxygens; they stand around it. But there are four more things which stand round it as sentinels, and they have no particular connection with anything else. It is a regular maze; that is why I have marked the Hydrogen plus and minus.
- C. J. That is quite clear now.

Sodium Nitrate, NaNO₃, p. 304

- C. J. The NO₂ will be the same as in Nitric Acid. The Sodium is broken up hopelessly.

- C. W. L. Yes, but there is much more.
- C. J. Yes, because we have a larger number of funnels.
- C. W. L. It has the same middle.
- C. J. Do not bother about the centre; make it the same.
- C. W. L. I am not sure that it is the same. You mean of course the balloon.
- C. J. Yes, the balloon is the same and the three Oxygens are the same.
- C. W. L. Yes but the rest is different.
- C. J. Well, do the rest of it. The funnels go half way into these balls, I think.
- C. W. L. I do not think they do quite. Let us see how it worked when we were doing salt.
- C. J. Here it is. It went into groups of two.
- C. W. L. All the funnels broke up. The shape disappeared entirely. The Sodium went by twos. They became twelve groups of two funnels, They are here arranged differently.
- C. J. You have two balls?
- C. W. L. I have a brush; I have three balls.
- C. J. Yes, but you have a central brush.
- C. W. L. I see what you mean; he is a little larger than the others, but very little, and the funnels are arranged like the rows of a brush instead of being in a group as they were before. They are coming down between the Oxygens.
- C. J. Do they come down in three decks?
- C. W. L. I have eight in a line coming out from the centre. The funnels are coming out from the centre, sticking out. There are eight of them coming out here and there and there. They all go to the centre.
- C. J. Now two of these balls are composed of ten Anu, and some are larger.
- C. W. L. Yes, and they are running loose in space inside where the funnels start.
- C. J. They are on two planes, I suppose? Is there any connection?
- C. W. L. Yes, but I do not know how to draw it. We had better make it like this. In addition to NO_3 you get an ovoid which is your Na_4 , and of the other two you get one going round there and one here, but they are going round and do not intermingle. Going round the middle is the ovoid thing with an orbit of its own. The point is that these brushes stick out, four on each side belonging to that set, and four belonging to that one, like this. There is more of a space here, do you see?
- C. J. But are all the revolutions in one direction?
- C. W. L. Yes, they should go all in one direction. I do not think that the motions are retrograde. Originally there were twelve at each end; now the twelve belonging to this fellow make the twelve belonging to the other, four of them between the Oxygens, four there, and four there, do you see? Four from this and four from that make the eight running like the rows of a brush. As you see they are like this. Four and an Oxygen and then another four. They seem to be fairly in the same plane. They may vary a little. Then there is the Oxygen between each of them, and this thing is sailing in the middle inside. I think I understand it now.
- Potassium Nitrate, KNO_3 , p. 306*
- C. J. Now look. The difference is that here is Potassium. NO_3 as a group stands together. And here we have Potassium as well as Nitrogen. In Potassium we get two of these centres.
- C. W. L. We get nine spikes of sixty-three Anu, and a central group of one hundred and thirty-four Anu, $\text{N}_{110} + 4\text{Li}_6$. The Nitrogen balloon in Potassium is unbroken.
- C. J. Yes.
- C. W. L. But what bursts him up? I suppose the Oxygen. Oxygen seems to upset everything else in nature, it is so active. It is rather curious. I see a vast number of little things, but the difficulty is to know where they come from.
- C. J. They must come from the Potassium.
- C. W. L. We must separate it and put it together again. If you could put a tetrahedron

over the head of that thing it would represent the way that they are arranged. But the first difficulty is that the two tetrahedrons are not arranged one on top of the other. They lie between each other like that. They do not point towards one another. They are a little askew, so that they would come in between each other. That is how they stand there, around the central oval. I do not know how you would represent it. It is this business of perspective which makes it so difficult. My specks come in between these, and yet they are not symmetrical. I cannot make them symmetrical.

C. J. These points, remember, are the points of a cube, for two tetrahedrons interlaced make a cube.

C. W. L. Yes, I see that. But they do not fit like that. They must fit in this way. What comes off them first, when you break these up? The Sodium? This is Sodium. I have the wrong thing. Here is Potassium. You see, it is very oddly arranged. The best way I can do it is this. Yes, the whole thing does not seem to be duplicated, but this piece is.

C. J. How duplicated?

C. W. L. I mean that I have two of these things revolving round a common centre, but I do not seem to get this double.

C. J. No, because that belongs to something quite different, something which we have not in Potassium. In Potassium you have only this.

C. W. L. Well then, I have that. I have two of those going round a common centre. Well, these others are Hydrogen. But these other things stand still (there are seven of them, seven N9). It seems to remain as it was, except that there are two specks between the Oxygen, and instead of being as they were before, coming from one common centre, they are one above the other.

C. J. Are they three-deckers? There are three Oxygens.

C. W. L. Yes, they point like that. (Diagram) You have three bars. One points straight

out, one up, and the other down, while the two centres rotate round each other. You get this set arranged round those two in the centre. They are not exactly even. These two are on their own account. They are not equidistant; they are nearer to these. Then you have the four sentinels, and the three Oxygen snakes. In between come those spikes apparently unchanged.

C. J. But here are another six Spikes.

C. W. L. But are not these they?

C. J. No.

C. W. L. I take it that these are they.

C. J. Here is something else which takes the place of the Hydrogen.

C. W. L. I want the perspective of the spikes. Now I shall draw the things which take the place of the Hydrogen. These are part of the Potassium.

Potassium Cyanide, KCN, p. 310

C. J. Here are Potassium, Carbon and Nitrogen together. Potassium has nine spikes, but with a central body. They are like three incompatibles.

C. W. L. Yes, the spikes are a bit awkward.

C. J. We have not had Nitrogen and Carbon before in any combination. We have had plenty of Oxygen-Carbon and Oxygen-Nitrogen.

C. W. L. But this Potassium apparently has the Nitrogen balloon as its centre so that we shall have two of those things.

C. J. We have six funnels and nine cigars.

C. W. L. Yes, but then besides that there is the odd Nitrogen.

All those would surely come in the grand centre. This is in many ways very complicated. These bar ends don't seem to fit in with the things outside.

C. J. In the Potassium Nitrate we had three Oxygens as three posts and the three Potassium bars radiated out and the Nitrogen was in the centre.

C. W. L. But there is a Nitrogen centre to Potassium anyhow.

- C. J. Yes, those two were together, side by side.
- C. W. L. Only the Potassium centre is more than the Nitrogen balloon.
- C. J. Oh yes, more than that.
- C. W. L. There are six other things buzzing around it.
The Potassium in this when you separate it has not only a Nitrogen balloon, but also six other things standing round the Nitrogen balloon. I have got Potassium, nine spikes of 63 Anu.
I can get the Potassium pure, that will make it easier in a way. KCN. That is Nitrogen you have there. There seem to be too many of these things. Wait a bit, I am beginning to see a little. It is a shapeless clumsy kind of thing. It looks as though they did not combine properly, rather as though they mixed the—what was that other we had, Potassium Nitrate.
- C. J. The other was Potassium Nitrate.
- C. W. L. But how did the Oxygens combine—with the Potassium?
- C. J. No, they were outside the centre.
- C. W. L. How did the Nitrogen combine with the Potassium?
- C. J. Those six dance round the balloon.
- C. W. L. But then there are two balloons. This thing seems all askew. I can't get him right. Aren't the two balloons side by side, with the six groups from Potassium dancing round them?
There are more things that I can't locate exactly.
- C. J. There are seven threes, seven little sixes in twos.
- C. W. L. You are thinking of the other things which made part of the Nitrogen beside the balloon.
- C. J. There are seven threes.
- C. W. L. These four stand as sentinels outside. Outside the whole thing?
- C. J. Yes, outside the grand thing; they stood as kind of sentinels.
- C. W. L. But beside those seven I have got another lot of six little blobs.
- C. J. Those are those blobs; there is the balloon of Potassium.
- C. W. L. These things, you mean. You see this business in the middle is a regular complication.
I have too many of these central pieces and I do not know where they belong at the moment. I am trying to sort a bit. This is the most bewildering thing I have come to yet. I thought it was loosely compacted.
- C. J. I suppose these loose Carbon Anu are doing something by themselves.
- C. W. L. They are part of this general mass. I am trying to sort out the thing. I have got too much material I think. It is all moving about; wait a bit, let us try to steady it. I see, yes. Oh, bother, there is no definite relationship between them. They all go round anyhow, and I can't discover yet which is the definite centre.
- C. J. Nitrogen is a very dead sort of thing which hardly combines. It does, but very feebly.
- C. W. L. It combines to the extent apparently of breaking up. Let us see, there is that lot. I have two steady there curling round. There are ten in that lot. It is so horribly complicated.
- C. J. I suppose the balloon remains the same.
- C. W. L. Yes, I don't think the balloon is upset, but besides the two balloons—I see where I get those fellows from. Yes, I see there will be two lots of them, that makes the ten, then, I think. I suppose four like those and then these six little brutes here because they are small.
- C. J. They come into the middle then, do they?
- C. W. L. Those are the ten, I think. Now, wait a minute.
- C. J. Then there are seven.
- C. W. L. That pear-shaped thing, that has seven in it. I have got too many little apparently disconnected things.
- C. J. Can't we map them out? If you describe what there is, we will locate them.
- C. W. L. I can't see how that thing can ever arrange itself so as to be satisfactory. I have got my nine spikes and then I have Carbon funnels in among those

