Figure 1.1 The radioactivity warning sign according to the Czech standard ČSN 01 8015

Figure 1.2 The other warning sign that is used at the workplaces handling radioactivity and at the X-ray unit workplaces. This warning sign informs of the workplace type but does not specify that this is the workplace handling radionuclides

Figure 1.3 The electrostatic charge eliminator (the yellow bar above) on a rubber coating machine. The high-intensity alpha radiation eliminates electrostatic charge on the surface and it also reduces the danger of explosion due to thinner vapour

Figure 1.4 The old pictograph that warns against a radioactive source

Figure 1.5 The detail of the electrostatic charge eliminator

Figure 1.6 Lead shielding blocks

Figure 1.7 A semi-hot chamber

Figure 1.8 The manipulators that are used in the semi-hot chamber for handling the sources

Figure 1.9 The interior of the semi-hot chamber. On the background, you can see the remote-controlled lathe head that is used for the source fixation

Figure 1.10 The detail of the uranium vault for storing the sources in the semi-hot chamber

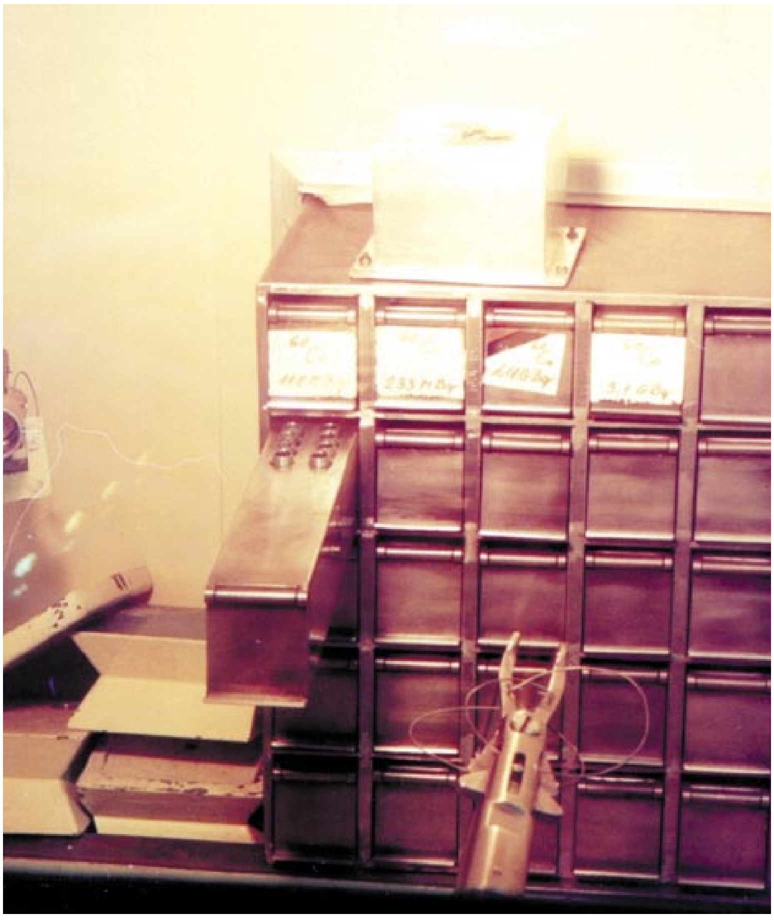

Figure 2.1 The fire detectors that were produced by the former Tesla Liberec On the left MHG 102 (2ī35 kBq 241Am), in the middle MHG 181 (35 kBq 241Am), on the right MHG 103 (75 kBq 241Am). The MHG 107 fire detector with 35 kBq 241Am looks like MHG 181. See also Fig. no. 2.4

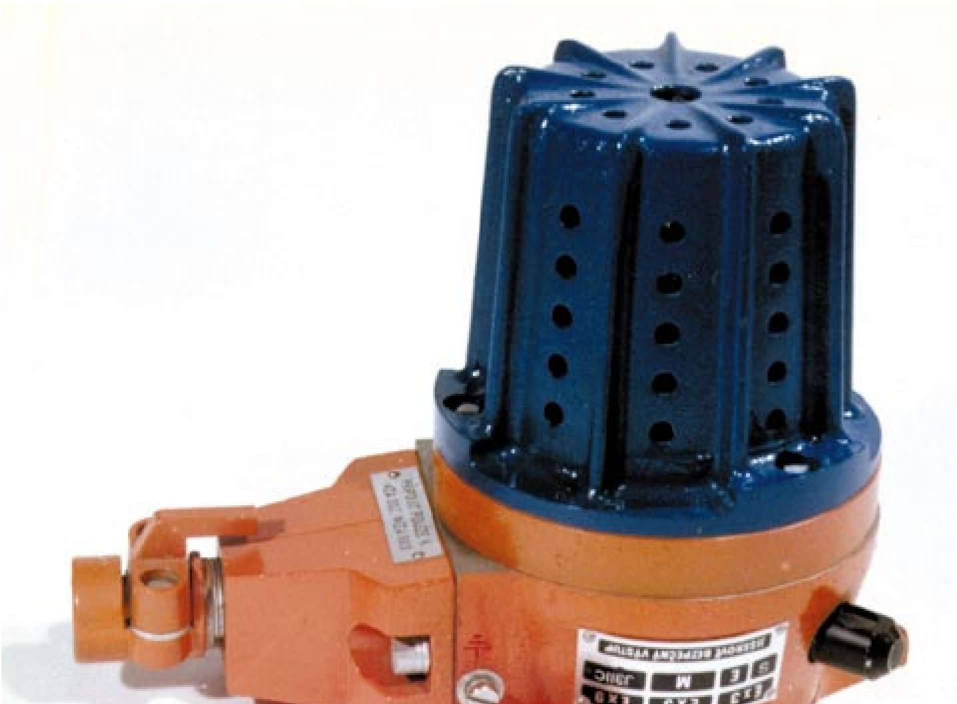

Figure 2.2 The MHG 102 fire detector, produced by the former Tesla Liberec, ČSSR. It contains 2ī35 kBq 241Am. The photograph from the former Tesla Liberec, ČSSR

Figure 2.3 The MHG 103 fire detector, produced by the former Tesla Liberec. It contains 241Am, 75 kBq. The photograph from the former Tesla Liberec, ČSSR

Figure 2.4 The holder of 226Ra source in the MSK 101 fire detector, produced by Tesla Liberec. Diameter of 55 mm. The radionuclide is pressed in the middle of the holder, activity is 51.8 kBq

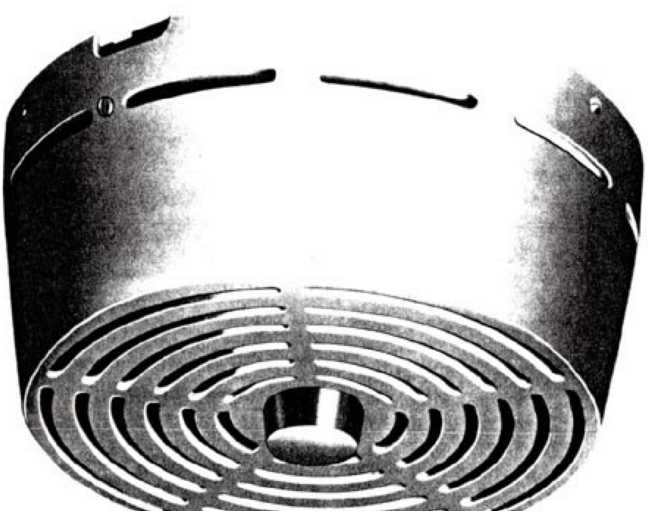

Figure 2.5 The VA-K-301 fire detector, produced in the former East Germany. 85Kr with activity of only some tens of kBq. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

Figure 3.1 The MDG 301 level indicator shield. Its application is in reservoirs, tanks, silos, etc. It can contain either 60Co with activity up to 23.3 GBq or 137Cs with activity up to 116.5 GBq. The company material of the former Tesla Liberec

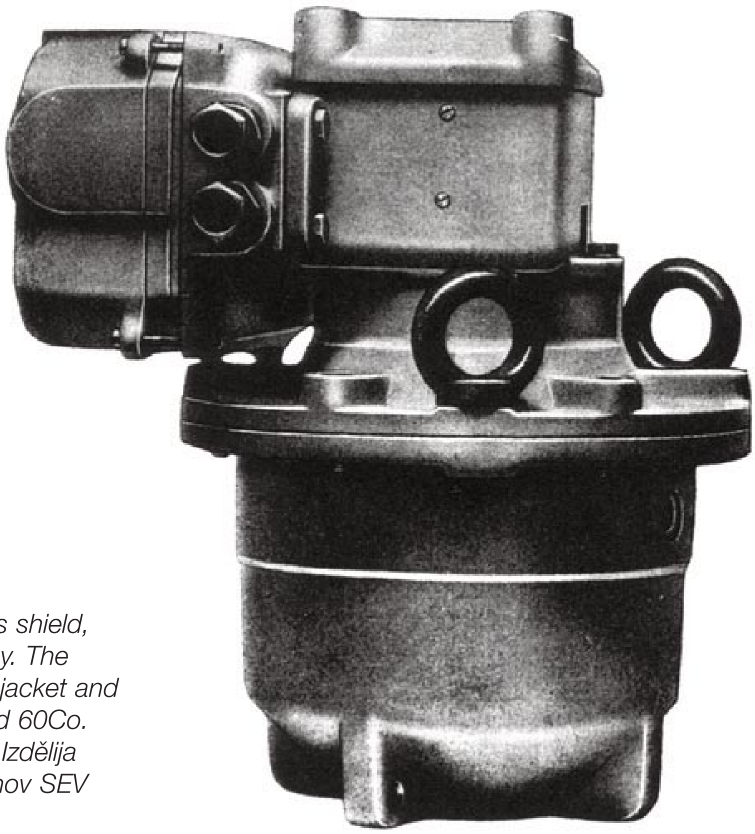

Figure 3.2 The VA-T-700 type series shield, produced in the former East Germany. The shields are provided with a cast iron jacket and a lead shield, intended for 137Cs and 60Co. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

Figure 3.3 The HHT 52 shield used for the level indicator, produced by the former Tesla Liberec. The source itself is located in the holder that is shown together with the manipulator in Fig. no. 3.4. From the company documentation of the former Tesla Liberec

Figure 3.4 The manipulator and the holder of source for the HHT-52 shield

Figure 3.5 MDG-201 – the shield is intended to be assembled into protective tubes. Used with 60Co, activity up to 700 MBq (but with additional thick shield). Produced by Tesla Liberec. From the company documentation of the former Tesla Liberec

Figure 3.6 The MDG 122 probe for the level indicator that is placed on the tank side. Dimensions of 16cm ī 14cm, weight of 1.2 kg. Product of the former Tesla Liberec, ČSSR. From the company documentation of the former Tesla Liberec

