

Institutionalisation of science – a recent development: though



Institutionalisation of Science – A Recent Development: Though science and scientists have been in existence since centuries, science has emerged as a major social institution relatively recently. The Background of

Institutionalisation: Two-three thousand years ago, a few ancient people such as the Indians, the Arabs, the Greeks, the Mayans accumulated considerable amount of scientific knowledge especially in the fields of mathematics and astronomy.

They made some practical use of their knowledge in such fields as agriculture, architecture and navigation. But they had hardly any specialised scientific roles, and they made no efforts to link science to technology. The beginning of the modern science was marked by the rebirth of learning in the 16th and 17th centuries. Even at this stage there were no specialised scientific roles. Until the 20th century, science was practised primarily by gentlemen equipped with intellectual curiosity and private wealth. The activity was not of great importance from the societal point of view, for its practical purposes were not widely recognised.

Virtually, there were no full time professional scientists. The field of science was dominated by people who are understood in today's language as “gifted-amateurs”. Though universities were gradually admitting science to the curriculum, they continued to give more importance to the more prestigious traditional subjects such as classical languages and philosophy.

Specialised scientific roles existed mainly in the universities and scientific research was largely confined to the ivory towers of the academic world.

Science as the Modern Institution: It is in the 20th century the relationship

between science and technology has become fully recognised and exploited. This development has made the science to become a full-fledged and a well-developed institution. Science which was referred to in the previous centuries as “ little science” has now become the “ big science”.

It is now firmly associated with big organisations, big money, big industries and big politics. The number of scientists in the world has grown very rapidly. In fact, the 20th century produced more than 90% of the scientists who ever lived on earth. [Price, 1963].

At the far end of the 20th century (1980), more than one lakh scientific journals were in circulation and more than 2 million individual scientific papers appear each year. In America, for example, by 1980s, there were more than 5.66 lakh full-time scientists. Most of these scientists were employed by large formal organisations, universities, industry and the government. Of these, the universities constituted the largest single employer.

The scientists had considerable freedom to choose the area of research in a university, provided it got the financial assistance from some agency. As far as the industry and government are concerned, the scientist's specific tasks are usually set by the organisation in accordance with its own political, military, commercial or other purposes. Effects of Institutionalisation of Science The institutionalisation of science has important effects especially on the scientific community. Some of them are mentioned below.

Firstly, science no longer remains a field to be occupied by the “ gifted-amateur”; or a field of “ respectable leisure activity” to serve “ the needs of
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gentlemen equipped with intellectual curiosity and private wealth.”

Secondly, scientists must spend many years in training for scientific careers and can rarely expect to make a significant contribution until they have mastered a specific sub-section of some scientific field. Thirdly, scientific disciplines have become more and more specialised. Even the super specialists in the scientific field may find it difficult to keep up with the literature that gives report about the developments taking place in that field.

Fourthly, scientists in order to face these realities form social organisations of various kinds. These organisations may be either as large formal organisations as the international organisations or small informal, “invisible colleges” consisting of a small number of scientists working in the same field. These organisations are of great help to the individual scientists to keep themselves in touch with the latest developments taking place in the field.

These are also of help to find answers to specific questions, to sense new trends and to seek critical remarks about their own work. Fifthly, competition among the formal scientific organisations has become almost inevitable. “One consequence of this unplanned growth of scientific organisations in universities, government, the military and the private sector, Bell concluded, is that it became impossible to create a single set of policies for the support of science. The various organisations must compete for resources and are vulnerable to changing national needs as well as new demands for scientific knowledge by business and industry. This makes scientific institutions even more intense and competitive. Finally, conflicts between scientists and the sponsors of the scientific researchers have almost become inevitable in the <https://assignbuster.com/institutionalisation-of-science-a-recent-development-thought/>

modern complex socio-political situations. Since many resort to scientific career as professional, scientists are to be paid for their work.

The more their research is on “ pure” sciences [that is, basic research] the more it is to be supported by the institutions like the government or the university. If they resort to “ applied research” which aims at finding technological applications for scientific knowledge, the chances of getting financial support by the institutions such as industries, and commercial establishments, are brighter. Neither the educational institution nor the formal scientific organisation itself is able to support continuously all the research projects that the scientists want to take up. “ This dependence of science on other institutions continually subjects scientists to pressure to make their work relevant to the needs of business or the military. Conflicts between scientists and their sponsors thus have been a feature of science since its origins”} In fact, a glance at the norms of science or scientific institutions helps us to understand more fully the nature of this conflict.