- nine spikes, but out of proportion to them, of course. I can't hold the thing so as to make a diagram at present. I have got four little spots.
- C. J. Those are the four Anu from the Carbons. Those are in the grand centre.
- C. W. L. I have these two balloons which go round them keeping opposite to one another. Then outside that I seem to get these ten creatures—ten balls of various sizes. They are not of the same size.
- C. J. There are six of three and four of 20's.
- C. W. L. Those are the things which are much larger than the others. Then there are seven of those fellows of nines. That is the lot out of the lower part. How am I to distinguish them. What a spiky-looking brute. I don't like this thing.
- C. J. It is a deadly poison.
- C. W. L. It is so oddly arranged, or rather it is not arranged at all. It is a kind of conglomerate, and the things are not comfortable together and they are repelling one another and nothing fits satisfactorily.
- C. J. We have gone so far as to get at the ring of ten spheres.
- C. W. L. It is not even a ring; they are scattered about.
- C. J. Well, what is scattered further?
- C. W. L. Well, then, let us see. Have we taken into account—I am trying to identify these things. Six of these things are that lot, I think.
- C. J. Four of them are the big lot of twenty.
- C. W. L. Yes, four will be that lot. Then those other things. How many are they each?
- C. J. Nine each, but they are groups of three in each ball of seven, unless they also get broken up. Each of them has little groups of three inside, but I should not think they get broken up.
- C. W. L. The threes, of course won't get broken up. We are not high enough for that yet.
- C. J. There are seven of them.
- C. W. L. Those must be those little compressed looking things.
- There is no way in which I can lay this out flat. There are always parts which do not fit in. I have been able to lay the others so that I could group them, even though they did not fit. This will not fit in any way.
- C. J. Well, I think we had better just describe where the fellows are—how they are sprinkled about.
- C. W. L. They sort of thread about among one another. If I look at it—let me tilt them corner-wise and look at them. Perhaps there is a sort of a shadow of an arrangement that way. No, even that way they don't fit. You will have to put them down as circulating somewhat irregularly, the whole lot of these round that central group. But I cannot make an arrangement of them which seems to put any one into proportion with the rest.
- C. J. Those ten balls, those four large fellows and then the six fellows, and these seven, they are all circulating about?
- C. W. L. Yes, they all more or less interfere with one another. That is, you know how planets circling round the sun are nevertheless dragged out of their proper course when they get near one another. So these things seem to have an irregular motion, because they are all the time coming into unexpected relations with one another. The funnels lie between the bars and constitute a sort of irregular looking set of radiants.
- C. J. How do the bars go?
- C. W. L. They are going generally in all directions into space.
- C. J. In one plane?
- C. W. L. Nothing is in one plane.
- C. J. No, but I mean the nine bars radiate out into nine directions in space just as in Potassium.
- C. W. L. Yes, they radiate out, but the funnels radiate among them, you see, with rather, if anything, more irregular arrangement than the bars have. None of these things will fit in with one another. There are nine bars and eight funnels between.

- C. J. Does it fit in?
 C. W. L. Of course, if you flatten that thing out—but you can't flatten it out, can you?
 C. J. We will map it out.
 C. W. L. You never can map it out, because it is so irregular and so queer.
 C. J. I can't make out the eight funnels and nine bars.
 C. W. L. Neither do I, because there would be a hole. Wait I see what you mean by the hole. Oh, I am stupid on this or else it is a very unusual thing.
 C. J. Well, let us leave it.

Note.—Mr. Leadbeater repeated the observations later, with results as described by him on page 311.

Methyl Chloride, CH₃Cl, p. 313

- C. W. L. I do not understand this process; it seems to me as though the Chlorine had become disintegrated, pulled apart. The Hydrogen lies over the funnels of the Carbon, the positive part of the Hydrogen over the negative and the negative Hydrogen over the positive. The Chlorine in this bottle is broken up and arranges itself over two funnels, a positive and a negative, which must mean, I suppose, that the positive part of the Chlorine has got over the negative funnel and the negative over the positive. But the whole thing is broken up. Do we know offhand which of these little circles are positive and which are negative?
 C. J. You cannot tell which is positive and which is negative. We have taken it for granted that the funnels are alike.
 C. W. L. You mean that that group which makes the funnel is either a negative group or a positive group?
 C. J. We have taken it that all the funnels are the same size and the number of Anu the same at both ends of the dumb-bell. But no attempt was made to identify them, as of either a positive quality or a negative.
- C. W. L. Every chemical atom of Chlorine will as a whole have a positive end and a negative end.
 The funnels rotate up from a central globe and then these two parts are connected by a rod. I don't see for the moment how I am to make out which is which of these.
 C. J. Are they all alike in appearance in this particular compound and what has happened to the central rod?
 C. W. L. The central rod appears to have separated so that its constituent spheres are no longer together—the connecting rod I mean.
 He had a middle five according to this diagram (page 65)—a five, two fours and two threes. In the connecting rod, the five appears to have gone one way and the rest of the group the other, but why?
 C. J. Find out over which funnel the five has gone, and if you shoot down the funnel and see if it is the one where one of those Anu is missing, then we can locate it.
 C. W. L. The Anu is missing in the negative funnel.
 C. J. If this five is hovering over that one we will know he is positive.
 C. W. L. Well, I think he is over a negative funnel. The positive usually has more Anu in it than the negative. But in this case more Anu are hovering over the positive funnel. Wait a minute, I think I see, I am not sure yet. Yes, there is a good deal of breaking up taking place. Is that normal or is it because this is old?
 C. J. I can't tell you; of course it is also extremely volatile, and that may be one effect of breaking up. Chloroform is also volatile, but not so much.
 C. W. L. The fact for the moment is that in this particular case we have an atom of Chlorine broken up.
 C. J. In what way is it broken up? What is the rearrangement of the funnels?
 C. W. L. I can hardly trace some of these things, it is broken up a good deal. You see

the funnels are not now definite funnels. You see the thing which holds them together is parted from them.

- C. J. The central rod or the central sphere?
 C. W. L. The central point of the central rod is apparently the principal thing—the heart of the thing.
 C. J. That is exactly what the scientists call this hard core of protons.
 C. W. L. I do not see that it is any harder than any of the other. It is just an arrangement of Anu.

Chloroform, CHCl₃, p. 314

- C. J. Carbon is an octahedron of eight funnels. Chlorine is roughly a negative element. But we found there are two varieties, one of which seemed more positive than the other. Is there any difference in the Chlorines which are tacked on in this molecule?
 C. W. L. You mean to say, if there are three Chlorines in Chloroform, is there an isotope? Or if they are all alike is there another variety of Chlorine?
 C. J. First examine in any one molecule whether all the three Chlorines are exactly the same.
 C. W. L. They are usually attached to positive funnels of Carbon. If I can find a fellow attached to a negative funnel of Carbon that would mean we had a positive funnel in Chlorine.
 It seems to me there are a good many more of the old form than of this one which is new to us. I should have said they are half and half. If there are two kinds and they mix together you might have more of one particular kind than of the other. All of them that I have analyzed so far look about the same.
 C. J. There is nothing so very obvious?
 C. W. L. It is not commonly obvious. This is your Chloroform.
 I will make one; he won't stick and won't flow into the other funnels. We can try all sorts of experiments. We might make new elements. You have to slew your Carbon round. I can

make them stick but not in the same holes. Yes, I can get the Hydrogen to go in opposite. I believe I have; I can make a molecule out of the three latter types of Chlorine and a Carbon. I can't get the Hydrogen to adhere very easily. I will try him in different holes. Yes, I can get him going.

- C. J. Does he remain permanently?
 C. W. L. Yes, he has remained so far.
 C. J. See if there will be a mixture.
 C. W. L. They don't come out opposite one another. I think the thing will adhere. It looks a bit distorted and unnatural. I can make one with three of the bigger kinds of Chlorine, but then I get my Hydrogen. It does not seem to fit.
 They don't somehow lie so evenly. I believe it can be done.
 I think the Chloroform life would utilize a thing like that.

Methyl Alcohol, CH₃OH, p. 314

- C. W. L. I can take your OH and stick him on instead of the Chlorine.
 C. J. How does the Hydroxyl work?
 C. W. L. The Hydroxyl particle as I get him is a double snake with half of the Hydrogen at the top of him and half at the bottom; no, the Oxygen is not altered at all.
 C. J. You have got two funnels to operate upon with your Hydroxyl?
 C. W. L. I have only found one. Let me see what he, O, will do when he is left alone. He promptly severs connection. I stick him on instead of the Chlorine. But when I remove the will from him he does not stay; he pops out. I do not appear to be able to get him to stick together. I put him in all right.
 C. J. Over both funnels?
 C. W. L. No, I put him over one, what can I put in over the other? I cannot break up my Oxygen.
 C. J. The best way is to get a bit of Methyl Alcohol and see how it is arranged.

- C. W. L. The Hydrogens would sort themselves like the rest, but I cannot make the Oxygen stay, it is so lively.
- C. J. That is why I want to know what is the arrangement in Methyl Alcohol or in all these other alcohols so far as that corner of the Carbon is concerned.
- C. W. L. The Logos must be able to do these things, but I cannot make these things stick on. The Oxygen departs as soon as one removes one's will from it. You can make these things?
- C. J. Yes, but by a round-about process. You can see how it is sticking in this thing. This is a double-decker, but there is the OH and that will also give me the information. I want to know how these two Carbon atoms get tacked on side by side.
- C. W. L. They fit pretty fairly as far as I can see. I do not think there is any difficulty there. I think I see how they send lines into one another. The lines are rather curved lines.
- C. J. Positive being opposite to negative?
- C. W. L. Yes, the Oxygen appears to float there, but I cannot make him stick.
- C. J. How does he float now, over both funnels? Does he get bent round?
- C. W. L. Yes, I don't seem to be able to attach the thing, and yet he attaches himself.
- C. J. The main thing is how does he attach himself?
- C. W. L. He appears to spin with the lower end pointed inwards towards the axis of the whole show.
- C. J. He gets sucked into a funnel?
- C. W. L. He floats partially immersed.
- C. J. With half the Hydrogen underneath him?
- C. W. L. He appears—that is the trouble; that half Hydrogen has lost its counterbalancing weight; half of him is at the top and half at the bottom.
- C. J. Is not there perhaps in this Alcohol a bigger change, or does the Carbon still remain Carbon?
- C. W. L. Yes, the Carbon remains Carbon, I think, only I get one Carbon funnel unsatisfied. I can break your Hydroxyl and put part of the Hydrogen on top of that, but I break the Oxygen snake.
- I can get one in which the Oxygen snake will combine. I cannot do anything with him. I can lay him across the top of two funnels, though he is still as stiff as a poker.
- And then his Hydrogen curves over at each end and hovers. It is a very unstable arrangement. The Hydrogen may break up and the Oxygen disappear.
- C. J. The Oxygen insists on standing upright?
- C. W. L. I have got him lying horizontally across the two funnels only it is not then at right angles to any of them. It is only lying across between two and spilling a Hydrogen down each funnel.
- C. J. How is the other end? Is he simply over one funnel, leaving the other unsatisfied?
- C. W. L. Yes. You see, I tried putting the Hydroxyl down one funnel and then taking away one Hydrogen, half a Hydrogen to satisfy the other funnel, but then it won't work. The two half Hydrogens remain and float, but the Oxygen then promptly disappears on his own account. I cannot get this Oxygen to remain still.
- C. J. How is it done in the actual combining in your hand?
- C. W. L. Well, it is done as I have said by a bar lying across as straight as that, but with its half Hydrogen drooping that way and this way.
- Calcium Carbide, CaC₂, p. 273*
- C. J. CaC is Calcium Carbide and it picks up Hydrogen from the water.
- C. W. L. Wait a bit. Let us see how the Calcium Carbide is first.
- C. J. Calcium has four funnels.
- C. W. L. Calcium is that queer thing with a grand centre. Carbide of Calcium contains two Carbons.
- Four funnels standing out equally. I am thinking of the Calcium. That is a tetrahedron with a grand centre.