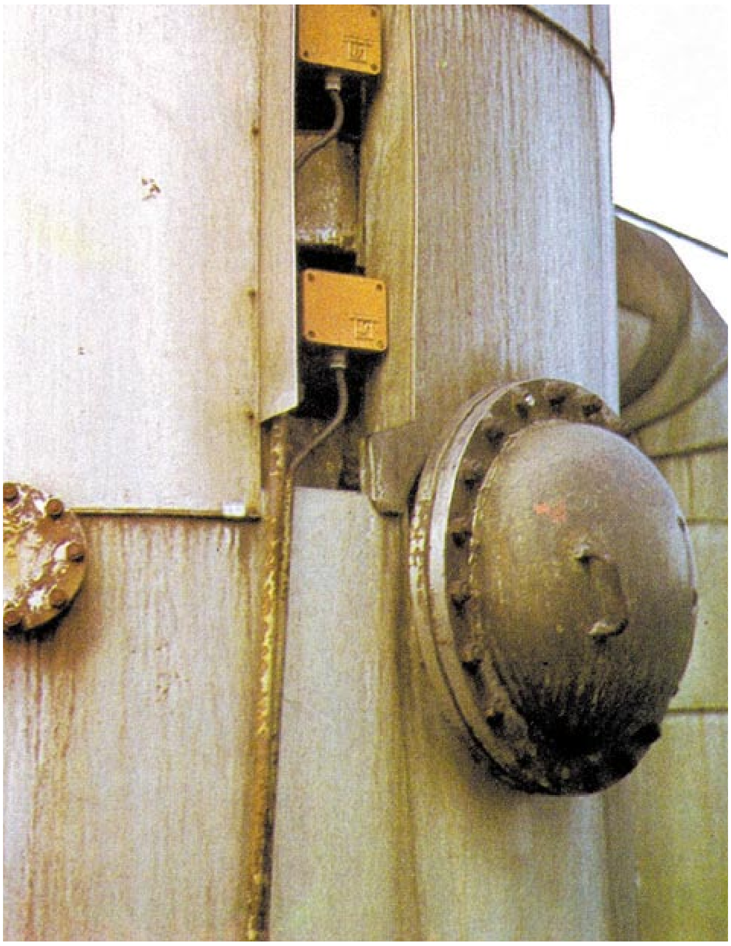

Figure 3.7 The application of the MDG 300 level indicators for detecting the clogging of belt conveyors. The source shields are fixed to the chute face (the upper part of the figure, on the left and right). The indicators can be provided with 60Co up to 2.33 GBq, or 137Cs up to 44 GBq. Diameter of 158 mm, length of 200 mm, weight of 30 kg. From the company documentation of the former Tesla Liberec

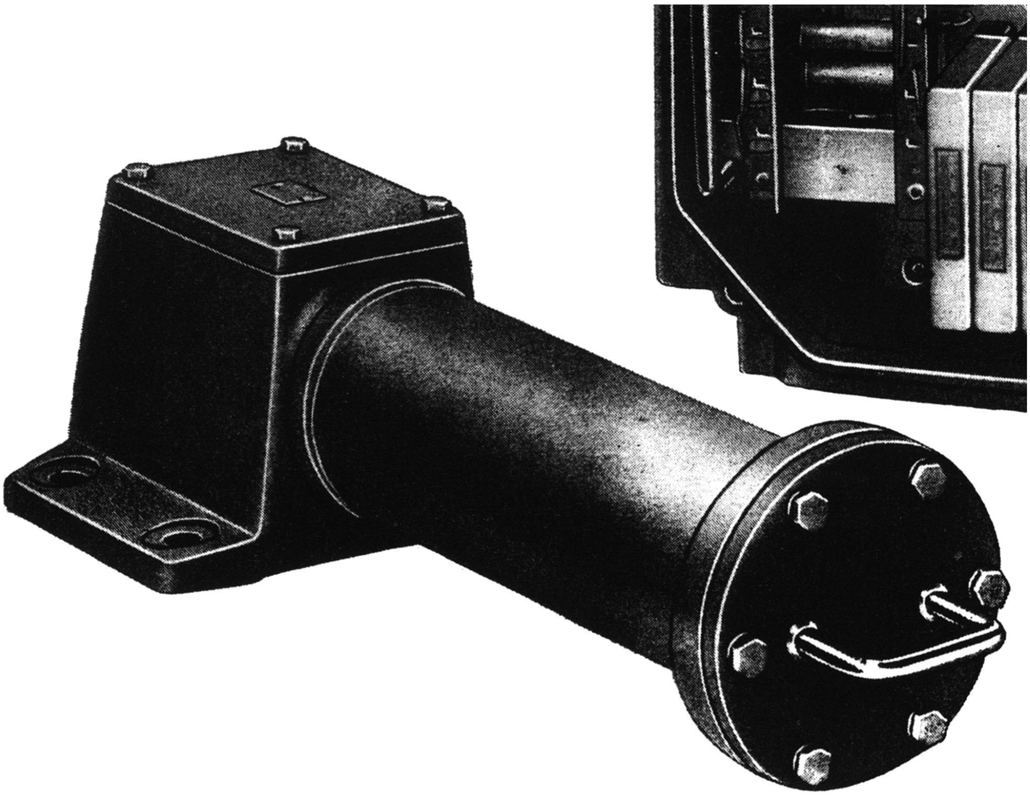

Fig. 3.8 The VA-T-66 type level indicator probe (to the universal beta and gamma relay). Produced in the former East Germany. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

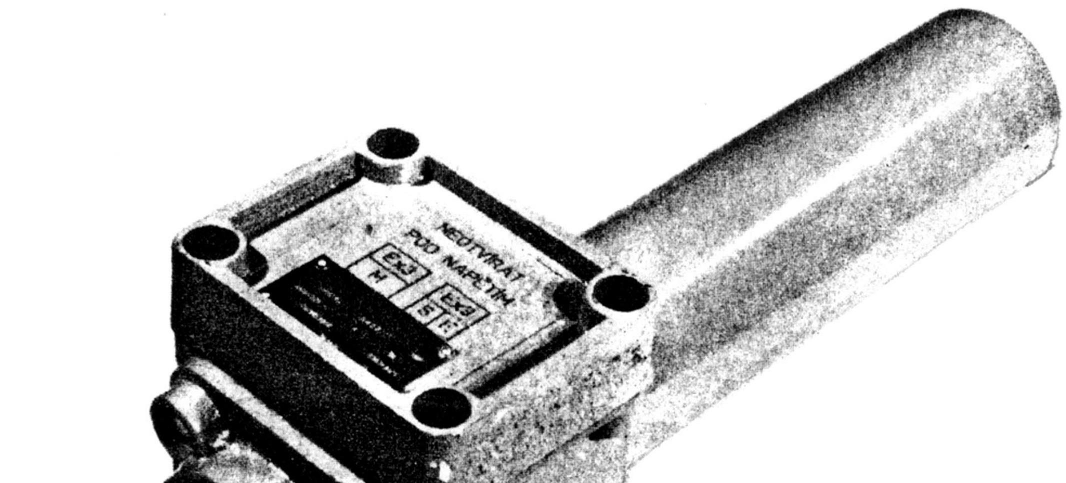

Figure 3.9 The MKD 102 type level indicator probe. The MDG 300, MDG 301 or MDG 201 sources are assembled in the probe. Dimensions of 15cm ī 15cm ī 56cm, weight of 8 kg. The product of the former Tesla Liberec. ČSSR. From the company documentation of the former Tesla Liberec

Figure 3.10 The MKD 103 level indicator probe. The probe itself does not contain any source, however any following source produced by the former Tesla Liberec may be assembled inside the probe: MDG 300, MDG 301 or MDG 201

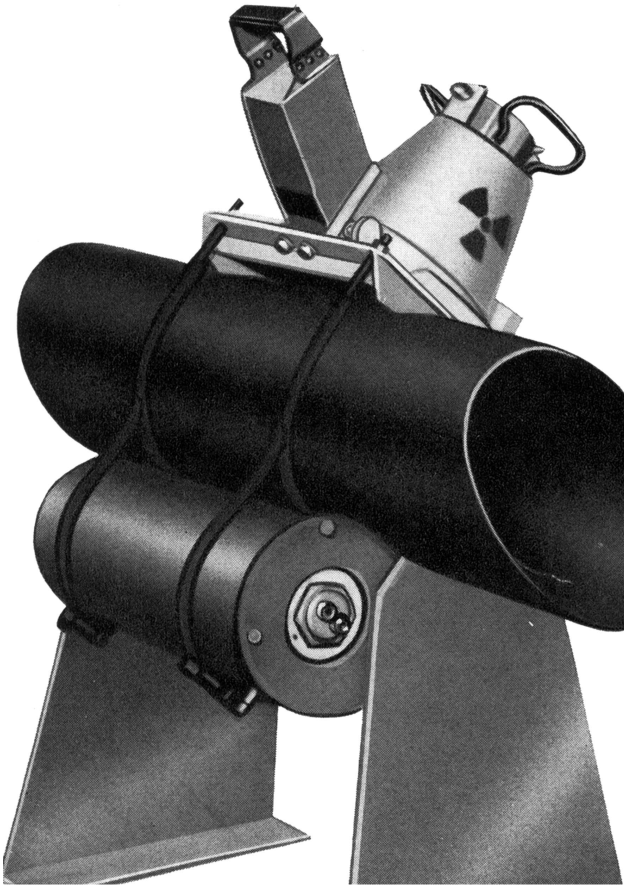

Figure 3.11 The densimeter attached to a tube through which liquid or suspension flows. The ZPU-303 type, made in Poland. Source not specified. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

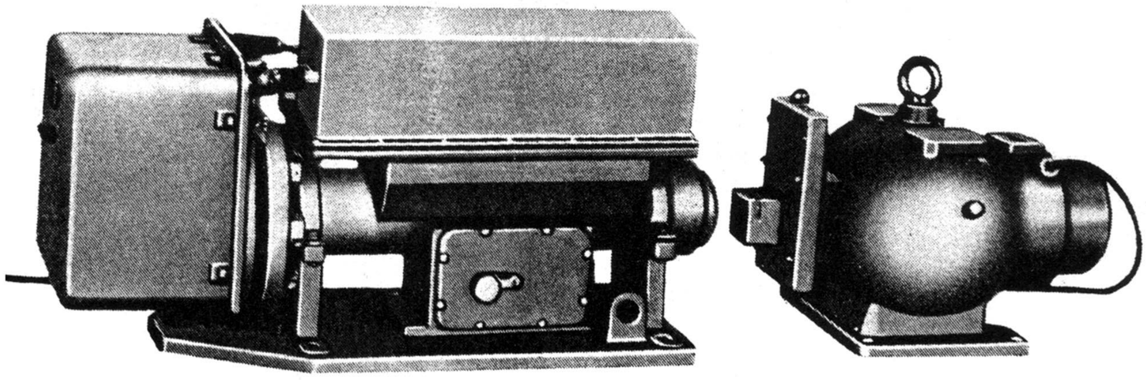

Figure 3.12   The Soviet PŽR-5 type densimeter. The shield is available in two options: either with the dimensions of 26cm ī 39cm ī 10cm, weight of 60 kg, or dimensions of 39cm ī 40cm ī 12cm, weight of 90 kg. Available with 137Cs source. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

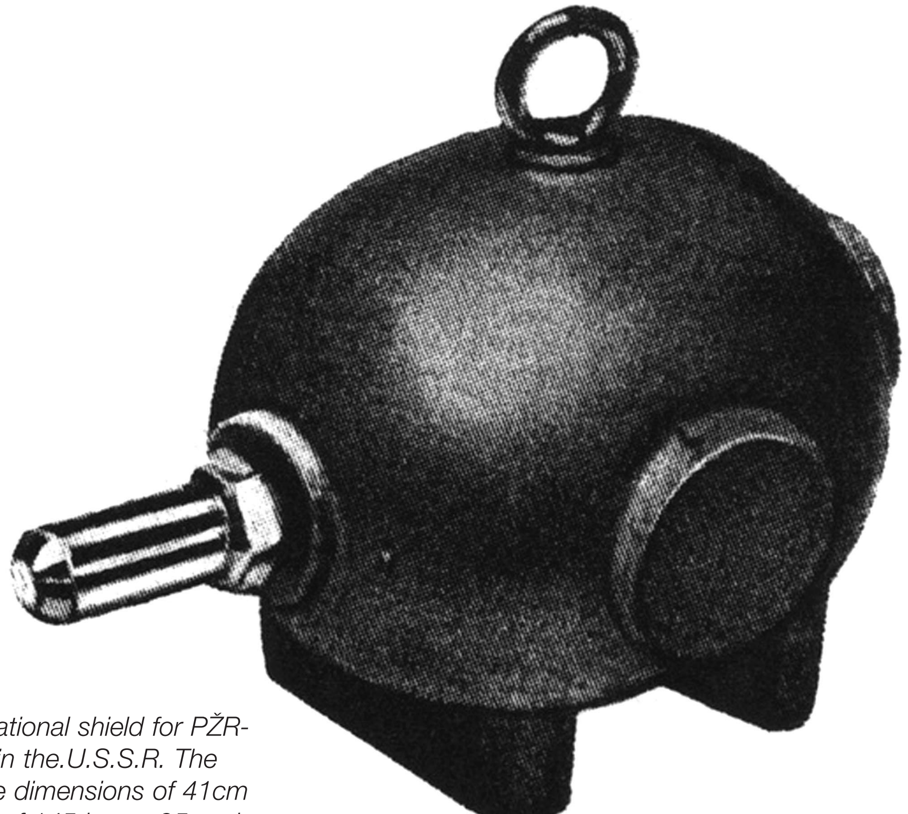

Figure 3.13   The operational shield for PŽR-2M densimeter, made in the.U.S.S.R. The shield is available in the dimensions of 41cm ī 33cm ī 28cm, weight of 145 kg, or 95 and 65 kg (for slightly lower dimensions). Radiation source: 137Cs. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

