differential equation $\Delta \rho = 0$, invariant with relation to rotation. The potential function is not arbitrary if it results from some law which points to its distribution in space. But such a law cannot be the initial principle of Newton's mechanics. It appeared as a description of real processes in a physical medium under the influence of facts and was directed against far action.

The above defects of classical mechanics, like the others specified further in Einstein's *Autobiography*, disturb its "internal perfection". Whereas for special theory of relativity another criterion ("external justification") was of primary importance, with the further expansion of the theory, its changeover to the general theory of relativity, the criterion of "internal perfection" *i.e.*, simplicity, naturalness and unambiguity, played a major euristic rôle.

The historian's important task is to clarify the real meaning of this criterion. By thoroughly examining it, we are able to note some analogy between Einstein's scientific method proper and his historical-scientific method as formulated in the *Autobiography*.

If one is to determine Einstein's scientific method proper, it may be called the method of invariants. The relativity theory meant a great triumph of the method, and the further development of this theory pointed very distinctly to the rôle of invariant analytical conceptions in its inner structure. Einstein strove to express the objective regularities of nature by means of magnitudes invariant as to co-ordinate transformations.

The same tendency, directed towards the past, underlies Einstein's historical-scientific method.

Simplicity of a theory is the criterion of its truth. What there does the word "simplicity" mean? It can be easily perceived that Einstein does not adhere at all to the old criteria of "simplicity" according to which nature functions. The case in point is that in its development the pattern of the world becomes devoid of anthropomorphous ideas and expresses the objective reality by increasingly objective methods independent, notably, from the methods of measurement, invariant as to the selection of methods of measurement and the "reference" systems. This, likewise, is what the condition of "naturalness" comes to, and, quite clearly this time, the condition of excluding arbitrariness in deriving conclusions from the initial premises.

It goes without saying that the above remarks about Einstein's historical method and the assessment of classical mechanics refer to but a small part of those numerous and profound historical-scientific ideas which the *Autobiography* contains together with the proper physical ideas.

MINIATURE SUN CREATED BY PLASMA "PINCH"

THE photograph taken in one ten-millionth of a second, shows a miniature sun created by a plasma "pinch".

The plasma, a very hot deuterium gas whose atoms are stripped of their electrons is "pinched" inward toward the centre of the tube. As it is "pinched", it is also compressed and heated to several hundred thousand degrees—hotter than the surface of the sun—and glows brightly. The streaks of light are longitudinal views of the pinch reflected by mirrors.

Such photographs reveal plasma instabilities and eventually make possible a controlled fusion reactor.—(*General Atomic Division, General Dynamics Corporation.*)