- C. J. How are the Carbon and the large Calcium funnels distributed?
- C. W. L. This is quite a new creature. He must be very unstable because the Carbon bounces off at the least opportunity. Where is your Carbon?
- C. J. Does it get broken up again? How are those eight funnels of Carbon arranged?
- C. W. L. There will be 16 if you have got two Carbons. You see I have here four very fat funnels. I have that queer lamination in the central sphere, an orange-like thing, split up in sections, and then I have four very fat funnels.
- C. J. Those are the Calcium funnels.
- C. W. L. Yes, but they also absorb into them a great deal which they had not before.
- C. J. What have they absorbed into them, anything of the Carbon funnels?
- C. W. L. Surely, but what was the original Calcium, that which filled the funnel? The funnel itself is not a solid thing. That which filled the funnels stands in the middle. There are, as it were, four Carbon things, dancing round it and it is all in one fat funnel which is more like a kind of cup.
- C. J. What about those eight little individual Anu?
- C. W. L. The eight little individual Anu? It looks as though the Carbon funnels were upside down somehow.
- C. J. Are they?
- C. W. L. I don't see how they can be.
- C. J. Are the individual Anu inside that grand thing, because they go in pairs?
- C. W. L. I don't think the grand thing has been interfered with.
No, then are they inside this fat funnel, each fat fellow having two of these Anu because they have four Carbon funnels?
They are, I think, still with their respective pairs. Yes, holding them together.
- Acetic Acid, CH₃COOH, p. 315*
- C. J. It starts the Chain series. How are these things tacked on to the second Carbon?
- C. W. L. There are two Oxygens and that would mean apparently a Hydrogen streaming away.
- C. J. How is it tacked on?
- C. W. L. The Hydrogen is attached only to one Oxygen.
- C. J. You need only look at that end of the double barrel affair.
- C. W. L. And I have to annex two more Oxygens, and then apparently a Hydrogen.
- C. J. Why need you annex them? Can't you look at it?
- C. W. L. I don't seem to get him quite that way at the moment.
- C. J. There are six Carbon funnels to satisfy.
- C. W. L. But aren't there really eight, but two of those are looking into one another? I am not satisfied with the Hydrogen exactly.
- C. J. What is the trouble?
- C. W. L. You know, the Hydrogen does seem to be attached to the Oxygen. I think I vaguely guess what the chemists may be meaning. You see the two Oxygens are so powerful that they also exercise an attraction. You see, at the other end of the Acetic Acid there are three Hydrogens on three sides of a square. They are all quiescent. They do not disturb one another, but these two Oxygens appear to be so vivid, so vital, that they do exercise a very considerable disturbing influence over the Hydrogen which ought to be in between them.
- C. J. They are both tugging at the Hydrogen from two ends?
- C. W. L. So that the Hydrogen is not settled. It really belongs to the two Carbon funnels which are between the Oxygens. It is pulled all the time both ways, and it is in a very, what you might call, a very excited condition. It does not fit in at all stably. It looks as though it were intended to be attached to this Carbon funnel, only the Oxygen on each side of it exercises such a disturbing influence that it is almost detached.
- C. J. Don't you think the Oxygen is different in the way it is held to the Carbon funnels? Because Oxygen generally

- bursts up the funnels and sticks them at the end, and here you have the Oxygen like a bar.
- C. W. L. Well, but he is doing his own revolution.
- C. J. But flat-wise, horizontal?
- C. W. L. Yes, if you can call it so. But lying across two funnels as he did before in some other thing we did. (Methyl Alcohol).
- C. J. But he had two half Hydrogens to spill down the funnels.
- C. W. L. Possibly he wants this Hydrogen for that purpose.
- The whole thing is in an excited condition. In fact, I wonder whether the excited condition has anything to do with its very disturbing mordant properties? Is there any possibility of an action that way, because the thing is in that quivering condition. It would therefore eat its way into other things.
- C. J. We found years ago when you were investigating Fluorine that he was always hammering with his point and that is why he eats his way into all substances. That is what made the thing so violent. He shoves his way through things.
- C. W. L. Quite possibly he might, but I do not get the effect that you have drawn quite of the thing attached to one Oxygen only, it seems to me it is disturbed by the two Oxygens, that it is just because of that. If you get it attached to one, then there would be a Carbon streaming out into the air dissatisfied.
- Tartaric Acid, (COOH.CHOH)₂, p. 317*
- C. J. We have two Carbon atoms; then we have here the Hydrogen over two funnels; and then there is an Oxygen and Hydrogen there and then you have got another Oxygen.
- C. W. L. You are sure you have got this the right way up? I have a thing like a mushroom over here at each end. But wait a minute, I want to see how this mushroom is built.
- C. J. This formation we know. That is the Hydroxyl.
- C. W. L. If your mushroom is top and bottom that is the thing we have got. Wait a minute, I think I can work that.
- Let me see; how did I start, by building up that thing. Two Carbons only had I to start with? What is the simplest form of that?
- C. J. The simplest form is Ethane.
- C. W. L. And when you get the two Carbons you get Hydrogen round them.
- C. J. The two funnels from each Carbon interlock.
- C. W. L. That central arrangement seems to be the same, but I have got these two queer caps. What is the intermediate stage? What should I have had there if I had not this cap? Just Hydrogen? or Hydroxyl?
- The Carbons are attached to the Hydrogen when you let the thing alone, but when this Oxygen comes in it makes a different effect and I have to try to sort it out and first of all to hold it still. These are the Anu from the Carbon, but that arrangement is not quite the same. Now wait a bit. Yes, it rushes through here. It turns those wide apart. Now, where is the rest of it gone? Hydrogen has not all those valences. Now, I have got him. At present he seems to sort of stream all over there. I think the Hydrogen is almost practically entirely broken up. I have got two of him.
- You have your Carbon funnels radiating out, but much more than you have drawn them.
- Then down here you have some rocketing out in the same way? Then here are two three's of Hydrogen lying in between here and pushing these things apart. They operate towards the central body in some way. You know there is a central body there. You have got that idea. The two push these apart. There are four more threes kicking about somewhere.

C. J. Certainly there are four more, and where are they?

C. W. L. They are lying somewhere here.

C. J. One over each?

C. W. L. Well, if it is one over each there is also one in the middle. Do you see what I mean? But those are separate Anu. They are not threes. The whole thing is a three, but it is like that. But it is your three only. This business has pushed the two things apart so the effect I get when it revolves is quite a rounded cap much like a mushroom moving round on a stick. The thing is like that and it is all going round this way.

They must be male and female. It is curious the distortion of this thing, making it curve. It looks like a cone on the top of a stick.

You see you are joining together a number of things here which are all of them obstinate. Oxygen is a thing which will not readily give way and Carbon is another thing which also retains its funnel and its position. And so there is a considerable strain about it all.

C. J. I should like to be quite clear as to this Oxygen here. You remember I have Oxygen as a bar in Hydroxl. Is that the same thing here?

C. W. L. Yes, he is spilling things down funnels all right. There is a slight tendency to curvature, but very little.

Maleic Acid, C₂H₂(COOH), p. 319

C. W. L. This appears to be one of the type in which Oxygens point to each other and are a little flattened. The Oxygens come nearer to one another than they naturally would. This should be a stronger link between the Carbon than there ordinarily is. In this case you have a double link between Carbons. There are four funnels called into play instead of two and they are somewhat slewed sideways; to allow of that the Carbon atoms are a little out of shape.

As you had it before the ends faced squarely and they fitted in a sort of arch. But now the COOH groups being at an angle that way, the funnels are a little bit bent. But I should say it was a much stronger link than the other of the Tartaric Acid scheme, unless the distortion of the atoms works against that. It may be they are always pulling to get straight again.

C. J. Is the end as I have drawn it?

C. W. L. More or less it is like that.

C. J. I want to see how the Carbon looks?

C. W. L. The Carbons are clear enough. The other things are twirling round, but still if you stop it, it is all a mist.

Phenol, C₆H₅OH, p. 323

C. J. In Phenol there is an OH group at the corner, not the top, otherwise everything is the same as in Benzene.

C. W. L. This is one of those octagonal things which look like a six-sided ring. Focus your sight and see if you can see. It is not straight but it seems as if the ring were pulled askew. The OH group is not at the top. There is no north, east, south and west.

C. J. Cannot you get in front of him and say that the OH is on the right top corner?

C. W. L. I can't get him like that because these things are not straight but swerving. They are asymmetrical. Is it possible to grasp the idea that the difference in these things is not in the atoms but the way in which they lie in reference to the currents?

If you revolve the whole thing in the same plane the centre is no longer horizontal to the plane of the motion, but just a little askew. Do you get the idea? The Carbon to which the Oxygen is attached is askew, therefore instead of the lines of force lying straight, in relation to one another, or at right angles, it is as though you made a diagram and someone sat on it and slightly bent it.

In this case that flow of force is affected because the whole molecule is a little askew and it is as if it was bent round a little. The whole thing is tilted, so when it revolves it wobbles. It is off its balance.