Figure 3.14 The protective collimator shield with MDN 202 source for density measurements. The cylinder is available in the dimensions of 23cm ī 21cm, weight of 22 kg. Product of the former Tesla Liberec, ČSSR

Figure 3.15 The collimator arrangement with MDN 202 source (see the previous figure). The collimator and the source are positioned below the orange cover on the right, the probe is on the left. Liquids or loose substances being measured flow through the piping. From the company documentation of the former Tesla Liberec

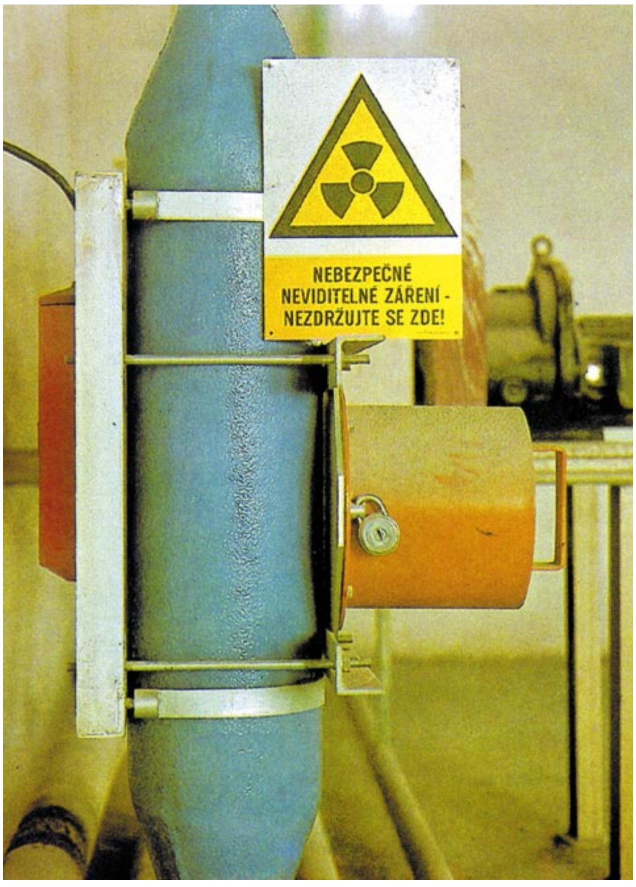

Figure 3.16 The GE 1100.S gamma ash-gauge, the general view on the equipment. The source is placed below the belt, the shield top is seen between two yellow "lugs" Produced by Enelex, Chvaletice, the Czech Republic. From the company documentation of Enelex, s.r.o. Chvaletice, the Czech Republic

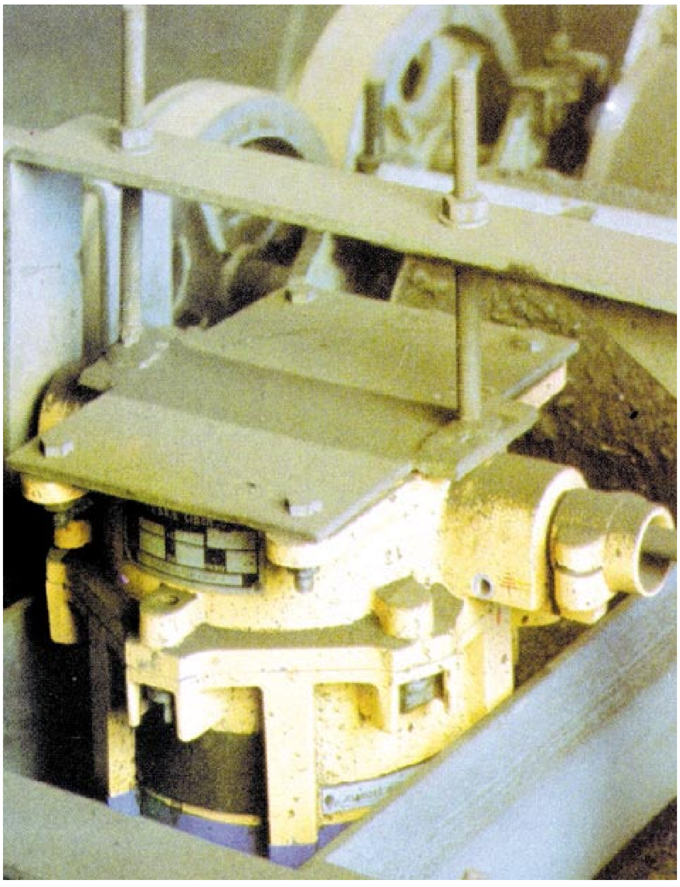

Figure 3.17 The probe with MSG 504-506 source assembled in MPC 102 gamma ash-gauge is located above a belt conveyor in a coal treatment plant or in a power plant, etc. Beta source inside. The dimensions of the probe are 29cm ī 14cm ī 17cm, weight of 6.6 kg. Product of Tesla Liberec, ČSSR. From the company documentation of the former Tesla Liberec

Figure 3.18 The CsAm 16/II operational container, used in the GE 1100 S gamma ash-gauge. The gauges contain 2 different sources: one alpha source and one gamma source, in this case 241Am 12 GBq and 137Cs 0.62 GBq. Depleted uranium shield. Height of about 16 cm. Product of ŠKODA - ÚJP, Praha, a.s.

Figure 3.19 The CsAm 16/II operational container, a side view. The photograph from ŠKODA - ÚJP Praha, a.s.

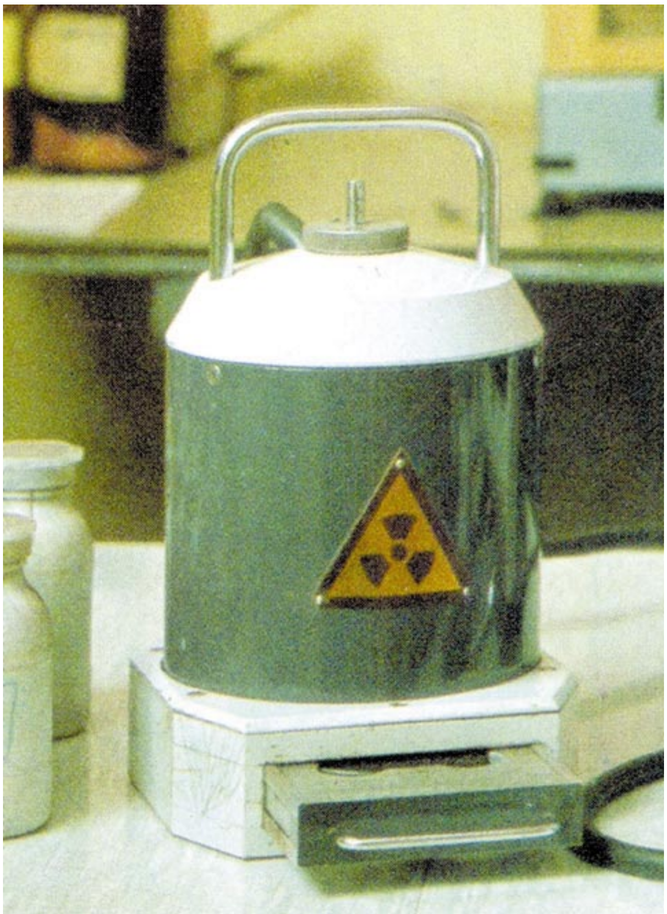

Figure 3.20 The MNG 202 laboratory ash-gauge. Dimensions of 17cm ī 19cm ī 28cm, weight of 8 kg. Product of the former Tesla Liberec. From the company documentation of the former Tesla Liberec

Figure 3.21 The operational container for the ash-gauge of domestic production, however very often used in the other equipment. Size of 20 cm, weight of 25 kg

Figure 3.22 The operational container for the ash-gauge produced in the former East Germany. The container with a conical shield - the source is in the operating state. Size of about 25 cm, weight of 44 kg

Figure 3.23 The operational container for the ash-gauge produced in the former East Germany. The container with a conical shield - the source is in the non-operating state. On the right, the screw fitted with a source and which is unscrewed from a shield

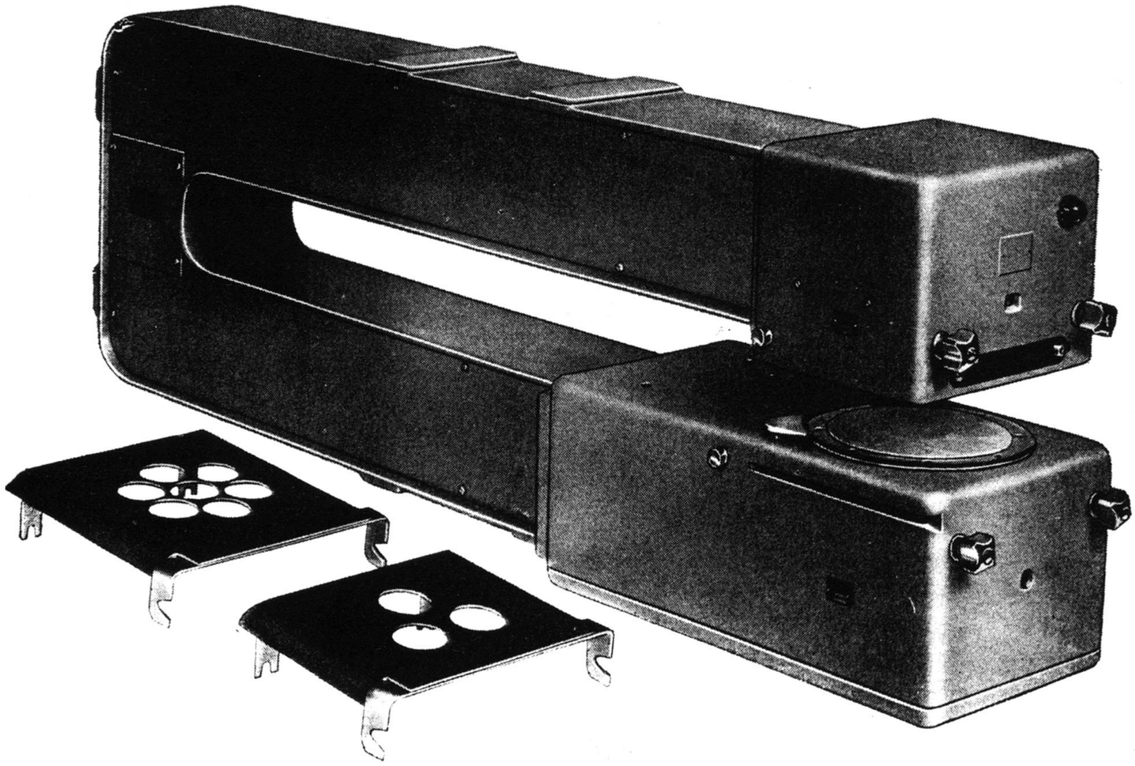

Figure 3.24 The VA-T-7O B thickness gauge that is used in paper mills, rubber plants, rolling mills and plastic pressing shops. 85Kr or 204Tl nuclides are used. Produced in the former East Germany. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

