"GEOMETRY IS THE BASIS OF OUR ART."
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On the occasion of his initiation into Freemasonry, and for as
long as he remains an E.A., a Freemason learns that the system of
which he has become a part is based on the G.A.O.T.U. When,
however, he earns the privilege of becoming a F.C. he learns that
the G.G.O.T.U. is the basis. As he realizes that each of these
expressions refers to GOD, he wonders whether there is any
significance in this change, and if so, what it is.

The words 'Great' and 'Grand' do not take him very far, for they
are really synonymous. Sometimes the word Grand is used instead
of Great as a form of emphasis; but there is very little valid
reason for this. He may assume, therefore, that if any
differences do exist as between the two expressions, those
differences will arise from the relational meanings of Architect
and Geometrician as used in the Ritual of our moral system.

In the 1st Degree the term G.A.O.T.U. involves two main concepts
namely; –
(a)   Drawing up the plan of the universe; e.g." The Universe is
the Temple of the Deity whom we serve." and
(b)   The act of creating the Universe, or bringing it into
being; e.g." By never mentioning His name but with that awe and
reverence due from the creature to his Creator".

It is because of these concepts that the E.A. knows that this
term refers to GOD, and it is because of them that he gives
complete reverence to HIM. Is not this the ultimate?

WHAT DOES AN ARCHITECT REALLY DO?

The meaning of the word can clearly be followed from its
derivation, namely, 'arch' – meaning chief or superior, and
'tekton' meaning builder. Hence the dictionary describes an
architect as one who prepares plans and supervises work –as a
designer of complex structures. In other words, he draws plans
and puts them into operation.

When Freemasonry refers to GOD as the G.A.O.T.U. it is obviously
asserting that He planned and created the Universe. But in the
2nd Degree he is referred to as the G.G.O.T.U. Can there possibly

be any other Being to whom this G.A. is responsible? Are there laws, rules or principles to which He, as an architect, must conform?

Consider the case of the human architect. In drawing up his plans he must conform to the principles of engineering, science, chemistry, etc.; he must take cognizance of the use to which the proposed building is to be put; he must study the relationship the completed structure will have to its environment. In other words, he must know beforehand the real purpose of the structure to be built, and he must obey the rules which will ensure that this real purpose is achieved.

Going back to the idea of the GA.; it would seem that Freemasonry presupposes that something of a similar nature applies in this case, as the term G.A. is changed to G.G. It might appear from this we would be making the G.A. subservient to the G.G., but this cannot be so, as each of these terms refers to GOD – and GOD cannot be subservient to GOD, nor to anything else. What must be true, therefore, is that our concept of GOD has widened and deepened when we think of Him as the G.G.

If it is the Universe that is to be set out as a plan and then created, what fundamentals will precede the work of this Architect? only the existence of a Grand Mind* that evolves the purpose that lies behind such an act of creation, together with the Absolute Knowledge necessary to insure that this purpose would succeed. Is this what Freemasonry is attempting to say when the G.A. of the 1st Degree becomes the G.G. of the 2nd Degree? It would seem to be so, especially when we read, "the Science of Geometry, which is established as the basis of our Art". And if this is so, then, not only has our concept of GOD been deepened, but our concept of the fundamental nature of Freemasonry has been deepened likewise.

In other words, if we as Freemasons accept the idea of the G.G. to mean the Grand Mind that shaped the very purpose of creation before bringing it into actual existence, then, through His Geometry, we will be privileged to build up a truer and clearer concept for ourselves on the basis of our Art.

The words in the ritual that convey this new concept are geometrician and geometry. The word geometry must have some specific meaning to enable this to be done.

GEOMETRY – ITS MEANING

This science was first developed by the Greeks when they came into contact with some of the practices of the early Egyptians. These people used very practical and rule-of-thumb methods of portioning out lots of land on the extremely fertile flats along the Nile River. Frequent flooding of the river made it necessary

to apply these methods in re-measuring the land following high flood levels.

Greek mathematicians (among whom were such men as Euclid, Parmenides and Pythagoras) studied these rule-of-thumb methods used by the Egyptians, and discovered the fact that they followed inexorable mathematical laws. By intensive study of these laws, these Greeks were able to build up the profound mathematical system known today as Geometry. This name pays tribute to the source from which it arose, as its derivation is 'geo' – meaning the earth, and 'metron' – meaning a measure.

THE NATURE OF GEOMETRY

Geometry speaks in terms of lines, angles, arcs, shapes, etc., but these do not constitute its real nature. ** They are merely the graphic media through which the system expresses itself; but its real nature lies much deeper than this.