C. J. What happens when the Phenol loses its Oxygen?

C. W. L. He becomes straight.

Look at the Phenol in among the water. There are only comparatively few of them, I should say not more than a million in that whole bottle. The water molecules are roundish things. Can you see the Phenol among the water? Hold a little in your mouth for a minute; can you get inside your head enough to see?

It is very odd; the Phenol has a distinct rudiment of sensation.

Mr. Leadbeater touched the top of the bottle of Phenol, or Carboic Acid, with his finger, smelt it, and then touched his gum with it. Evidently there was some point of infection in his gum, for as he touched the spot with the Phenol something happened that made him laugh. On my inquiring, he said that the Oxygen left the Hydrogen to do its work of disinfection. But, as it left, it experienced a tiny thrill of delight, for the Oxygen had been held as a prisoner in the Hydroxyl group. But when the opportunity came to break the bondage and be free once again there was a clear sense of relief, of duty done, and furthermore the sense "Now I can die in peace". The feeling is very minute but there is an interesting side to all this; the side of the feelings of the chemicals involved.

Hydroquinone, C₆H₄(OH)₂, p. 324

C. W. L. The Oxygen is at the top and bottom. How do you keep him from floating away?

C. J. He is linked: just as in Phenol. The Oxygen was tacked on and it stayed.

C. W. L. There is Hydrogen as well as Oxygen. This fellow at any rate stands upright.

C. J. He has a float at the bottom. He ought to be in motion. He is pushing up. It is the middle that really holds the thing, I believe.

C. W. L. The middle of what? The middle of the molecule?

Now this Hydroquinone is quite different from Phenol. One thing happens with this, that your original cigar or Octahedron whatever you call it is elongated.

C. J. Is this thing elongated?

C. W. L. Yes, somewhat elongated. It is still an Octahedron, but it is a longer Octahedron. This has only one Octahedron, but an Oxygen on the top and the other at the bottom.

C. J. Two Oxygens pulling appear to elongate the whole thing.

C. W. L. Perhaps that is really all they do.

Benzaldehyde, C₆H₅CHO, p. 325

C. W. L. I seem to have him with a kind of wart. The Carbons are not perfect Carbons. The centre is all right, but this wart at one side is rather complicated. It is like some queer unusual growth. It is not flat like that. Those little Hydrogen balls seem out of place.

C. J. Does the Oxygen come in front of them there and do the others tack on?

C. W. L. There are three funnels at the angles of a triangle, but on a different plane, sticking up.

C. J. Parallel to each other?

C. W. L. One at each angle of a triangle. Those four other funnels lie flat. But there are these little Hydrogen balls dodging in and out. In all those others they came comfortably and meekly opposite the end of the funnel. But these don't seem to do that. I can't locate one to each funnel.

C. J. You will have one up here and one there?

C. W. L. I think I can see how it is. The four funnels that lie flat don't seem to have any balls. It looks to me as though the fact that they had not in some way affects the others.

C. J. A sort of tug between the two sets of them?

C. W. L. That is it, practically. I have my three Hydrogen balls at the top and three at the bottom, only they are not so static, not quiet.

Salicylic Acid, C₆H₆COOH.OH, p. 327

C. J. Here we have COOH and OH.

C. W. L. It is a little like Benzaldehyde but here I have another Oxygen which interferes with the arrangement.

C. J. How does the third Oxygen come in?

C. W. L. The molecule is spinning. You have to hold it still and then you have to be careful that you do not spoil its shape. I am always afraid of disturbing the things because I must stop their motion in order to give an idea of them. Let me see. I thought I got a glimpse of it then. I think when I get it sorted out the complexity is perhaps more apparent than real. You say you add another Oxygen and then there is apparently a Hydrogen which has appeared from somewhere holding the two ends of the Oxygen much as it does in Benzaldehyde.

C. J. I think we have only added a Hydroxyl. How do the extra Oxygens dispose themselves?

C. W. L. Much as you had them just now in Benzaldehyde. If you could add a third to these you would have them equidistant. Then there are the Hydrogens floating at the end.

The five Carbons are all the same; it is only this one corner which seems to me out. And I think it is differently arranged in different cases.

There is one of these things where the things tacked on here had two Oxygens.

C. J. Otherwise it was the same?

C. W. L. I am not sure of that, but it had two Oxygens here side by side, as it were. And between those Oxygens there is some other floating material. Then the mushroom and—I don't know, I suppose I must be stupid. I have found things

in which some of these affairs were stuck on. This particular one is COOH plus OH. I have had him before, the COOH made the mushroom.

C. J. But of the chain series?

C. W. L. One of the things sticking on—what was it we had sticking on, Benzaldehyde? CHO.

C. W. L. CHO, only there are two more Oxygens and a Hydrogen. But there is a difference here because in that mushroom arrangement there was a mushroom at each end. I do not see how there can be that here.

C. J. There is not; it is only in one corner.

C. W. L. That is an entirely different thing.

C. J. And that mushroom was in a chain formation.

C. W. L. Then what of this other thing which has its Oxygens as pillars in the middle?

C. J. I suppose it is another variant of Salicylic Acid.

Pyridine, C₅H₅N, p. 329

C. J. Here is Pyridine.

C. W. L. It is Benzene, except that in one corner it is Nitrogen.

He is a very sluggish creature. You won't get him to alter his shape much.

C. J. If the Nitrogen just sticks here that is all right.

C. W. L. But you have to do something with these six funnels.

C. J. There are not six funnels; there is no Carbon.

C. W. L. Then that is comparatively easy.

C. J. No, because with this arrangement, the twelve things there, the grand centre, gets knocked out.

C. W. L. Either you have a different or defective centre or you get something out of that Nitrogen. Yes. Well now, Nitrogen has a balloon arrangement and he has a queer thing lying underneath him, some kind of a dish. Has Nitrogen any valences in particular?

C. J. He might be either three or five.

C. W. L. What I am trying to make out is how he sticks on. Apparently he takes the place

- of the Carbon and each Carbon gives two of his funnels to that central thing.
- C. J. Unless the grand centre is changed.
- C. W. L. The grand centre must still have power to hold. As I see the thing Nitrogen looks like a pear drop, but looks out of place and he is distorting the whole thing to some extent. Now, let me look at the Nitrogen—there is his balloon, (N 110) and there is his dish (N 63).
- C. J. And what about his two supports at the bottom?
- C. W. L. Wait a minute; there are two bodies, 2N24.
- C. J. Two large spheres inside each of which you find four balls. Those two must be the link. They must have gone into the centre.
The centre is all different.
- C. W. L. Well, it is a skew-looking centre; that part of Nitrogen has gone into that central ball of ours.
- C. J. That central ball is composed of twelve spheres. Evidently two of these take the place of two Carbon funnels.
- C. W. L. Yes, those two twenty-fours do take the place of the Carbon funnels, but they make it look a little asymmetric.
- C. J. In the grand centre of Benzene there would be six loose Anu and here there will only be five. You must put in another loose Anu.
- C. W. L. I don't see it.
- C. J. There are only five Anu then circling round?
- C. W. L. I can make out only five.
- C. J. The whole grand centre bulges out?
- C. W. L. Rather I think it caves in. This corner of it, this side of it is not satisfactory. It has been dented so to speak. There are not quite so many Anu somehow as there were.
- C. J. Minus just a small number. Does it make a little flat place?
- C. W. L. The thing is not so perfect.
- C. J. Are these two balls contiguous?
- C. W. L. Yes, they are contiguous, I think. It is as it was before except that these two things seem smaller and don't fully fill their place and also the fact that there is one missing inside probably upsets matters. It is a ball dented in one place. I do not like this irregular asymmetrical thing.
- C. J. It surprises me that it is stable?
- C. W. L. Well, yes it is stable. The rest of it is Carbon. This central block, the rest of it has attractive power and holds these. I mean they over-power these things, but it is a weakness in it, a weak spot, it looks to me.

A and B Naphthol, C₁₀H₇OH, p. 331

- C. J. This is Naphthol.
- C. W. L. You see the difficulty about this thing is that there is really no up or down for all these things. There is a sort of gravity, a current perhaps which keeps them usually lying in one way, but you have only to find the way and you can see all round it. You may say that it has a way it more commonly lies.
- C. J. In the Alpha Naphthol the OH is in the top bunch of funnels. In Beta Naphthol it is in one of the side bunches.
- C. W. L. You mean the number of atoms is the same, but the thing is differently arranged? I can't see how they can know that. This corner will be equally a Carbon—three-fourths of a Carbon. The colour is different.
- C. J. The difference of colour will be due to the packing of it as crystals and then the way that the light gets broken up. We are not following up crystallization.
- C. W. L. You see, we are coming into touch now with some things which are quite different from all those we tackled before, and they are different, in what is to me a very unpleasant way, in looking at them.
- C. J. Because they have not got a head or a tail?
- C. W. L. They give me a very uncomfortable impression of distortion, of very great strain. Everything with which we have had to deal before has had a certain symmetry. These things are asymmetrical in some weird way. It gives one an impression of unnaturalness. I do