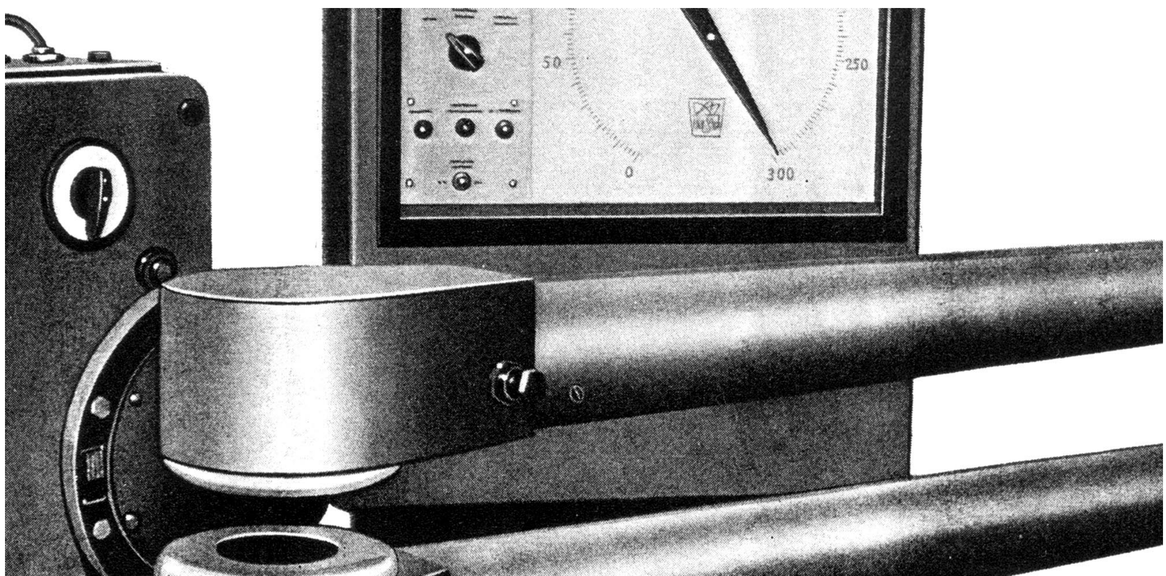

Figure 3.25 The Polish ZPU 1304 thickness gauge that is used for fabric rubber coating. The source is not specified. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

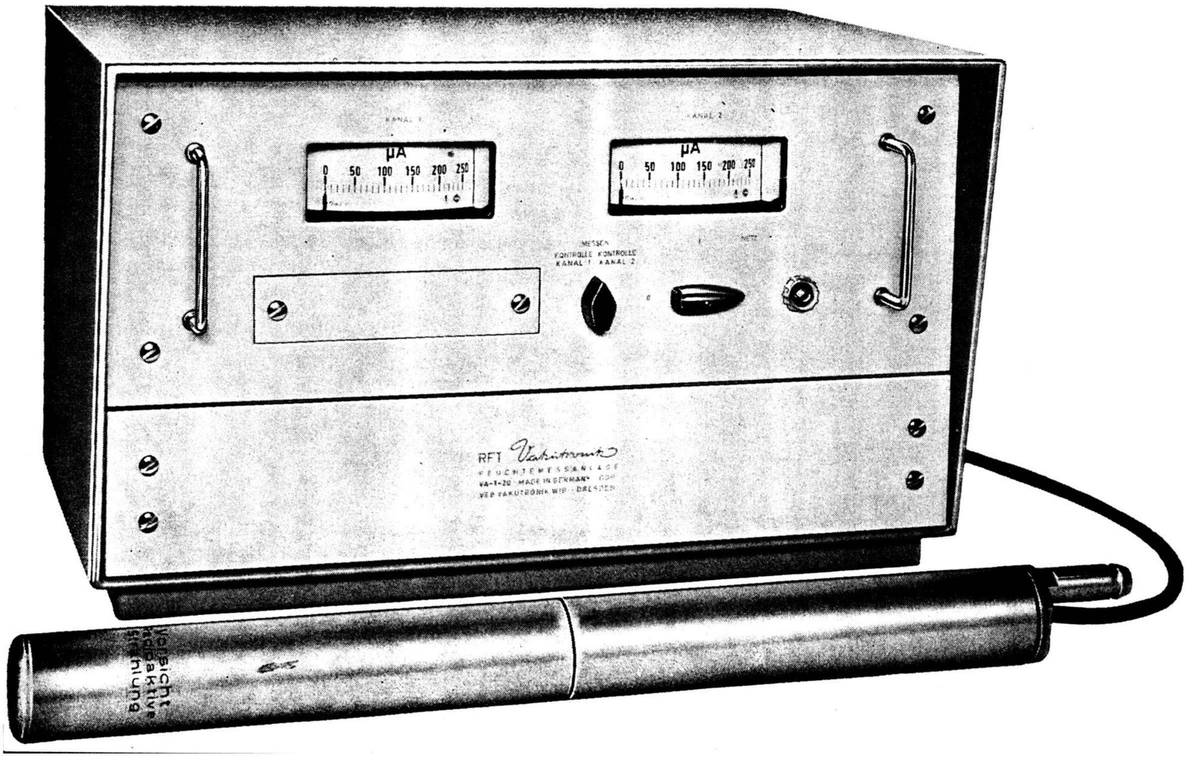

Figure 3.26 The VAT-T-20.1 hydrometer. This gauge is used for moisture measurements in loose materials. The probe in a protective tube is inserted into a tank or a hopper with material being measured. This probe (compared to the other probes) contains a Pu-Be neutron source of activity of tens of GBq. The dimensions of the probe are 6cm ī 68cm, and the weight is about 4 kg. Produced in the former East Germany. The majority of radiation logging probes dropped down into bores looks like the hydrometer probe. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

Figure 3.27 The old Soviet GGP-1 type radiation logging hydrometer for shallow bores. The source is 137Cs. The dimensions of the probe are 5cm ī 50cm and its weight is 3 kg. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

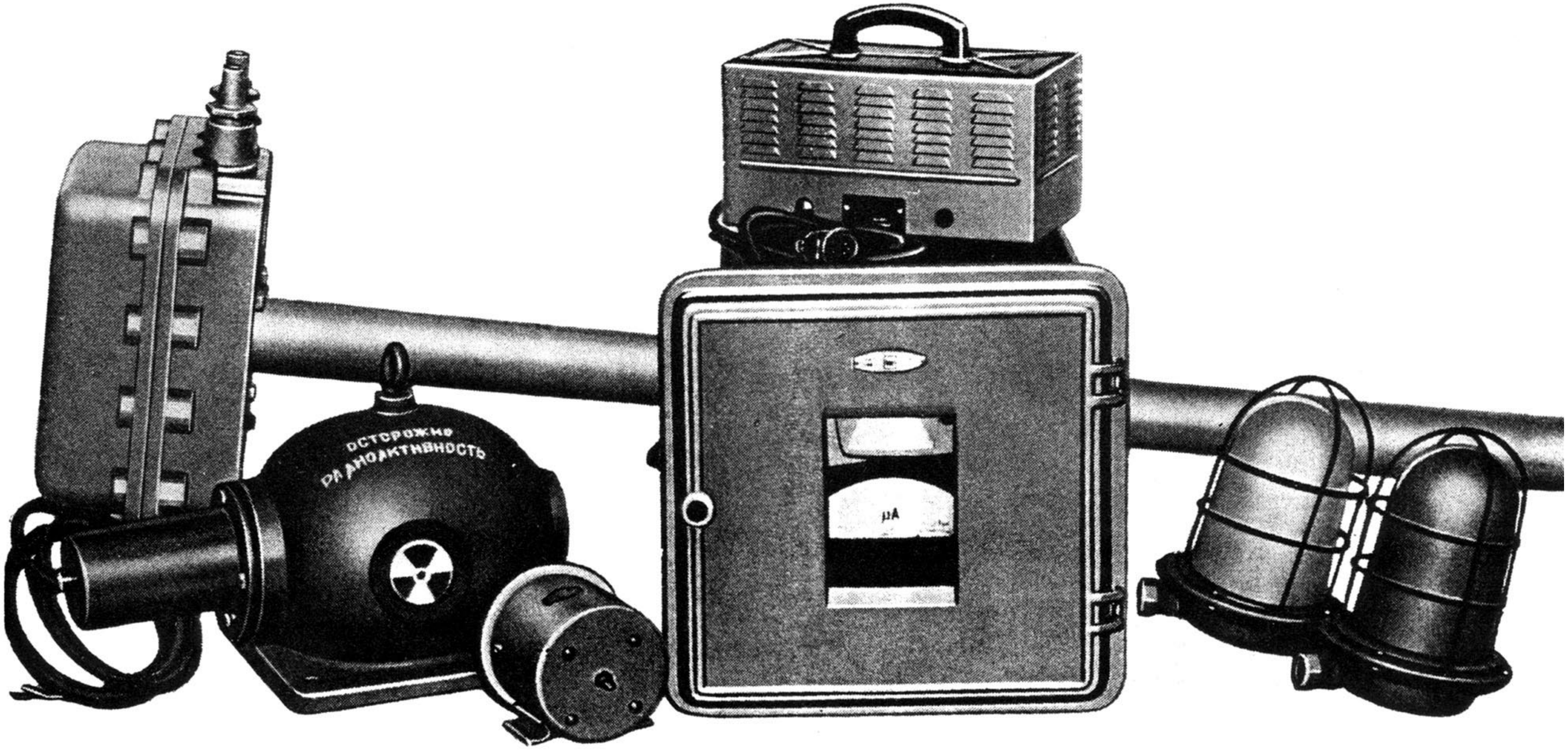

Figure 3.28 The components of conveyor scales working on the principle of gamma absorption in mass. The container with the source is on the left, with dimensions of 24ï30ï40 kg, and its weight is probably from tens up to hundreds of kg. The 60Co source is used. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

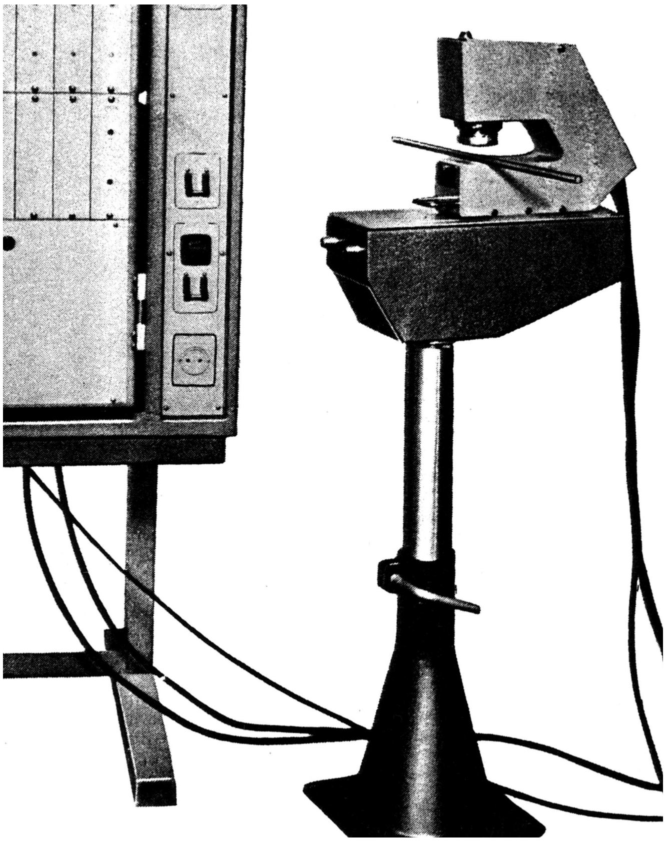

Figure 3.29 The ZPU-308 radioisotope counter of glass tube diameter, produced in Poland. The measuring head is with dimensions of 29cm ī 28 cm ī 30cm, weight not specified. Source: 204Tl. The photograph from the catalogue: Izdělija jadĕrnogo priborostrojenija stran-členov SEV

