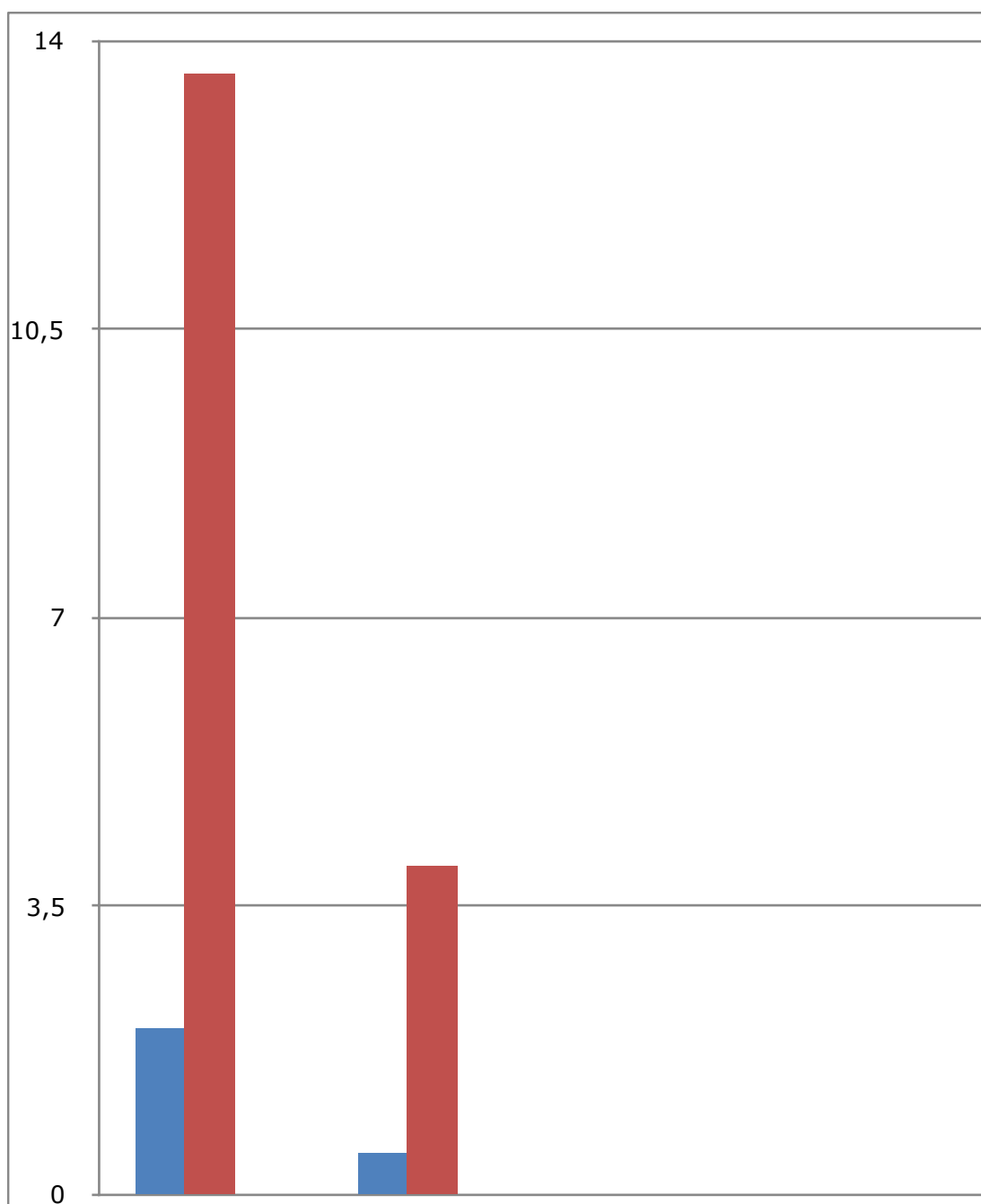


The Invention of the transistor and development of semiconductor devices against a background of the Cold War events

Vasily Borisov

The invention of the transistor (J. Bardeen, W. Brattain and W. Shockley, 1947) gave rise to a rapid development of semiconductor devices and integrated circuits, electronic computing on the new element base. Chronologically, a significant part of the events of “the semiconductor revolution” occurred during the period of confrontation between the USSR and the United States in the cold war, the blockade of the USSR and other socialist countries from the scientific and technological achievements of the West. Still the period from the 1960s to the end of the 1980s was characterized by intensive development of semiconductor devices and an increase in their production volume in both the camps. In the USSR research institutes and factories of the semiconductor industry were established in Moscow, Kiev, Minsk, Yerevan, Voronezh, Novosibirsk and other cities. After the collapse of the Soviet Union, Russia was heavily dependent on imports of semiconductor electronics products. At present, despite the existing lag in the technical level of some types of electronic equipment, the volume of output of the Russian radio and electronic industry is growing annually.

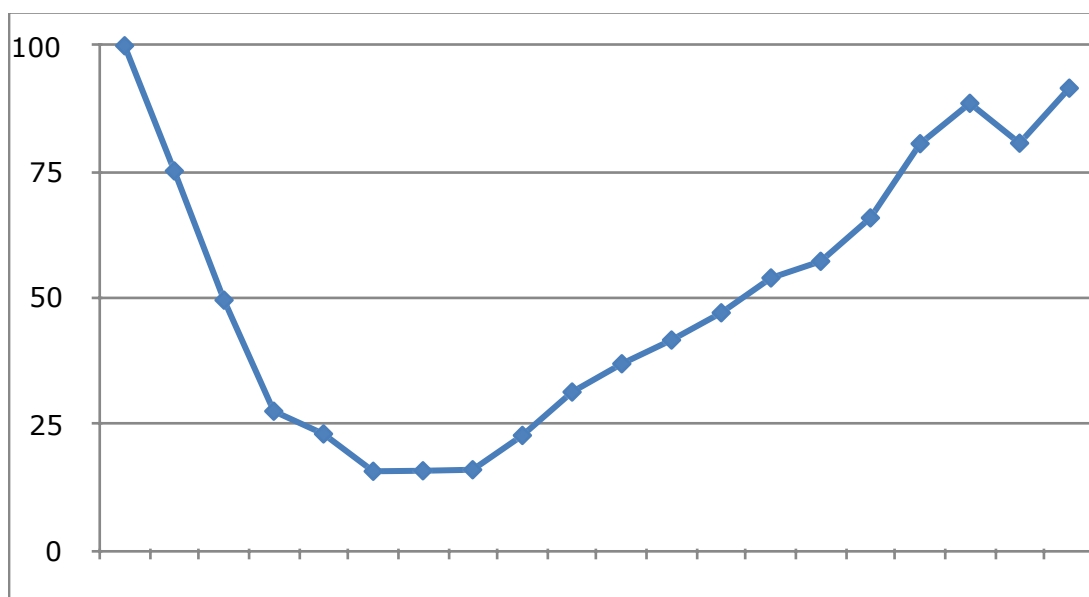
Fig. 1



Production of semiconductor devices and transistors in millions of pieces in USSR and USA in 1964.

Fig. 2

Dynamics of changes in the output of electronics products of the Russian Federation (in % to 1990)



1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010