- not know whether these things exist in Nature or whether they are made, so to speak—whether they exist in Nature made by the Logos or whether they exist only when made by men. Could that be so? Can man make anything which does not exist in Nature?
- C. J. Yes, they make lots of things.
- C. W. L. The point rather is that the Oxygen ought to bring that side of the thing to the top.
- C. J. It doesn't. I would like to know if in this corner the funnels instead of being flat twist the Oxygen round so that the Oxygen is like that and stands at right angles. Here he lies horizontally. At that side is it at the top?
- C. W. L. How can anything like Oxygen be anywhere than at the top?
- C. J. No, don't make it go to the top. It does not do that.
- C. W. L. The thing must rotate differently. How many Carbon atoms altogether?
- C. J. In the molecule there are ten Carbons altogether.
- C. W. L. This thing is attached to one of those Carbons off in a corner.
- C. J. That is all.
- C. W. L. Horrid, uncomfortable thing. I can't make it fit in. There is something wrong.
- C. J. Have you got hold of the corner where the Oxygen is hanging?
- C. W. L. You see I have to try it at all sorts of angles, and I have not yet got one that looks like your arrangement.
- C. J. But in what way is the Beta Naphthol corner different from that of the Alpha? The Alpha was quite clear; the Oxygen was floating on the cushion of force from the funnels.
- C. W. L. Yes, so I think is this.
The thing is a cohesive whole. The whole molecule is leaning over very roughly. The impression given is that the Oxygen is a sort of balloon filled with Hydrogen, or something like that, because it is somehow pulling the thing out of shape. It is not straight up and down with the earth current.
- This thing is stretched to my side. It is all askew. It is dragged so that it no longer lies flat along the outlying current of force.
- C. J. The whole thing?
- C. W. L. I think the whole thing is a bit askew, but this one, the Beta Naphthol, is more askew.
- C. J. But is it the same as at the top?
- C. W. L. It is more to one side.
This thing is like two rods tied together, but on one of the rods is a wart and that wart disturbs the action. Those two things when left to themselves go round like that and keep perfectly straight, but when you have got the OH the molecule is not quite so straight. This Beta Naphthol is very much worse than that. He is askew like that, pulling a little away and as he goes round he wobbles.
- Indigo (C₈H₇NH.CO.C.), p. 332*
- C. J. Here is Indigo. There is a CO and an NH group. How is the NH attached?
- C. W. L. There is a Nitrogen balloon in the middle and the other parts of the Nitrogen circling round.
Those two Carbons will attach themselves as usual and that will take up two valences. One valence is taken up with the Hydrogen.
This Nitrogen will hold his Hydrogen at the top of him in order that he may hold the Carbons at each side. He has no funnels; he does not work in an ordinary way. He floats looking like a bottle. I do not think he does divide his Hydrogen. I think he has it on the top.
- C. J. Arranged on the top?
- C. W. L. Straight on end. How do the valences act? It looks as though they were coming out of the balloon. He has not any funnels that he turns towards anything. It appears to work out of his balloon. He is sort of self-contained like a solar system in himself. The balloon draws down towards that dish below it. I think the balloon is the active part of him. This seems to be the important

part and it seems he is less drawn towards this plate, because he sends a little kind of cap up there which is probably holding the Hydrogen, and then he stretches out two hand-like things and those are attached to the Carbons. This thing is linked together. It has a peculiar outline and this thing bulges out like an amoeba and I think they have drawn it in a little to make room for all those. He is spreading from a balloon into a queer truncated cross. Now this is small; these are larger. It is more a vague swelling.

C. J. What about the bottom thing, the CO?

C. W. L. Is there no centre?

C. J. The grand centre is this thing.

C. W. L. It will take two of his valences to attach him to the Oxygen. You see he has to hold himself on to his Oxygen. That funnel and that funnel will be occupied with that. That is only one valence. Those two would make one valence going up one line and those two would make the other.

C. J. You would have two funnels there. I don't for the moment see how the Oxygen holds the Carbon. You see the Oxygen must hold two of these. As they are drawn it looks as though it would be very much round a corner. That must be how his valences hold themselves. I have got two of them going flat. How are the other funnels linked to the Carbon?

C. W. L. It looks to me as though of these two, one is a positive and one a negative. What I can't make out is how these two fasten on to the top of the Oxygen, when they appear to be facing away from it, and how these two to the bottom of the Oxygen. The whole thing appears to be pulled out of shape. As far as I can get it from that little tangle I think that is the scheme, that instead of lying flat on the top of the Oxygen, you might let it drop over the Oxygen. Then here and there those are a pair at both ends of the Oxygen and they come together and make a link.

There is the Hydrogen over there and these two come and make a link over here, and these two bend over so that they are much nearer the Oxygen.

It is almost as though one turned over that batch of papers so that not only this fellow is facing towards the Oxygen but also that, with a little bending each way. So that instead of that being a flat thing it is a curved thing. They might be floating lying across the mouth of that, but instead of that they are all drooping over more or less, these bending over here and the others bending over the Oxygen.

The Oxygen is standing up. That is what he appears to me to be doing. He stands up like that. Of the four, one funnel sticks out towards that Carbon and another aims towards that, and these two aim down rather like that.

C. J. What about these bottom funnels?

C. W. L. The Oxygen is in the centre of this side. One aims from here at this and really they are so close together the distance here is great as compared to the Oxygen. If you want you can make a representation to scale but your Oxygen would be a little beastie like that and your Carbon would be a long way away. A line coming from the top of your Oxygen would diverge so very slightly. Those two are really like one stream.

C. J. The Oxygen does not stand in the middle of a straight line?

C. W. L. No, it is a dip down. It depends upon the way you look at it. If you look at it from above you would see them in a straight line. In all these cases we have to face the fact that they do not lie in a plane like that. That makes it look all different. In trying to look them up you find you have to manoeuvre and put them in position in order to have them looking like a drawing.

Note.—All the observations were illustrated by sketches. It is from these original drawings, as well as from the notes, that the diagrams given in this book were constructed as accurately as possible.

The disintegration of the Elements

When the investigations, begun in 1895, were continued in 1907 at Weisser-Hirsch, the work was divided, C. W. Leadbeater making the detailed diagrams of each element, and Annie Besant concentrating on the work of breaking up each element through the various sub-planes, resolving them finally into separate Anu. She made sketches of these, seated cross-legged on a rug with a pad on her lap, in the woods of Weisser-Hirsch. Her original diagrams, done in pencil, are at Adyar.

The work was so novel that it never occurred to me till years afterwards that there was a great gap in the work done by her. All the groups are moving in space in *three* dimensions, while she has drawn them on paper as if they were only on the surface of a plane. It was many years later I realized that I should have supplied her in 1907 with a schematic diagram, so that she could draw the movements of the groups in three dimensions. Following is such a diagram made by me, but of course long years after she had done the work.

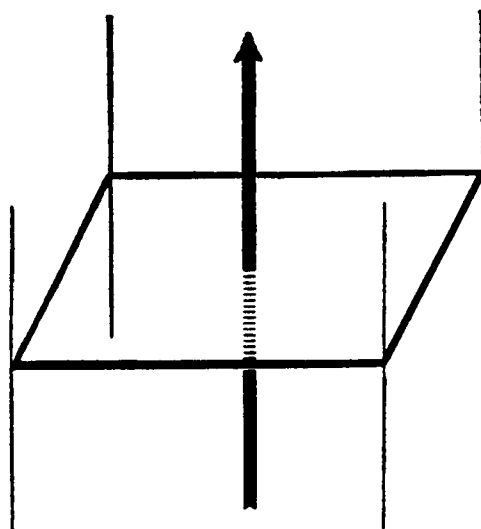


FIG. 224. DIAGRAM FOR THREE DIMENSIONAL DRAWING

Procedure to produce Invisibility

C. W. Leadbeater once informed me that if a person or object stood in front of one, it was possible to make it appear as if he or it was not

there, by causing the light vibrations from behind to bend round and meet again in front. For this it would be necessary to make some adjustment of the ether, so that the light rays would bend, as needed.

Smell

There being some citronella on a table near by the question was asked what happens when one smells. Essential oils are complicated structures. Therefore, is smell produced by the molecule as a whole, or by parts of it when they impinge on the nerve?

The reply, after smelling citronella, is that it breaks up into molecules or parts. A few of these parts awaken response from the nerve ends. They wake up the nerve ends. The vibrations of these particles are pleasing and wake up the nerve, which then absorbs them as food. In citronella there are at least two different types which stir up the nerve ends. The nerve ends seem hungry, and anything with scent wakes them up, and the particles are absorbed like food. There are many phenomena which happen, which would be worth while careful detailed investigation.

Orange peel was then smelt. "I appear to have vast numbers of these nerve ends, and they respond to different types of vibrations. Orange stirs up the ends which did not respond to citronella. Some ends are not stirred up by either." C. W. L. did not see why.

Iodine was smelt and was described as a savage thing. The nerves break up Iodine and absorb part of it and reject the rest.

Sal volatile was examined.

Sandalwood smell is soothing and steadying and plays a sort of tune on the ends of nerves. Request was made for some poison, which could be smelt in order to see if afterwards the nerves which are affected are restored by smelling an agreeable thing. Unfortunately, no poison was on hand for the purpose. Salts of lemon was produced, but has no smell. Similarly, calomel. That also has no smell. A bit of calomel was put on the tongue. It was noted as dissolving and the calomel making various compounds.

C. W. L. said that test after test repeated constantly would be necessary to find out the effects of these various substances. The difficulty is to find out which effect is the cause of another

effect. He believed that a great department of inquiry is awaiting in the future along this line, but it has to be very patient and prolonged.

The Cancer cell

On examining the cancer cell Mr. Leadbeater observed that it is exactly like the normal cell, except that it is an enantiomorph, a looking-glass image of it. "It was," said the investigator, "as if a right-hand glove were to be drawn inside out, to make a left-hand glove." He did not know what caused this inversion and no virus was sought for. When a cell starts this inversion, which is easily observed from the fourth-dimensional view, it acts explosively and seems to affect other cells and make them invert also.

The Smallpox germ

Mr. Leadbeater observed my arm which had been vaccinated. He said:

There is a mass of infinitesimally small things like a round ruler. It is very active. It is far more akin to the animal kingdom than many other bacteria, which appear more akin to the vegetable kingdom.

The white corpuscle swallows these round bodies, it then swells and bursts and disintegrates. But there are also other things like cheese-mites or tiny beetles. They are propagating at an enormous rate; but they also die. Now happens a curious thing; they leave behind them, by secreting or by disintegrating, something that is poisonous to other creatures. The round bodies are poisoning the blood; they are swimming in a foul stinking morass. But how do the cheese-mites happen to be at the wound?

Before the introduction of the smallpox germ they exist in the blood, but in a different condition. They exist in a kind of egg-shape. They are in my own blood. They are in the blood normally. But when a sore is caused by the introduction of the smallpox germ, the eggs are stimulated into activity. There is an intermediate stage between the egg and the cheese-mite, when it has the appearance of an ugly crustacean. Then afterwards it blossoms out into the cheese-mite.