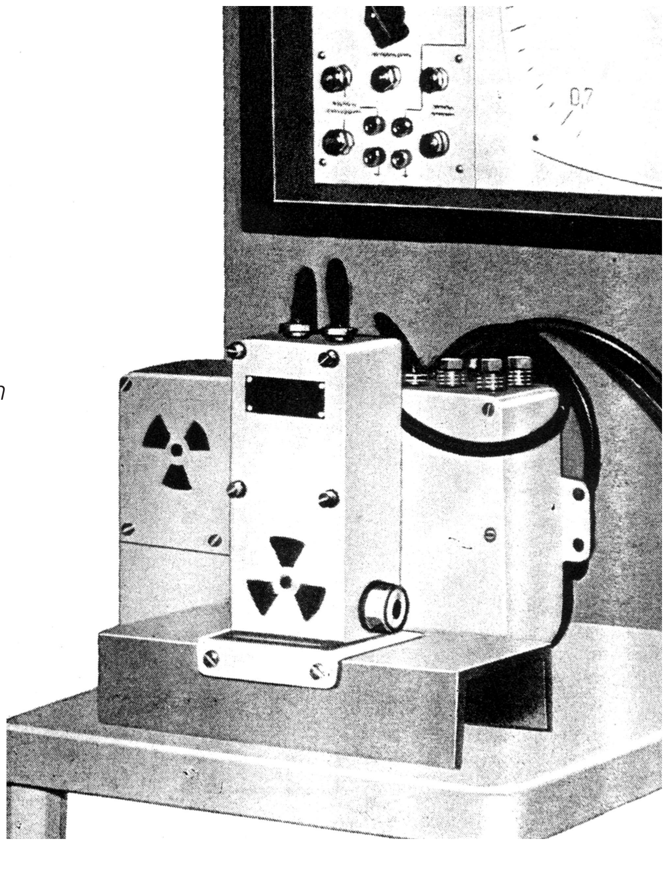

Figure 3.30 The cigarette filler controller, produced in Poland. The photograph from the catalogue: Izdělija jadĕrnogo priborostrojenija stran-členov SEV

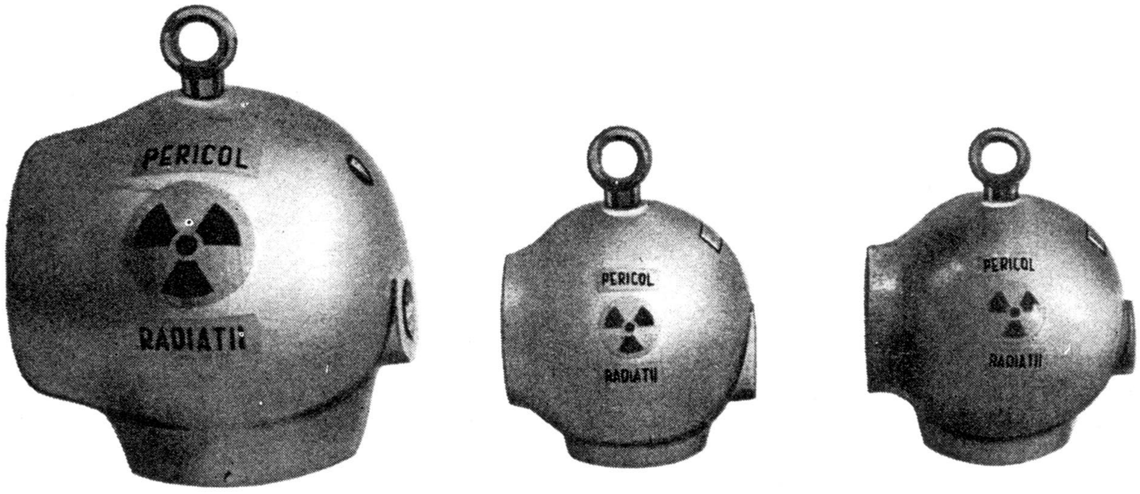

Figure 3.31 The Rumanian lead and cast iron operational containers of Ci Pb and Ci Fe types. The shield thickness is from 90 to 175 mm of Pb or cast iron, their weights of 35, 68, 95 and 220 kg. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

Figure 3.32 The Polish RT series operational and transport containers, made of cast iron or lead, with the sources of activity up to tens of GBq for cobalt. Their weights are very different, from 26 to 135 kg. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

Figure 3.33 The Polish PrI-20 operational container, Pb shield, and its weight of 48 kg

Figure 3.34 The Polish PrO-100 operational container, Pb shield, and its weight of 80 kg

Figure 3.35 The Soviet operational container of an unidentified type. These containers are available in different sizes, but their layout is approximately the same. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

Figure 3.36 An unidentified operational container. According to the label, the 137Cs source of activity of about 74 GBq was used

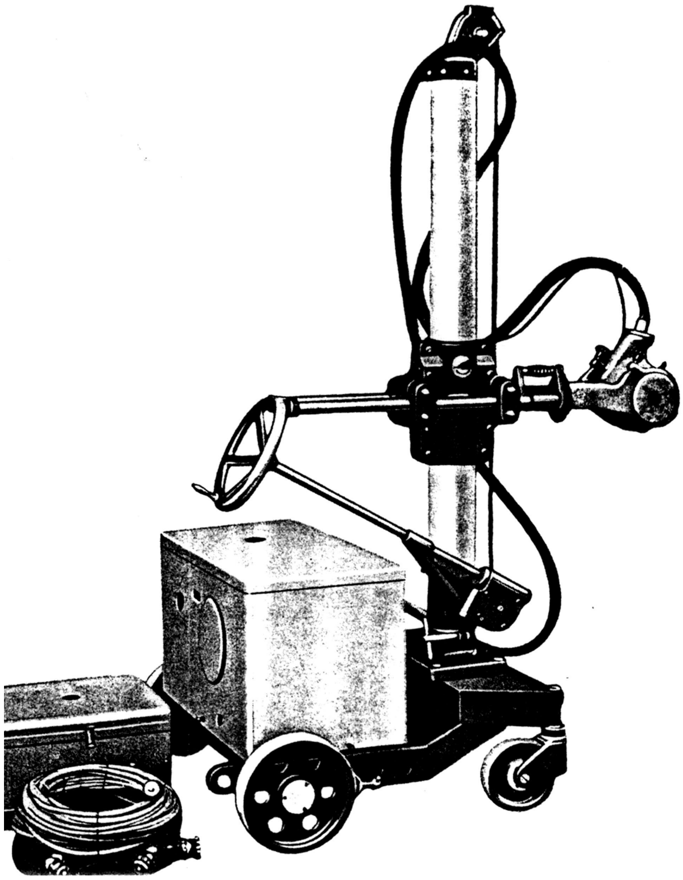

Figure 4.1 The Soviet GUP Kobalt-5-2 flaw detector. The 60Co source is located on a horizontal arm on the right. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

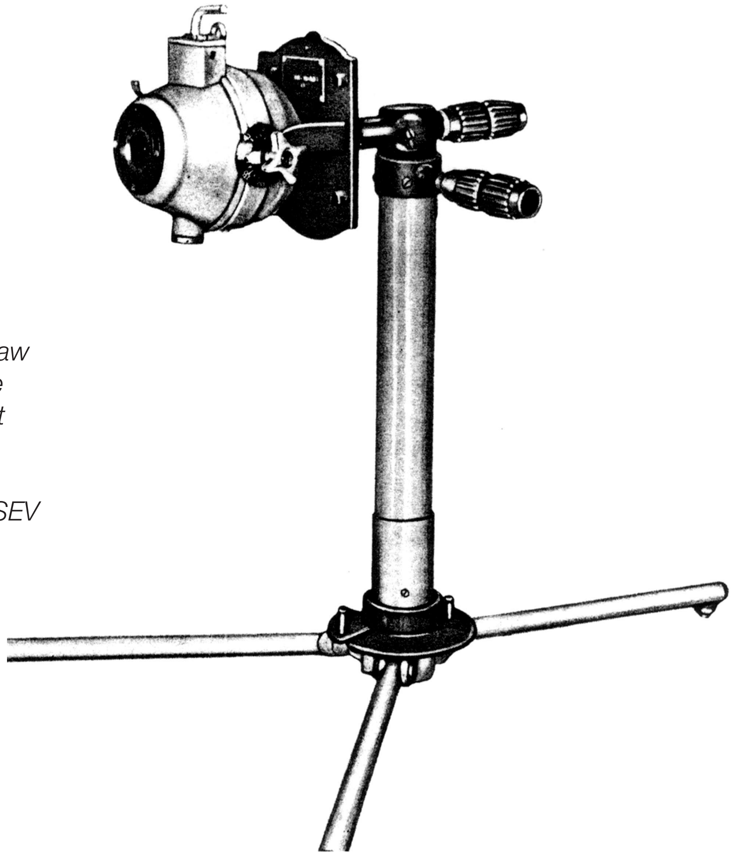

Figure 4.2 The Soviet GUP-Tulij-0.5-3 flaw detector. 170Tm source (in the catalogue indicated as 170Tu). The specified weight is 18 kg (?!) including the stand. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

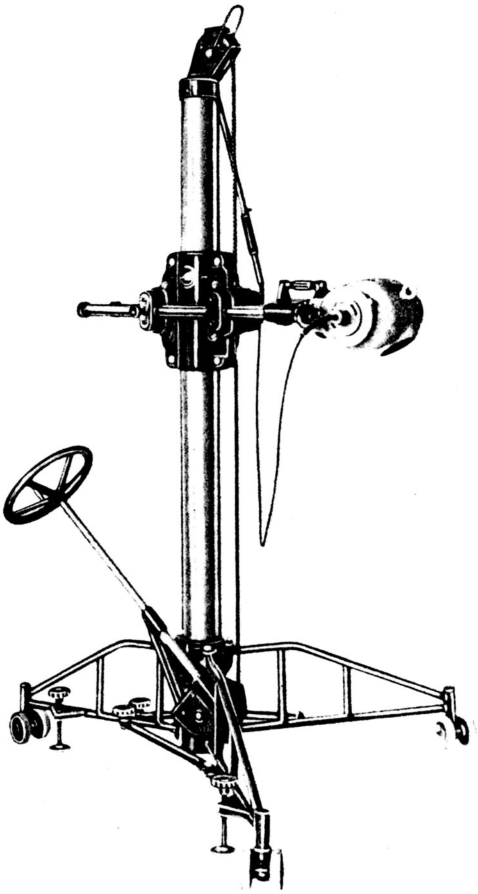

Figure 4.3 The Soviet GUP-Kobalt-0.5-2 flaw detector. Source 60Co. The shield of the source has dimensions of 14cm ī 14cm ī 28cm, its weight including the stand is 220 kg. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

