Kulakov Boris Alekseevich (Th e 75th anniversary of birth).

1. **S. Douson, A.G. Panov, I.F. Gumerov, E.V Panfi lov.,D.A. Gurtovoy, I.A. Dibrov, S.A. Anikin.** Th e experience in large-series production of high-quality automobile castings made of compacted graphite cast iron.

Results of the analysis of development of industrial production of castings from CGI are presented in article. It is shown that high world growth rates of production in the last 20 years of serial castings from CGI are caused on the one hand by demand for its unique technological and operational properties in relation to a wide range of components, and on the other hand — by emergence of industrial process «to measure-and-correct», based on the high-precision thermal analysis of quality of melts and providing narrow requirements of specifications for a microstructure and properties of CGI.

Key words: CGI, casting, series technology, SinterCast

2. **M.N. Saubanov, E.N. Zhirkov, E.P. Efi mkin, I.E. Illarionov, I.O. Leushin.** Peculiarities of manufacture of large-size and complex-profi le castings from titanium alloys under conditions of JSC Zelenodolsk plant im. A.M. Gorky».

The features of the technology development and manufacturing of titanium castings in magnesite moulds have been set. The optimal technological modes of titanium castings production have been defined. A schedule for determining leak-ins in vacuum arc furnaces during melting of titanium alloys and modes of hot isostatic pressing of titanium castings have been worked out.

Keywords: titanium, layer of enhanced hardness, SolidCast, ProCast, core metalling, magnesite powder, leakins in furnaces, hot isostatic pressing.

3. **E.S. Gamow, V.A. Kukushkina.** Th e use of additive (digital) technologies for the production of cast art products.

The foundry-additive (digital) technology for producing cast artistic products is described.
The basis of foundry-additive technologies is shown —two stages:

• The first stage — the search for prototypes of art products, their sketching.
• The second technological stage is the 3D modeling of sketches and the adoption of the optimal variant for 3D printing (models and models or products).
The peculiarity of designing and practical application of additive technologies in the foundry industry is established and practically confirmed: the features of designing and assembling them in the working space of a 3D printer.
It is described the production of casting-additive technology by the example of two author's products — «The Ring» and «The Battle Scene».

Key words: additive technologies, cast product, printer, 3D modeling, layout, color, texture, program, «Ring», «The Battle Scene».

4. **K.A. Batyshev, K.G Semenov., E.D. Demyanov,R.F. Yusipov, I.Ya. Paremsky, A.A. Prokhorov,V.A. Katelin.** Production of quality castings for critical purposes using modern modeling methods.

The use of modern computer programs in the production of castings of responsible use is an indispensable condition for obtaining high-quality parts. The paper presents the results of using NX Unigraphics, ProCAST and Polygon programs to produce defect-free gas turbine blades.

Key words: design, computer programs, models, temperature distribution, gating system, castings.

5. **V.I. Luzgin, A.S. Koptyakov, V.E. Frizen, A.Y. Petrov,S.M. Fatkullin.** Innovative technologies for induction melting of alloys in foundry.

Technological scheme of induction crucible furnaces operation with simultaneous electrical power supply by high and low frequency currents has been provided.
Electrical power supply is organized by medium frequency currents during heating and melting of charge materials. Electrical power supply id done by low frequency currents during keeping the melt to necessary chemical composition and temperature.
Simultaneous electrical power supply of induction furnace by low and high frequency currents allows to increase the efficiency of operation and to expand the technological capabilities of the furnace.
It is proposed to use induction furnances with nonstandard 0.5—0.8 ratio of height to diameter of the crucible for large-sized charge materials.

Key words: induction furnace, current frequency, synthetic cast iron.

6. **V.A. Korovin, K.A. Maslov, R.N. Palavin, A.S. Kirov.** Th e infl uence of the microalloying and inoculation on the structure and properties of high-alloyed steels with special properties.

Investigated the effect of microalloying and modification on the structure and properties of high-alloyed steels with special properties. New compositions of high-alloyed steels with high performance properties have been developed.

Key words: microalloying, inoculation, alloying elements,inoculants, structure, mechanical properties, casting, cost.

7. **A.Z. Isagulov, V.Y. Kulikov, Sv.S. Kvon,E.P. Scherbakova, A.M. Dostaeva.** Infl uence of technological parameters on the production of chamotte bricks with high thermal stability and strength.

The results of the study are presented, during which the parameters of the technology for manufacturing refractory chamotte bricks with optimal porosity and high thermal stability are determined.

Key words: Chamotte brick, clay suspension, porosity, thermal stability.

In memory of Dmitry Petrovich Lovtsov (8.11.1924—26.03.2018)