These cheese-mites attack the smallpox germs (the round bodies). They are like tiny glass cylinders. A cheese-mite take into itself several of these; it looks as if it dissolves them, that is, unites with them. It takes in too many and

bursts. But the two have chemically affected one another, and somehow out of the wreck of it all something is produced which apparently is poisonous to the germ. When the poison comes in contact with the germ, the latter curls up and collapses. The germ is like a little rod of transparent glass, and it dissolves.

In reply to the question "How did the eggs get into the blood," C. W. L. said: "I am presumably drawing them in with the breath. How do they get into the blood? Through the lungs I should say. They are like unfertilized eggs; they drift in and out of the body."

C. J. A kind of etheric amoeba in the atmosphere?

C. W. L. They are floating about. They increase enormously in number when they are awakened.

C. J. Do they conjugate?

C. W. L. Individual cheese-mites do not get together to conjugate, so far as I can see. There are enormous numbers of these microscopic eggs.

C. J. Whence come the mites?

C. W. L. I am on the track of the thing. There are two brands of mites, I suppose male and female. A vast mass of eggs seems to exist—presumably coming from the female. Then, it is as if a shadow fell upon them, and they burst out and live. There are some kinds of fish that propagate in some queer way like that. It is as if the other variety of cheese-mites threw a veil over the eggs. But there must first be some peculiar chemical action produced in the blood to cause this breeding and blending. But dozens, hundreds of varieties of tiny creatures exist in the atmosphere, and they are entering us all the time, and they pass through the system unaffected. They do not seem to matter so long as we are healthy. But if something happens to us, they seem to develop.

Arthritis

At one time C. W. L. had a very painful time with arthritis. He often watched what was happening and noted that, when the pain was most

acute. myriads of microbes, which he described as "arrow-headed," had their heads imbedded, all packed thick, in the covering of the nerve, as if devouring it. It was at this period that the pain was most violent and insupportable. Then came later a period of duller pain, and at this time the microbes had disappeared. But there was a brown deposit on the nerves where the microbes had been. Whether the brown deposit was the disintegrated microbes or not, was not investigated. It was not possible to determine whether these microbes were ultra-microscopic, because there was no microbe of ascertained size with which to compare. When the infinitesimally minute is magnified by clairvoyant power, it can be magnified to various sizes, but its relative size compared to other things cannot be determined unless some standard also is taken.

Neuritis

In 1912 one of our friends was suffering very badly from neuritis in the arm. C. W. L. examining the nerve described its condition as follows: Each nerve has a coating of etheric matter. In this case of neuritis, this nerve coating was eaten away, and there were gaps in the coating, in the same kind of way there are gaps or empty spaces when a film of oil floating on water is broken up so as to leave water spaces in the oil surface. The sufferer's nerve was exposed thus in various places. As there was a brown deposit round the edge of the exposed spaces, the probability seemed to be that some trouble had occurred, and that the exposure was due to the presence of the brown material which was saltish in taste. The person suffering from neuritis began at this time to take some lithia tablets which helped to lessen the pain. A question not followed up was, whether in the tabloids there were any etheric particles which could be utilized by the body to cover up the broken spaces of the nerve covering, or whether they merely helped to dissolve the brown sediment.

Rheumatic Fever

In 1924 C. W. Leadbeater suffered acutely from a very violent onset of rheumatic fever, with all the joints painfully swollen. His suffering at times

was intense. Once he examined clairvoyantly what was happening, and in describing it to me said there seemed to be certain "arrow-headed creatures" (evidently bacteria) which attacked in cohorts the edge of the nerve and consumed it. It was this boring into the nerve with the pointed heads by the bacteria which caused the sharp pain.

Paralysis

A case was noted of a friend of C. W. L., who, he said, would have an attack if he did not take care. C. W. L. came to this conclusion, because a curious dislocation of parts of the etheric body from the denser body had begun to appear. Were this incipient dislocation to proceed, paralysis would be the result. The friend did not have an attack, and so presumably he followed the warnings of a nervous breakdown, and warded it off.

An interesting case of an unusual form of creeping paralysis was also examined. In this case, the patient had had a slight spinal injury as a girl, when riding. The injury in no way incapacitated her. But slowly a form of paralysis affecting the limbs from the hip down began to manifest itself, till year after year the limbs, including the arms also, became steadily more and more out of control of the will. An investigation of this case showed that the root of the trouble was not injured nerves, though that may have been the case. At the time of examination, which was several years after the original accident, the cause of the incipient paralysis was seen in the condition of the cells in a centre of the brain. Each cell there, when examined, was abnormal in its electric response among its own constituents. Within the cell, there exist certain groups which have positive and negative electrical quality, and normally to an external application of electricity they respond instantly with the usual repulsion of like to like. In the case, however, of these particular cells, the electric response was greatly dulled, and the repulsion was slower. This in some way interfered with the proper control through the nerves of the muscles of the limbs involved.

Epilepsy

Thirty years ago, C. W. L. investigated a case of epilepsy, and noted what happened at the time

of an attack. He noted that all at once the flow of etheric currents from the brain was suddenly broken, just as an electric light goes out when a fuse is burnt out. This disconnection of the currents caused the attack. On a superficial glance, he could see no particular reason for the brain disconnection at one moment rather than another.

Electricity and Prana

Several times C. W. L. has watched to see if there was any change produced in the Prana when electricity was poured into the body. He has himself allowed a high frequency current of over 100,000 volts to pass through him. Not the slightest effect was noted on the flow of Pranic currents. In fact, the two types of forces, Prana and electricity, were of such totally different qualities that neither affected the other. Hence an electric current in no way added Prana or vitality to the body, nor did it in any way interfere with its flow. So far as was noted, during the passage of the high-frequency current, the function of the nerves did not seem to be affected. But it should be noted here that no specific investigation was made, but only a general observation.

The Flow of Forces

Adyar

18th October, 1932.

C. J. Last night as I was doing the first big diagram of the Dumb-bells, I noted the body of six Anu in the middle in the connecting rod of Sodium was curious in the alignment in the placing of the dots. Looking up the breaking up by Dr. Besant in the diagrams of 1907, I see it is not a mistake. C. W. L., however, looked it up again and on the whole it seems better to put the two middle dots nearer. He stated those two spin faster than the rest. Then I told him that as I had to write the brief article describing the funnels, I had to state what was the material of the funnel. I had not hitherto been able to get a clear statement on the matter. He went into it and discovered quite a new line of facts. First, however, the funnel, which is of course only

a temporary affair, is composed of astral atomic matter which is pushed back by the movement of the things inside it.

Let me now write it out from my very hasty scribble jotted down as C. W. L. went on talking.

C. W. L. The funnel is astral matter pushed back, but also there is mental matter pushed back by the things inside the funnel. Besides the revolution of the funnels, the whole atom of course revolves. There are stages in this thing.

Under ordinary conditions the Anu floating in space exist in and among the Oxygen and Hydrogen atoms. Each of these two latter has its boundary wall but the Anu do not interpenetrate that wall.

C. J. Of what is the shell of the Oxygen atom composed? Something is surely pushed back?

C. W. L. There is a thing here I do not understand. I may see it in a moment.

Every physical thing has an astral counterpart. But the astral counterpart does not agree. The astral counterpart of Oxygen is not Oxygen. I never tried to separate these things before. The astral matter cannot penetrate that ovoid of Oxygen except in its atomic form, and even atomic astral matter does not interpenetrate the Oxygen snakes. Astral atomic matter appears to be penetrating the chemical atom, but does not penetrate the funnels.

There is, nevertheless, something which does penetrate, possibly mental atomic matter. I will make some empty space, though I do not know what will happen, possibly an explosion of sorts.

C. J. That is, pure space with no atomic matter of any plane at all?

C. W. L. finds he cannot do that without coming to the bubbles.

I am going to the stratosphere. There are still Anu but they are far apart, look like miles apart compared to their size. What is between them? Astral atoms again, very far apart, and also mental atoms. How does light get across space?

The funnel is astral atomic matter pushed back. There are little things within the funnel which drive things out on their own account. They push out mental matter.

This is a new idea, but the chemical atom as a whole pushes back all ordinary astral matter, and that funnel pushes back even astral atomic matter. Mental matter can penetrate except some of the things inside the funnels. Where there is a definite centre even mental matter is pushed back.

C. W. L. took gold and examined first the connecting rod made of the two elipses. That pushes back astral atomic matter. But in the centre there is the grand affair of 16 pieces of Occultum, Au 33, and four groups. This middle sun certainly pushes back mental matter. It may be that as it is very hard, it is on the Buddhic level perhaps. What is the difference between the Diamond and coal? Certainly the former is composed of 500 odd Carbons, whereas coal is in groups of twos and threes. The terrific holding power of the Carbons in the Diamond drives out a higher order of matter than do the Carbons in coal. Any group that moves exceedingly rapidly seems to drive out higher matter so that it cannot interpenetrate. If you melt gold, the nicely balanced relation of the leaves, Au 33, in the two elipses is upset. The general balanced co-ordination of the components of gold is upset so long as the gold is in a heated condition. When it is cooled again the co-ordination and the original configuration would be restored. In melting the metal the chemical atom becomes larger, spreading away more from the centre and therefore there is not the same cohesion. All these forces are tangled up with the forces of the Anu itself, the force through from top to bottom and that through the spirals.

The Electron : The last Investigation

The last investigation was made on October 13th, 1933. A radio receiving set was used as we wished to find out what was the electron. It is not our Anu but might possibly be an astral atom. The valve, which is supposed to be throwing off streams of electrons, was examined.

Just as the work was suspended, Mr. Leadbeater thought that he had a glimpse of what lay at the back of the nature of positive and negative in electricity. It seemed as if this distinction went as far back as the nature of the "bubble" itself in Koilon. But he was tired and the work was suspended. I left for South America for a year. Next year Mr. Leadbeater passed away at the age of 87.

C. W. L., C. J., Mr. Zuurman.

(Globe with two metal plates inside, connected by a coiled filament)

- C. J. heats a piece of ordinary iron. First see what happens when a piece of iron is heated. What we want to know is—when hot, the ordinary theory is that the particles vibrate more rapidly. We want to know whether it sends off any emanations or any particles.
- C. W. L. I do not think so, but it may presently when it gets hot.
- C. J. Is the heat producing any change in the astral atmosphere round it?
- C. W. L. Of course ; everything—astral and physical—vibrates somewhat more strongly ; but if you want to heat it enough to affect the astral matter, you will need . . . It makes very little difference to the astral.
- C. J. The ordinary heating of this does not produce a discharge of particles?
- C. W. L. It has not yet, but perhaps it may if you make it hot enough, because it is true that a thing sufficiently heated does burn away.
- C. J. That is not the idea. Does it emanate these things? Do the electrons come off?