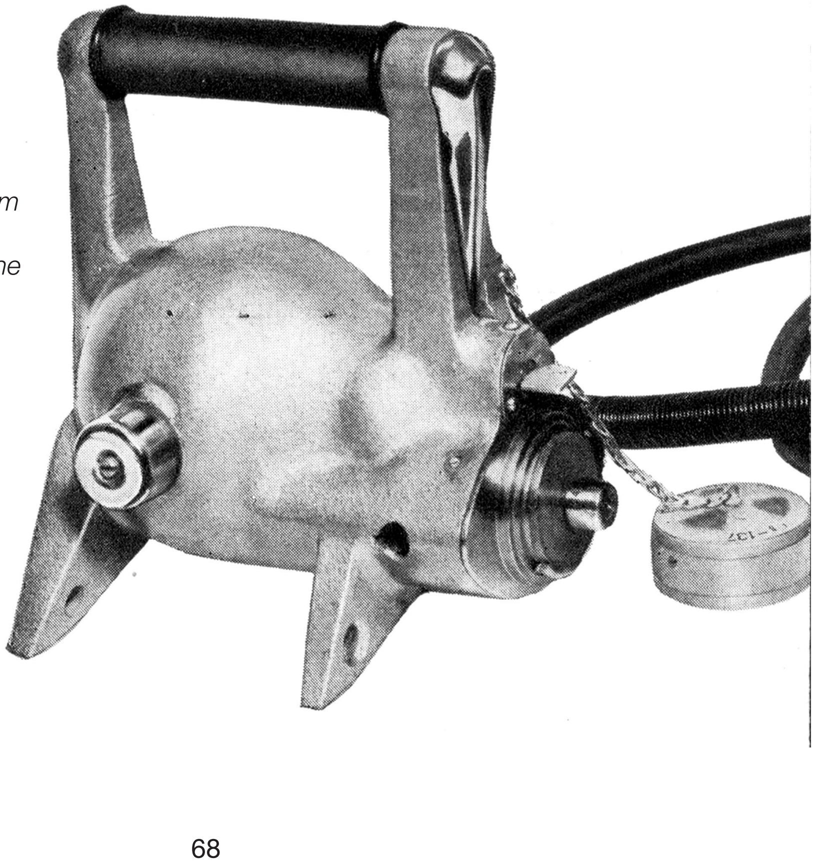

Figure 4.4 The Soviet RID-21 G portable flaw detector. Source 137Cs. Dimensions of 17cm ī 23cm ī 25cm, weight of 14 kg + 50 kg container. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

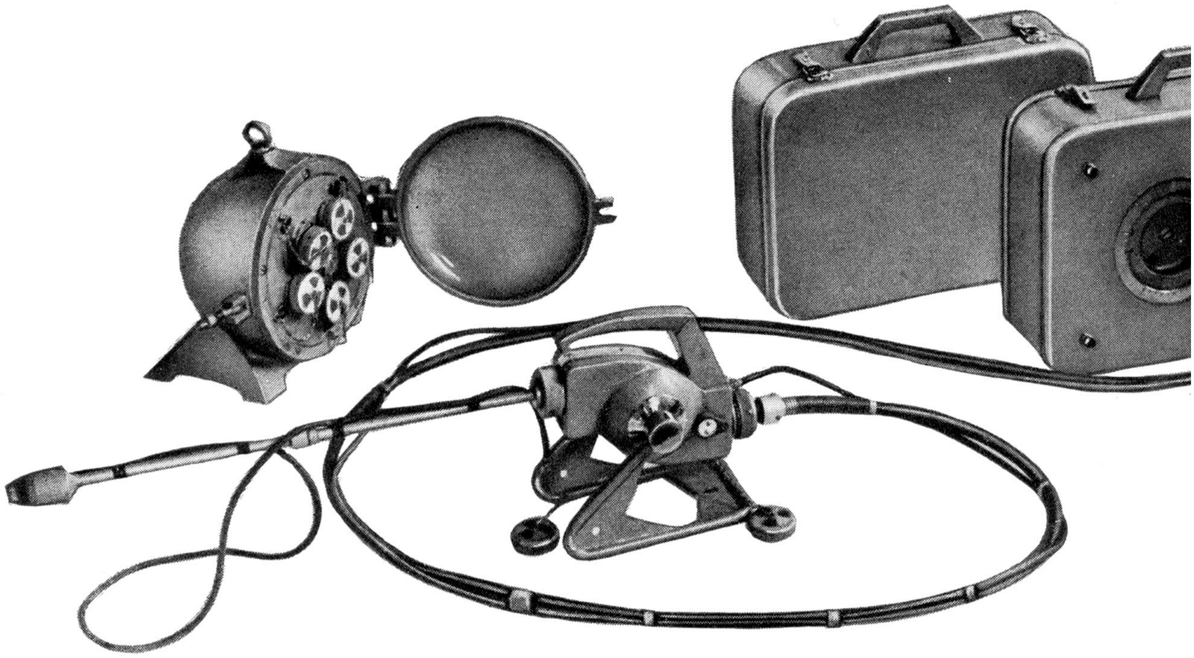

Figure 4.5 The Soviet RID-21 universal portable flaw detector, with 137Cs, 170Tm (in the catalogue indicated as 170Tu) or 75Se sources. The transport container is shown on the left. The head has the dimensions of 28cm ī 28cm ī 16cm, and the weight is 25 kg. The transport container with the dimensions of 28cmī32cmī37cm and weight of 110 kg. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

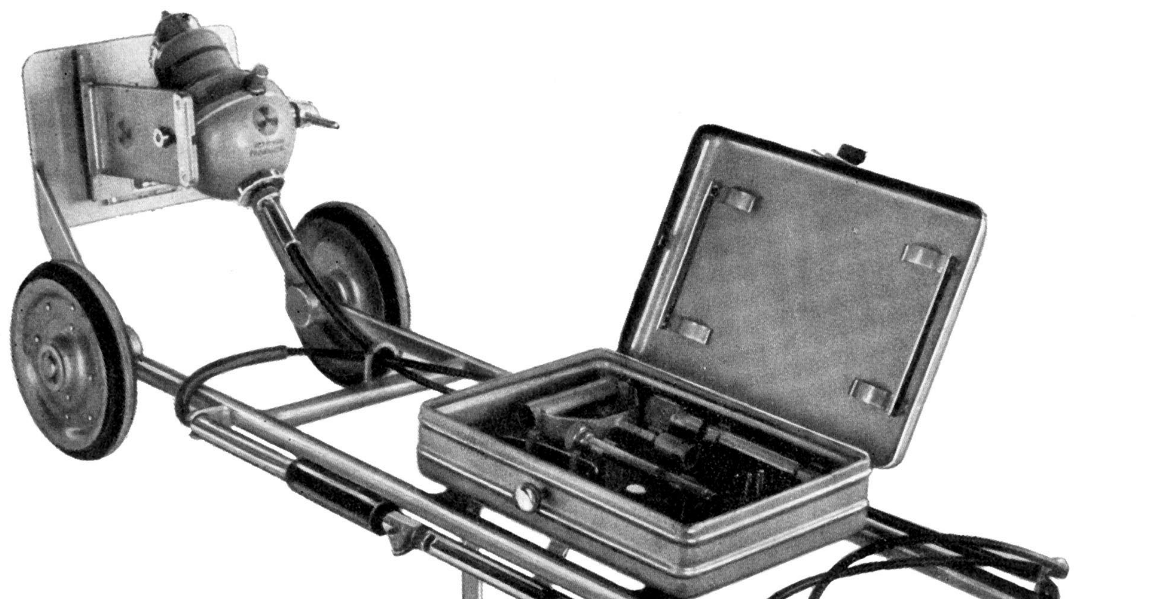

Figure 4.6 The Soviet GUP-Cezij-2-1 flaw detector. The head has the dimensions of 26mm x 19 mm x 24 cm, and weight of 20 kg. Source 137Cs. The photograph from the catalogue: Izdělija jaděrnogo priborostrojenija stran-členov SEV

Figure 4.7 The Czechoslovak MYTED-5 flaw detector and its GP-Yb-3x5 type transport container. The flaw detector has 13 mm uranium shield and the weight of 4.75 kg. The 169Yb source with activity of max. 185 GBq is used. The container has a 15 mm uranium shield, weight of 5 kg and it can contain at most 3 ī 185 GBq of 169Yb

Figure 4.8 The „Molch" M18 flaw detector (so-called "Big Salamander") used for weld inspections n gas line, etc. During operation, the flaw detector is placed on a remotely controlled trolley (see Fig. no. 4.12) which ensures its move in piping. 192Ir source, max. 3.7 TBq. Uranium shield

Figure 4.9 The M18 flaw detector, the other view

Figure 4.10 The M6 „Molch" (so-called „Little Salamander") for weld inspections in gas line, etc. During operation, the flaw detector is placed on a remotely controlled trolley (see Fig. no. 4.12) which ensures its move in piping. This flaw detector contains 192Ir source, max. 740 GBq, with uranium shield

Figure 4.11 The M6 flaw detector, the other view

Figure 4.12   Komandogerät – the „Molch" motion controller in piping. 137Cs source, max. 13 GBq. Uranium shield, the weight of the unit is 6.5 kg

Figure 4.13   The flaw detectors that are used at present days: on the left: Gammamat TI-FF (18.5 kg, of this 14 kg depleted uranium, source max. 4.884 TBq of 192Ir), on the right, Gammamat TI (13 kg, 9.4 kg uranium, max 1.5 TBq of 192Ir). Produced by VKTA Rossendorf, Germany

Figure 4.14 A dismantled Gammamat TIF. On the right: two separated parts of the depleted uranium shield. The unit can contain max. 3.75 TBq of 192Ir

Figure 4.15 The dismantled Gammamat TIF. The other view

Figure 4.16 The OK 0.5 type flaw detector dated from 1962. The operational shield is swinging, 137Cs source is ejected on a bar from behind. Produced by: První brněnská strojírna, Z.K.G. The weight with the stand is about 55 kg

Figure 4.17 The OK 0.5 flaw detector – the front view, operational arrangement

Figure 4.18 The OK 0.5 flaw detector – the rear view on the operational position with the ejected source

Figure 4.19 The transport and operational containers for the flaw detector sources dated from the 1950s and the 1960s. The source of 137Cs, and the maximum activity of about 37 GBq was used at that time. There is a channel in the „egg-shaped" container from which the source is ejected to the operational position by means of a bar. Lead shield and steel jacket. Its weight is about 22 kg

Figure 4.20 The same as per the previous figure, the other view

Figure 4.21 A fragment of the operational container used for the flaw detector source that was ejected from the central channel by means of a bar. Produced by VEB Transformatoren - u. Röntgenwerk Dresden, East Germany. Lead shield and probably cast iron jacket. Used for 137Cs. Its weight with the stand was about 55 kg

Figure 4.22 The same as per the previous figure, the other view

Figure 4.23 The same as per the previous figure, the other view

Figure 4.24   The old transport and operational containers for flaw detection. A bigger and heavier version of the "egg-shapped" containers (about 27 kg) is shown in Fig. 4.19 and 4.20. They were probably used only for transport because the internal channel is not straight-way

Figure 4.25   The same as per the previous figure, the other view

Figure 4.26 A conical container that was used perhaps for transport, however due to its weight of about 70 kg was used as a temporary shield for storing a bar with flaw detector source (see for example in Fig. no 4.17). The diameter of the bottom is 27 cm, a height of 38 cm. Steel jacket and lead shield

Figure 4.27 The same as per the previous figure, the other view

Figure 4.28 The holders for the sources that are used in the operational containers, the most often in flaw detectors, to control the source position. They look like the Bowden cables or small bead chains. The source holder with the dimensions of a few millimetres is placed on the left end of the chain or the Bowden cable. The photograph from ŠKODA – ÚJP, Praha, a.s.

Figure 4.29 The Bowden cables and small chains for flaw detectors. The photograph from ŠKODA - ÚJP, Praha, a.s.