The geometrician really brings facts into relation with other facts, and from the relationships so formed conclusions are drawn – but conclusions with a difference. These conclusions involve exclusively true and correct thinking. Each one reached must be completely correct – it cannot be wrong. It must be completely correct because, before it can be accepted as a conclusion, it must be proved through thinking that is itself absolutely true and correct beyond all possible shadow of doubt. To insure that this is so, the science demands that no statement can be made without quoting the specific authority which entitles one to make the said statement accurately and without doubt. This authority must be quoted in complete detail and must come, not from the mind of the person developing the argument, but from the science of Geometry itself.All conclusions reached and the progress of the science itself work through 'a priori' principles, that is, working from a cause towards effect. In this process no single statement can be made or conclusion reached without being proved beyond all shadow of doubt. Each conclusion so proved can then become an authority of proof in reaching a further conclusion. And so the science builds itself up into a system of absolutely true reasoning; it becomes the science of pure thought which must be indubitably true. (See Appendix 3)

Other systems of Geometry have been worked out since the days of Euclid. These extend, for instance, into the realms of three-dimensional space, and of calculations involved in navigating on the variant curvature of the earth's surface. But no matter what the system is, they all work through the same basic 'a priori' principles employed in Euclidean Geometry. In no case can conclusions or assertions be based in any way whatsoever on interpretation of empirical evidence.

It can be seen from these arguments that the geometrician depends entirely on proof through pure reasoning. Hence Geometry can be defined as the science of pure thought and absolute knowledge. It is the perfect manifestation of mind that allows no possibility of doubt or error.

GEOMETRY VERSUS THE PHYSICAL SCIENCES.

The physical sciences work in the opposite way from that employed in geometry. They proceed through experiment, and interpretation of the results obtained. Scientists work through 'a posteriori' principles in reaching conclusions. In other words, the movement is from effects towards causes. Their experiments depend on the power to isolate and fix all the conditions; results must be judged by measurement, and conclusions depend on mental interpretation of empirical evidence; and all these are subject to both doubt and error.

CONCLUSION

As, therefore, Geometry is the science of pure thought – as it is the perfect manifestation of mind that cannot possibly involve doubt or error, we must be asserting, when we accept GOD as the G.G.O.T.U. that He is beyond all possibility of doubt or error.

We are even going further than that. We are asserting that GOD is the Grand Mind from which the whole purpose of the Universe emanates, and from Whom the whole purpose of our own existence flows. Here we comprehend the basic principles of intellectual truth. Here we "contemplate the intellectual faculty and trace its development through the paths of Heavenly science even to the throne of GOD".

Hence our concept of GOD has deepened until the Grand Geometrician has become the central and only core of our being. If a Freemason is not prepared to accept this belief, then he must replace it by some other belief equally valid and acceptable to Freemasonry, or "relinquish his right to be ranked amongst its members".

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APPENDICES.

When we refer to the Deity as representing the Grand Mind, it seems necessary to use this personal concept, "mind", as man finds it extremely difficult to think of the Deity unless it be in human terms.

**   It seems obvious that the use of the term geometry in Masonic Ritual does not concern itself with the facts or conclusions of the science of geometry, for these belong to the

science itself. Freemasonry is a system of morality and so has little to do with the equality of angles, the parallelism of lines, etc.

Neither is it concerned with the graphic media through which this science expresses itself by giving them meanings that geometry gives them. When Freemasonry uses such terms as angles, triangles, squares, etc. they are used in an allegorical sense, the meanings being derived from traditional mythology, e.g., the triangle represents the Deity, the circle represents the good, etc.

Here is an example of geometrical reasoning:-

    Problem:- Are the angles at the base of an isosceles
    triangle equal?
    Solution:- Let ASM represent an isosceles triangle i.e.
    the side
    AS and AM are equal. (definition)

    Required to prove:- That angle at S equals angle at M
    Data:- AS=AM because triangle ASM is isosceles
    Construction:- Bisect angle SAM with line AY
    Proof:- In triangles ASY and AMY

Statement Authority
    1. Be side AS = side AM by data.
    2. Because side AY = side AY side is common to both
    triangles.
    3. Because angle SAY = ang.MAY by construction.
    4. Then the triangles ASY andproved in a previous theorem
    that AMY are congruent.triangles with two sides and
    included angles equal are congruent.
    5. Therefore angle ASY = Corresponding angles in two angle
    AMY. congruent triangles. But the angle ASY is the angle at
    S and the angle AMY is the angle at M.

Hence the angles at the base of an isosceles triangle are equal which was the problem for solution.

(Operator's note. 1/1.1999 At present my computer knowlede is limited hence am unable to insert a sketch of a triangle in the area above right column.