(The two metal plates and filament are heated)

- C. J. Do you want only the plate heated?

- Z. Only the plate. It is the filament which produces the electrons. I will remove one plate.
- C. W. L. What is the electron like? How will we know it?
- C. J. Here is something which we can make red hot. A needle. Now it is quite red hot. Does it throw off anything now?
- C. W. L. I do not see that it is throwing off anything physical. Mind, it is causing radiations round it.
- C. J. Of what?
- C. W. L. All sorts of things. Everything that comes near it is affected by it.
- C. J. Just as a hot current of air throws about leaves. Is the red-hot needle discharging a stream of anything?
- C. W. L. Not out of itself, but it does heat the ether and everything else immediately around it. It is not causing any electric action.
- C. J. Is it sending off parts of itself which we could call electrons?
- C. W. L. I do not know what an electron is. There is nothing particular happening, except far more violent vibrations.

(Plate and filament brought)

- C. J. You see the little M or V on the filament? When the filament is heated, then electrons flow in because this gets a current through. Then from the hot filament, it draws off particles. It causes the discharge of something that are called electrons. We can't test that because we have no current through here.
- C. W. L. It is red hot already.
- C. J. In that condition produce an electric current. Now examine what is happening inside. The positive will be drawing off from the hot filament a certain number of things.

(Go to radio near window)

- C. W. L. Where is that grid arrangement inside?
- Z. It is covered up; you can't see it.

(Current is turned on in machine)

- C. W. L. Hot?
- Z. A little bit.
- C. W. L. The difference then is that electricity is running through that.
- C. J. And running through that filament that is hot produces a pull of something that are called electrons.
- C. W. L. It certainly creates a considerable disturbance all round it. Are these things radiating clean out through the machine?
- C. J. Now what happens?
- Z. They are discharged and go through the valve and back through—a continual flow of current.
- C. W. L. What is it, the current that is going up and down the business that you showed us?
- C. J. A negative current?
- Z. Yes, but that has nothing to do with it.
- C. J. It is merely to make the filament hot by the current. Another electric current, positive, makes this positive and draws over the negative particles in the filament.
- C. W. L. There is a current; I do not know what it is. Whatever it is, it can sweep the ordinary Anu before it.
- C. J. Anu of what?
- C. W. L. Well, the ordinary Anu.
- C. J. Where is this current?
- C. W. L. It appears to be coming in, your ordinary electricity coming in.
- C. J. That is in the grid, but that is very much like ordinary electricity going through the tungsten wire of a bulb.
- Z. The current flows here always, except here one filament.
- C. W. L. Flows across?
- Z. Yes.
- C. J. Between the grid and the plate?
- Z. No, between the filament and the plate. The whole circle is closed except there.
- C. W. L. When the electricity is flowing through, there is a vast amount of general activity all about there. What you want is to pick out from that general activity these things that you call electrons.

- C. J. The gap between the filament and the plate?
- C. W. L. Light is shining across.
- C. J. What is it made of?
- C. W. L. Something glowing, of course.
- C. J. That is what we want to know.
- C. W. L. Just between the filament and the one plate. Look here, just let me try another chair, in case of accidents. (Takes an arm chair.) Now then, I am going to hold that—this is where the President (Dr. Besant) would come in so usefully—in the same place physically, and then shoot up into the astral and look down at it. See here; it is not quite a real thing, it is a maya. The light shooting across is not really continuous at all. It gives that effect, like a whirling stick. Wait a minute. You are breaking up the ordinary Anu.
- C. J. Into the astral?
- C. W. L. Of course, into the primordial, into the Adi plane of bubbles, but they dart back in a moment (as astral atoms). We are watching something which I do not know how to count. It is taking place so rapidly you have to count in thousandths of seconds or millionths.
- C. J. What is taking place?
- C. W. L. This much. Your Anu breaks up and reforms, many times within a flash. The thing is not continuous at all, but looks as if it were.
- C. J. One Anu after another gets disintegrated?
- C. W. L. It is a very small interval, and yet in that interval they appear to disintegrate and come together on the other side probably a thousand times in a second or more.
- C. J. But where are these Anu from?
- C. W. L. They are being swept along by the current apparently. What have you done to the current? Have you slackened that current at all?
- C. J. Are the Anu from the coating of the filament, the outermost sheath?
- C. W. L. It is all happening so tremendously quickly. I am going to slow it down. I do not want to burst anything. Slow it down and see what happens. I thought at first that it was flowing in one way as a current; but if you slow it down a little, it does not appear to be doing that. It is really flowing backwards and forwards. It looks as though it were running one way, but it is like that (makes a motion) and then going on. Why is that, and what is it? You say these electrons ought to be streaming out somewhere?
- C. J. Towards the middle of the plate from the filament.
- C. W. L. That is where they are going. I had the impression that you thought they would radiate out of the machine. They do not.
- C. J. In the middle of the plate with the current?
- C. W. L. I am sorry, but as far as I can see they are flowing backwards and forwards with inconceivable rapidity; and one would almost say that it is only at intervals that one of them is caught and goes on. Does it delay the flow?
- C. J. I do not know. Is it the Anu flowing backwards and forwards?
- C. W. L. The Anu is disintegrated.
- C. J. Is it the astral that is flowing backwards and forwards?
- C. W. L. Yes.
- C. J. Obviously what they call the electron is the astral atom. Our Anu is broken up into 49 astral atoms.
- C. W. L. Yes, broken up into its constituent bubbles.
- C. J. It is they that are flowing back and forth, and finally one gets absorbed in the current and goes along.
- C. W. L. That is probably happening several hundred times in a second.
- C. J. What are the rest? Where do they get discharged? Into the astral atmosphere?
- C. W. L. They are kept in very violent motion.
- (Shut off the current in the machine)*
- C. W. L. It has all gone back to its ordinary condition. I do not believe they have lost any electrons.

C. J. Slight loss? Now we will have the same position, but will put on the grid. It will have the effect of steadying that flowing back and forth.

(Try to get some broadcasting, but get only noise)

C. W. L. What makes that noise?

Z. The pump at the printing press, or power-house.

C. W. L. That is noise coming through the wire?

C. J. The grid is working now. What is it doing to the coming back and forth?

C. W. L. Wait a bit. The noise is coming through the machinery. So we ought to be able to see what is to be sent, even though the howls are fiendish. The grid, you say, modifies the noise?

C. J. The purpose of the grid is to get the rate higher or lower.

C. W. L. I should say that the grid was rather an obstruction.

C. J. It is intended to be.

Z. The grid discharges positive whichever current flows.

C. J. If the grid is positive, and since the plate is also positive, then the flow of electrons is more and more.

Z. When it is negative, then the flow is reduced.

(Turn off the noise. No music)

C. W. L. Current was flowing through. Here is another curious thing I did not notice before. Why does it split up your Anu? I think it not only splits him up, it sorts him out. There are positive and negative Anu. One goes on one side and the other on another. I want just to follow that. It is difficult for our thick-headed human conceptions to grasp that these things can take place at this amazing rapidity, not lightning but a hundred times that speed. It is sorting out negative and positive.

C. J. What does the negative do?

C. W. L. Goes on one side, and the other on the other.

C. J. But does it get absorbed into the plate?

C. W. L. Yes; it all comes together again. But wait a minute; what I am trying to see is whether by any of these actions you can change a positive Anu into a negative one, or a negative into a positive. I cannot be sure of that yet. But where is this solar system scheme that we are supposed to see—a negative atom going around a positive? Aren't we?

C. J. Well, leave these theories, if you please; and investigate and tell us what you see. We will build a theory. What is happening to the positive and negative Anu? What follows?

C. W. L. But it follows so desperately quickly that I cannot follow it. It takes some slowing down scheme; but in doing that I probably will affect it. A good deal depends on the rapidity of the vibration. Is this supposed to be hot?

Z. Yes.

C. W. L. Red hot?

Z. No; dark hot.

C. W. L. But it all looks to me like a blinding light. Now it is at your receiving station that these things are sorted somehow back into sound vibrations and all that. Aren't they?

Z. Yes; it is a confusing process. The first valve sends wave lengths. If I take the first valve, probably the process will be more simple.

C. J. What have you now?

Z. All three valves. I'll make it with one valve only.

C. W. L. The three valves would only intensify the process.

Z. The first one is a different process. It is all sorted out, the sound waves from the wave length of the station. Now there is only one valve.