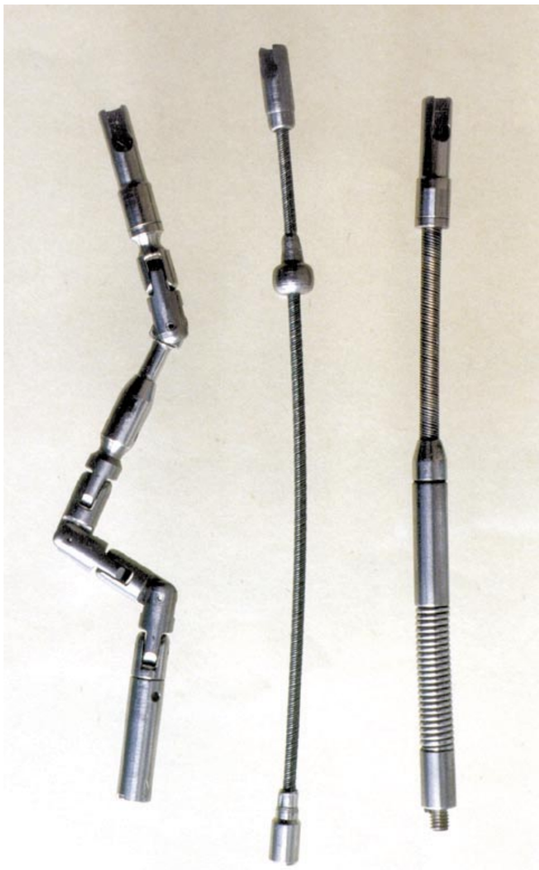

Figure 5.1 The vault with an extension for storing therapeutical sources in hospitals. Its weight is 315 kg. Produced by ÚJP Praha. The photograph from ŠKODA – ÚJP, Praha, a.s.

Figure 5.2 The same but no extension, its weight is 235 kg. Produced by ÚJP Praha. The photograph from ŠKODA – ÚJP, Praha, a.s.

Figure 5.3 The Chirana M 6102 transport container. This container was used for medical source transport including liquid source and water sample transport from the primary circuit of nuclear power plants. Lead shield, its weight of 31 kg. The container is typical with its separated bottom

Figure 5.4 The Chirana M 6102 transport container, dismantled

Figure 5.5 The Chirana 392 type lead transport container, produced about 1970. Its height is 26 cm, diameter of 14 cm and weight of 42 kg

Figure 5.6 The same container, open

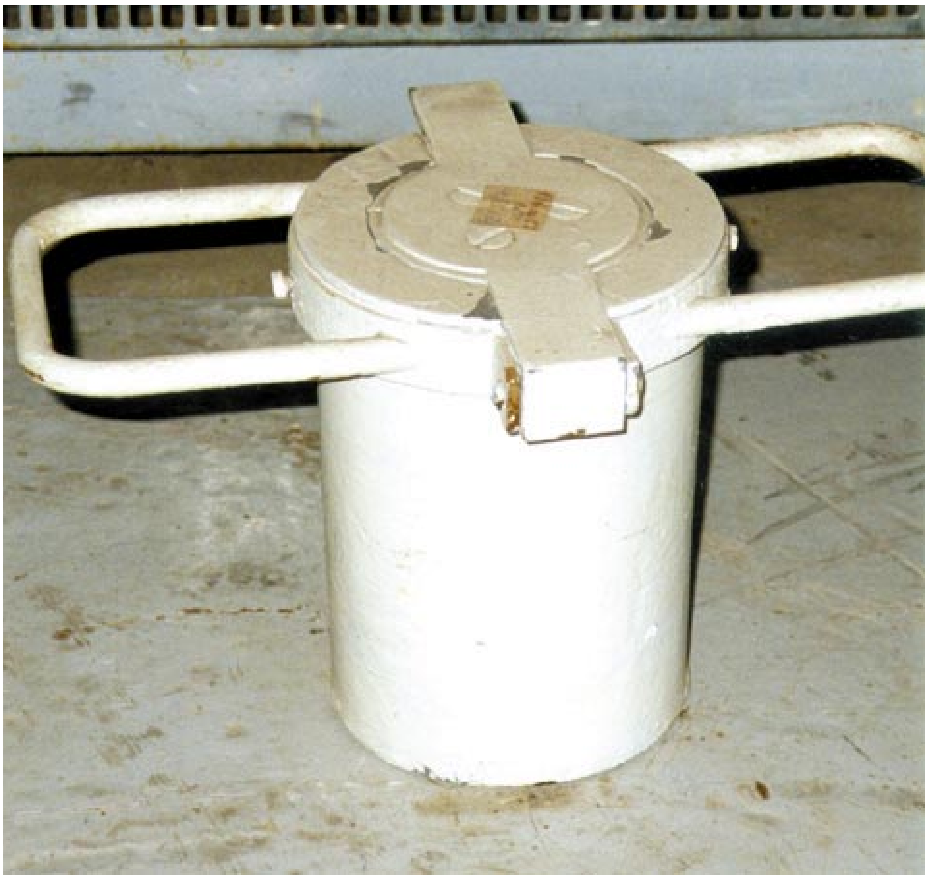

Figure 5.7 The same as in Fig. no. 5.5 and 5.6, but coated white. Bear in mind that the older containers have neither the labels nor graphic warning signs

Figure 5.8 The older container for storing and transporting the oncological kits in hospitals

Obr. 6.1 Přepravní kontejner HU-GP-65 staršího data výroby – úchyty po stranách. Rozměry 13ï31 cm, hmotnost 45 kg. Výrobky ÚJP Praha

Figure 6.2 The HU-GP-65 transport container, the new version with a lug on the top

Figure 6.3 The HU-GP-65 transport container, the newer product with a dismantled lug

Figure 6.4 The HU-GP-40 transport container. Dimensions of 12.8cm ī 30 cm, weight of 22 kg. The photograph from ŠKODA – ÚPJ Praha, a.s.

Figure 6.5 The HU-GP-90 transport container. This is the newest container of the HU-GP series. Dimensions of 15.6cm ī 35cm, weight of 80 kg. The container can contain different sources of activities up to units of GBq (for 60Co). The photograph from ŠKODA – ÚJP Praha, a.s.

Figure 6.6 The wooden transport box for HU-GP type containers

Figure 6.7 The HU-GP-90 container and its transport box

Figure 6.8 The steel transport package for HU-GP-20 and HU-GP-40 containers, nowadays produced

Figure 6.9 The older TO-ACs-21 transport container, A type. Uranium shield, total height of 30 cm, weight of 15 kg, max. 5 ī 0.7 GBq of 137Cs

Figure 6.10 The same container, open

Figure 6.11 The UK-12-SV type transport container, class A. Uranium shield, weight of 92 kg (for UK-12-S only 84 kg). Produced by ÚJP Praha. The photograph from ŠKODA – ÚJP Praha, a.s.

Figure 6.12 A small UK type transport container, this is probably UK-2. Depleted uranium shield

Figure 6.13 The UK 2/II transport container, class B, height of 25.5 cm, a diameter of large cylinder is 14 cm, weight of 25 kg. The container was produced in a high number of pieces and was intended for transport of max. 81 GBq of 137Cs. The UK 2 and UK2/I containers were very similar

Figure 6.14 The open UK 8 transport container

Figure 6.15 The UK-4 transport container. This is intended for transport of max. 14.8 TBq of 192Ir (flaw detector sources). The height of 27 cm, 52 mm uranium shield, and its weight of 30 kg. The container is now banned and replaced by the UKI-4-135 type

Figure 6.16 The UK-4 transport container is fitted with four cavity closures with a diameter of 7.5 mm and a length of 137 mm

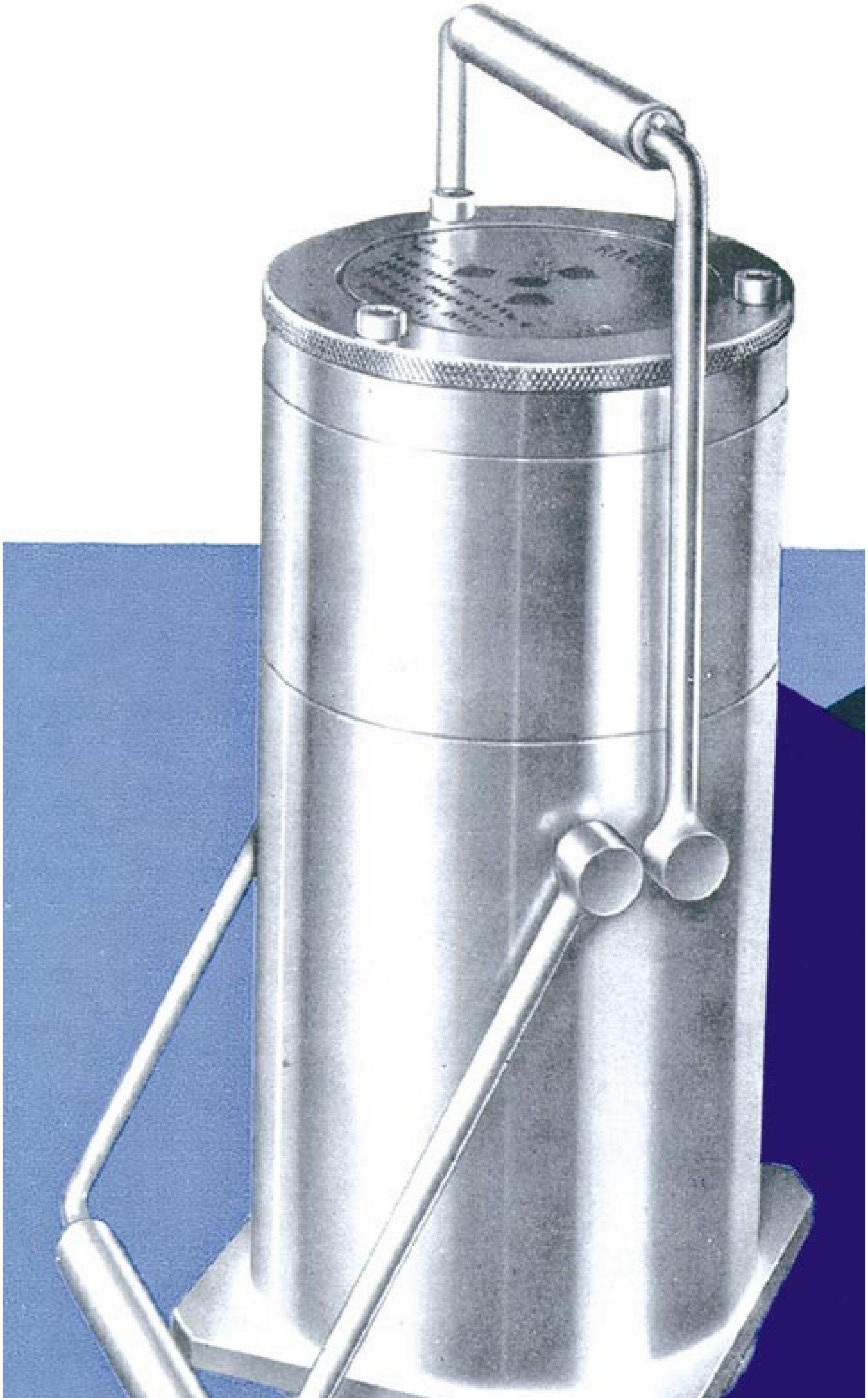

Figure 6.17 The SK-4 type transport container, class B. Maximum activity is 14.8 TBq of 192Ir. Dimensions of 186mm ī 344 mm. Weight of 43 kg. Produced by ÚJP Praha, From the KOVO company documentation

Figure 6.18 The UKI-4-135 type transport container, class B, in a transport package. Uranium shield, 17cm ī 28cm, and weight of 50 kg. Maximum activity of 4ī3.7 TBq of 192Ir. From the ŠKODA – ÚJP, Praha, a.s. company documentation

