of an inch the force will be delivered suddenly, like a hammer blow, and the rod, bearing and crankshaft surface will soon be pounded flat, creating a noise which at first sounds a lot like loose tappets. That's the reason I'm checking it now. If it is a loose rod and I try to make it to the mountains without an overhaul, it will soon get louder and louder until the rod tears itself free, slams into the spinning crankshaft and destroys the engine. Sometimes broken rods will pile right down through the crankcase and dump all the oil onto the road. All you can do then is start walking.

But all this can be prevented by a few thousandths of an inch fit which precision measuring instruments give, and this is their classical beauty—not what you see, but what they mean—what they are capable of in terms of control of underlying form.

The second tappet's fine. I swing over to the street side of the machine and start on the other cylinder.

Precision instruments are designed to achieve an idea, dimensional precision, whose perfection is impossible. There is no perfectly shaped part of the motorcycle and never will be, but when you come as close as these instruments take you, remarkable things happen, and you go flying across the countryside under a power that would be called magic if it were not so completely rational in every way. It's the understanding of this rational intellectual idea that's fundamental. John looks at the motorcycle and he sees steel in various shapes and has negative feelings about these steel shapes and turns off the whole thing. I look at the shapes of the steel now and I see ideas. He thinks I'm working on parts. I'm working on concepts.

I was talking about these concepts yesterday when I said that a motorcycle can be divided according to its components and according to its functions. When I said that suddenly I created a set of boxes with the following arrangement:

![Diagram of a motorcycle with components and functions]

And when I said the components may be subdivided into a power assembly and a running assembly, suddenly appear some more little boxes:

![Diagram of a motorcycle with power assembly and running assembly]

And you see that every time I made a further division, up came more boxes based on these divisions until I had a huge pyramid of boxes. Finally you see that while I was splitting the cycle up into finer and finer pieces, I was also building a structure.

This structure of concepts is formally called a hierarchy and since ancient times has been a basic structure for all Western knowledge. Kingdoms, empires, churches, armies have all been structured into hierarchies. Modern businesses are so structured. Tables of contents of reference material are so structured, mechanical assemblies, computer software, all scientific and technical knowledge is so structured—so much so that in some fields such as biology, the hierarchy of phylum-order-class-genus-species is almost an icon.

The box "motorcycle" contains the boxes "components" and "functions." The box "components" contains the boxes "power assembly" and "running assembly," and so on. There are many other kinds of structures produced by other operators such as "causes" which produce long chain structures of the form, "A causes B which causes C which causes D," and so on. A functional description of the motorcycle uses this structure. The operator's "exists," "equals," and "implies" produce still other structures. These structures are normally interrelated in patterns and paths so complex and so enormous no one person can understand more than a small part of them in his lifetime. The overall name of these interrelated structures, the genus of which the hierarchy of containment and structure of