C. W. L. When you have all three of them going on, from first to second they are strengthened, not altered.

C. J. What is "they"?

C. W. L. Anu, I suppose; but what I rather want to know is how this picking up is done, and what is the object of it. Do they come together in some different arrangement afterwards? But I do not quite

- see that they do. Only it is so quick that you cannot very well follow it. I was certainly hoping that this process would change the positive into negative, and vice versa; but I cannot prove that it does. Wait a minute. I was trying to count the wretched things, slowing them down enormously, a thousand times, watching the number of male and female that went in, to see whether the numbers go out on the other side.
- C. J. Went where?
- C. W. L. Those flowing across.
- C. J. And go back to the filament again?
- C. W. L. No, no. Go into the plate.
- Z. Filament to plate.
- C. J. But before that they flow back and forth?
- C. W. L. A hundred times before they are split perhaps. Remember that whirlpool at Niagara; some bits go round twenty times before they are swept away. It is like that, but a few million times faster. Where are these electrons of yours? Are they the little globes or balls of astral atoms, I wonder? But aren't they supposed to exist all over the place everywhere?
- C. J. Yes.
- C. W. L. These things do not; they are made for the occasion.
- C. J. What causes the thing to flow back and forth?
- C. W. L. I am not quite sure that the thing does not flow back and forth normally. Lightning does that.
- C. J. There is one pull and the other. The filament negative and the plate positive, and it flows back and forth between them. You say, when the current is going through the wire, there is a series of astral atoms going through the outermost sheath, or is it a series of Anu?
- C. W. L. Running along the outside of the wire, the ordinary electric wire.
- C. J. It is a series of astral atoms that goes through?
- C. W. L. I don't know that they would be necessarily astral. They would be the ordinary Anu, I think, but electrified, a strain set up at a particular angle.
- C. J. Not in the filament but along the wire; there is a stream of ordinary Anu flowing under the sheath of the wire. Is that it?
- C. W. L. But they are being swept along it, mind you. The Anu has no volition of its own.
- C. J. Where from?
- C. W. L. The electricity picks them up. We never see electricity. It is driving these things before it.
- C. J. Does it pick up from the atmosphere the Anu everywhere?
- C. W. L. Yes, and it is . . . there is another . . . probably fifty. See here. When you send an electric current through, you stir up all creation for an inch or two on each side of it, so to speak. Is that what you call the magnetic field?
- C. J. Yes.
- C. W. L. That is a different kind of reaction, a kind of backwash. How separate the effect of one thing from the effect of another? I do not think we can escape from the idea that there is a radiation at right angles to the wire.
- C. J. Yes, that is inside. I would like, if you take two wires—positive and negative—can you see that in one wire there is one type of Anu going along, and in the other another?
- C. W. L. You have one thing over, which is very much separate.
- C. J. Which?
- C. W. L. I can see it from here. It is that one which sets the light over the disc going. He is very much separate.
- C. J. Now you can study the two lots. In these two, are there two separate sets of Anu?
- Z. It is all one type of current going through there.
- C. W. L. What do you consider you are sending along it?
- Z. Maybe plus or minus; I don't know.
- C. W. L. How can you know?
- C. J. The easiest way to observe is in these two—this is plus, that is minus. Then you can sort it out.
- C. W. L. You definitely have two separate things there. How do you separate them?

- C. J. Better resume another time. Let's get on with the electron business where a positive thing comes along, going back through the bulb. Going out negative.
- Z. Because you have got pressure there it is changed. We call it plus and minus. (Makes a diagram of a dynamo.) Here on the bulb is plus or minus.
- C. J. That is your bulb. Here is a current going through this wire. How to change the plus to minus?
- Z. The dynamo does it. By running in the magnetic field, one side becomes plus, and the other side minus. You get a sort of average. The average is the weight of pressure.
- C. W. L. But it seems to me that there is a stream of things coming down from the astral, and a stream of things being sucked up. What the dynamo is doing is sucking up the other thing, and these two are sort of complementary. It is generating one type of current, drawing it from the astral, and the other time sucking up another type from below.
- Z. Suppose you have one magnet very strong, just a single one. You move it along, there you have currents.
- C. J. One type?
- Z. No, plus and minus, both. The current goes in a certain direction that we call plus or minus, according to the way it goes.
- C. J. Always you must have the earth as one pole?
- Z. No. Since you close the wire into a circle, you have a current flowing.
- C. W. L. Then the thing becomes magnetic?
- Z. No, we have the magnet before.
- C. W. L. That is where the current is made?
- Z. Yes, because it flows.
- C. J. Does it flow alternately?
- Z. In one wire always the current is in a certain direction. The direction of the flow of the current changes.
- C. W. L. What we have to find out is, what is the current itself? It may be the Divine Life for all we know.

Adyar, Madras, India,
10th November, 1932.

The following was written by Mr. C. W. Leadbeater after the conclusion of the main series of observations.

"The work on Occult Chemistry is finished at last; that is to say, one small section of it is finished—the special piece of work that the President (Dr. Besant) and I set ourselves to achieve when we began our investigations in 1895. Thirty-seven years it has taken, though we have been able to work at it only spasmodically, and what has been done during the last two years I have had to do with Raja's (C. Jinarajadasa's) help. Raja from almost the very beginning has been our recorder, our calculator and draftsman, and without him we should never have succeeded even so far as we have. We have catalogued all known elements, and added half a dozen or so which are still undiscovered by science. We have classified them, and drawn the shapes of their chemical atoms; now it will be for our successors to make the deductions and try to formulate more definitely the great laws under which the Third Aspect of the Logos chooses to work. No one who has seen the orderly lines along which evolution progresses and the wonderful skill with which the combinations are made could possibly doubt the existence of a Great Plan and of the Great Architect of the Universe who is patiently working it all out."

THE PERIODIC LAW

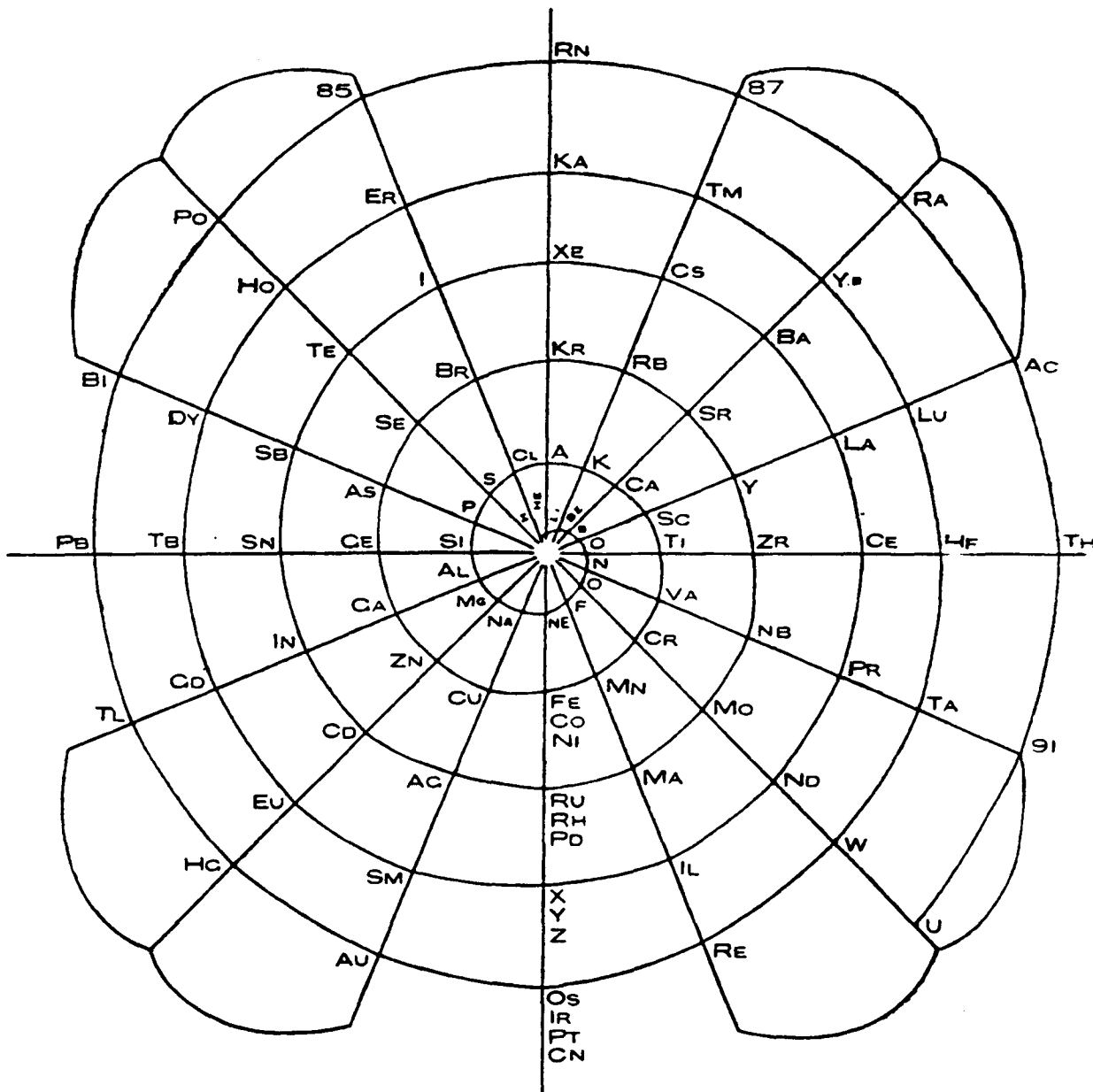


FIG. 225. SPIRAL REPRESENTATION OF THE PERIODIC LAW

FIG. 226. TETRAHEDRON,
SHOWING FUNNELS AND
SPIKES

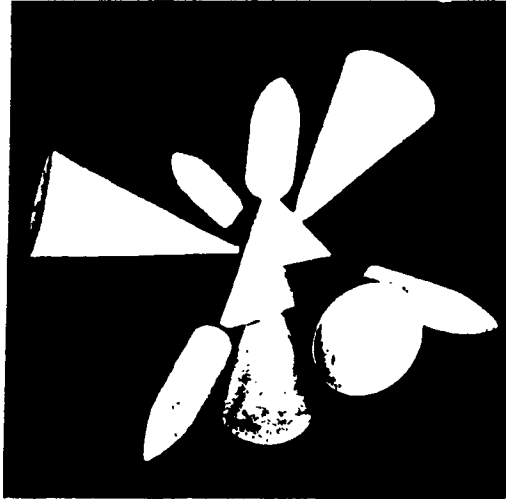


FIG. 227. CUBE,
SHOWING FUNNELS AND
SPIKES

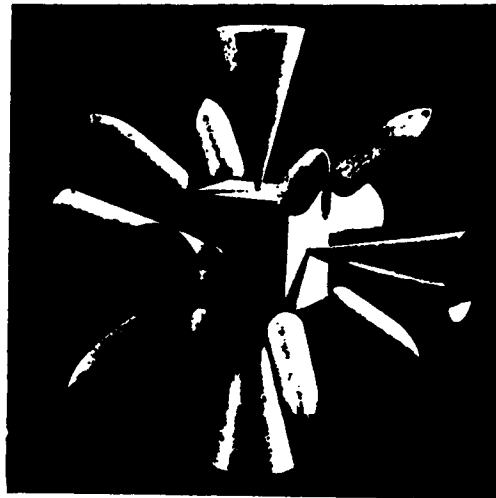


FIG. 228. OCTAHEDRON,
SHOWING FUNNELS AND
SPIKES