Figure 6.19 The same container, but open. From the ŠKODA – ÚJP, Praha, a.s. company documentation

Figure 6.20 The transport package of the UKI-10 transport container. From the ŠKODA – ÚJP, Praha, a.s. company documentation

Figure 6.21 The UKI-10 type transport container, class B, in the open transport package. Uranium shield, dimensions of 35cm ī 37cm, weight of 103 kg. Maximum activity of 10 ī 4.995 TBq of 192Ir. Produced by ÚJP Praha. The same container with the open transport package. From the ŠKODA – ÚJP, Praha, a.s. company documentation

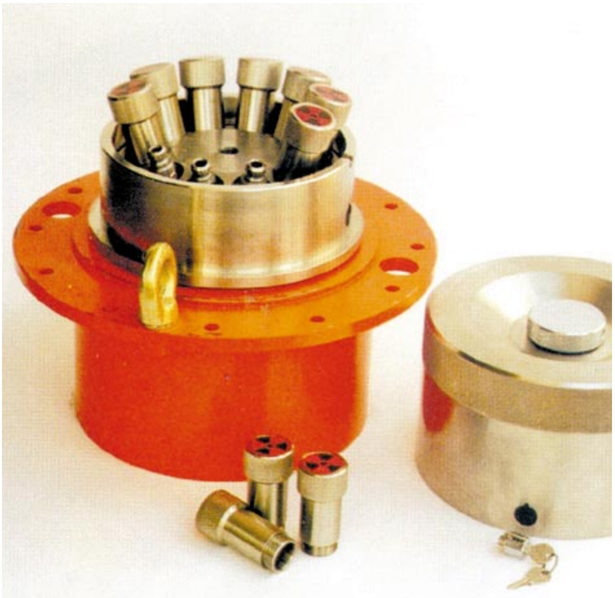

Figure 6.22 The open UKI-10 container. From the ŠKODA – ÚJP, Praha, a.s. company documentation.

Figure 6.23 The KM-47 container transport package. Dimensions of 38cm ī 88 cm. From the ŠKODA – ÚJP, Praha, a.s. company documentation

Figure 6.24 The KM-47 transport container and its open transport package. Dimensions of 33cm ī 51cm, weight of 136 kg. Produced by ÚJP Praha. From the ŠKODA – ÚJP, Praha, a.s. company documentation

Figure 6.25 The KM-47 transport container in a transport package – a view inwards

Figure 6.26   The CsAm20 type transport container, class B, with a transport package. Uranium shield, dimensions of 16cm ī 26cm. Weight of 14.6 kg. ÚJP Praha. From the ŠKODA – ÚJP, Praha, a.s. company documentation

Figure 6.27   The CsAm 20 transport container, dismantled. The photograph from ŠKODA- ÚJP, Praha, a.s.

Figure 6.28 The HPT-6 transport container, class A, uranium shield, diameter of 25 cm, height of 27 cm, weight of 80 kg. Intended for transport of the maximum 1.4 GBq of 60Co, but also for 137Cs and the other nuclides

Figure 6.29 The open HPT- 6 transport container. Five cavity closures in the foreground

Figure 6.30 The HPT-1/L „temporary storage" container, class A, 30 mm uranium shield, dimensions of 18cm (cylinder diam. of 9cm) ī 22 cm, weight of 18.5 kg. Max. 0.234 GBq of 60Co

Figure 6.31 The HPT-1 „temporary storage" container, class A, 52 mm uranium shield, cylinder diameter of 13 cm, length of 24 cm, weight of 39 kg. Used for temporarily storing max. 3.2 GBq of 60Co

Figure 6.32 The BG-22 type container transport package, class B, produced in Germany. Dimensions 30cm ī 40cm, weight including the container is 110 kg. Used for high-activity sources

Figure 6.33 The same package, open with the container inside

Figure 6.34 An unidentified transport container, probably made in the U.S.S.R. Dimensions of about 25cm ī 25cm

Figure 6.35 The transport cask for the Soviet container. Coating is not original. Dimensions of about 25cm ī 40 cm. Weight of 55 kg

Figure 6.36   The transport vessel for the KIZ container. Made in the U.S.S.R. Dimensions of 26cm ī 36cm, weight of 87 kg

Figure 6.37   The older KIZ transport container, made in the U.S.S.R., now without identification. Steel package, lead shield, cylinder dimensions of 22cm ī 30cm, weight of about 100 kg

Figure 6.38 A fragment of the Soviet transport cask used for a container. The weight of cask (12 kg) and the container (55 kg) is indicated on the label

Figure 6.39 The old transport package of unidentified type

Figure 6.40 The transport package prototype for large containers. Diameter of about 35 cm

Figure 6.41 The external transport package used on waste repository. Its height is estimated to 50 – 60 cm, weight not specified

Figure 6.42 The cavity closure. Dimensions of 4cm ī 11cm, weight of 250 g

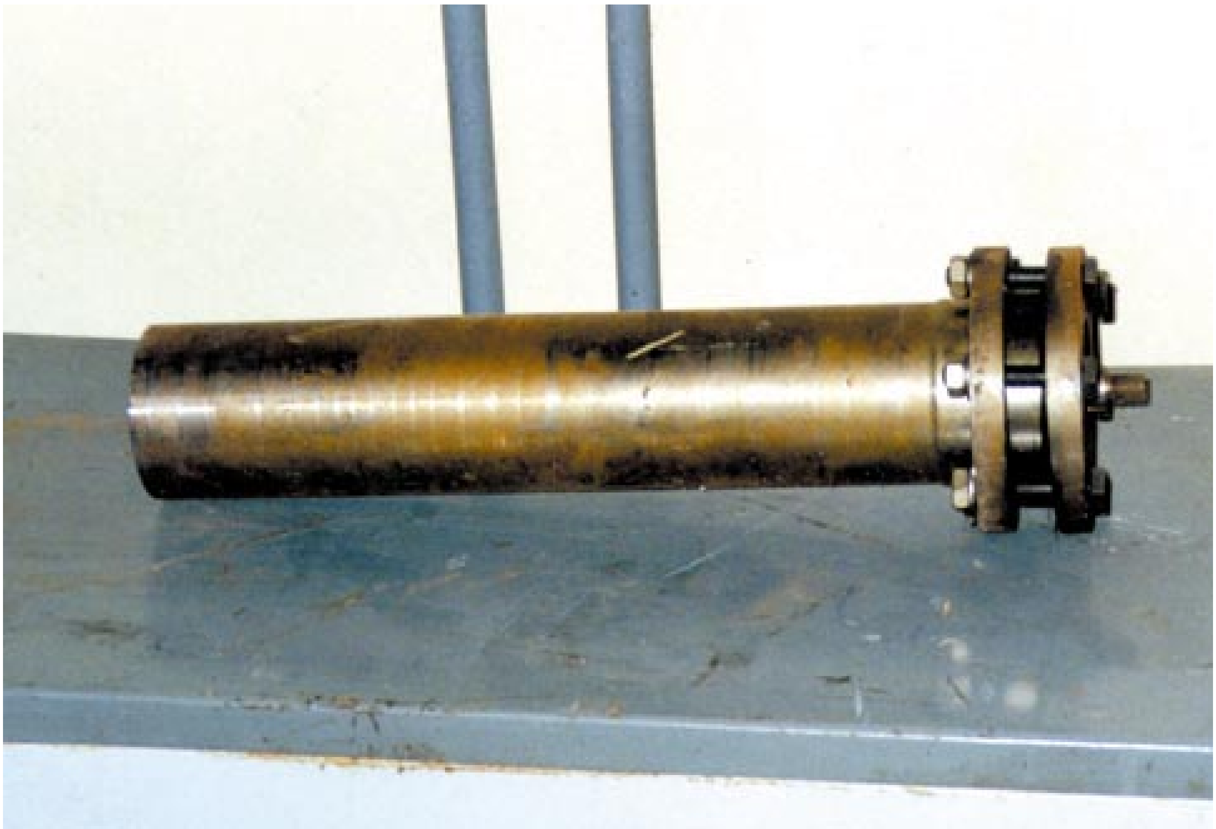

Figure 6.43 The atypical internal capsule for a radioactive source. Producer unknown. Dimensions of 8cm ī 43cm

Figure 6.44 The OK-25 and OK-35 source lead transport containers. Height of about 30 cm, weight of 25 kg or 35 kg. Produced by ÚJP Praha

Figure 6.45 The same containers, but open

Figure 6.46 The old type of the transport container. Lead shield. Coating not original

Figure 6.47 The same containers, but open. Total height of about 30cm, weight of about 30 kg

Figure 6.48 The external small lead containers for the sources of activities up to hundreds of kBq

Figure 6.49 The internal small lead containers for the sources of activities up to hundreds of kBq

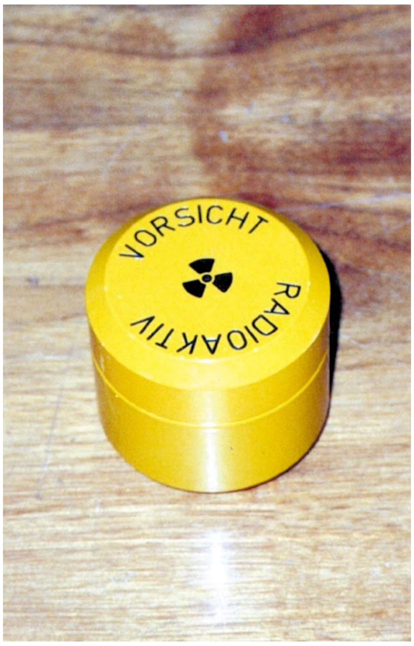

Figure 6.50 The FH 35 small container, made in Germany, dimensions of 6cm ī 6cm, weight of about 1.5 kg

Figure 6.51 The P 20 small container, made in Poland. Dimensions of 6.6cm ī 9.5cm

Figure 6.52 The P30 small container, made in Poland. Dimensions of 9cm ī 11cm

Figure 6.53 The small lead boxes with dimensions of 6.5-8.0 ī approx. 4cm, used for 90Sr transport

Figure 6.54 The cans in which 241Am sources used in the fire detectors were transported, produced by Tesla Liberec. The sources had activities from 35 to 75 kBq

Figure 6.55 The box that forms the topmost package during shipment of radioactive preparations. The can is included inside the box, and the container with the preparation is inside the can. Produced by ÚVVVR Praha

Figure 7.1 A luminescent paint with 226Ra that was found in municipal waste. Produced in the 1960s, activity in order of MBq, dose rate in contact from 100 to 300 _Gy/hr. A possible origin in the CR: the former Mikrotechna plants. The photograph supplied by SÚRO

Figure 7.2 The next example of a luminescent paint with 226Ra that was found in municipal waste. The photograph supplied by SÚRO

Figure 7.3 The semi-product of a clock dial coated with a 226Ra and 90Sr luminescent paint hat was found in municipal waste. Activity in order of MBq, dose rate in contact from 100 to 300 _Gy/hr. The photograph supplied by SÚRO

Figure 7.4 The matrix of clock dials coated with a 226Ra and 90Sr luminescent paint and found in municipal waste. The photograph supplied by SÚRO

Figure 7.5 The military device coated with a 226Ra luminescent paint that was found in metal scrap. Activity from 50 to 500 kBq, dose rate in contact from 1 to 10 _Gy/hr. The photograph supplied by SÚRO

Figure 7.6 The other military device coated with a 226Ra luminescent paint. The photograph supplied by SÚRO

Obr. 7.7 Další vojenský přístroj s nanesenou luminiscenční barvou obsahující 226Ra. Foto SÚRO

Figure 7.8 The fire detectors with 226Ra or 241Am that were found in municipal waste. Activity of 226Ra ~ 50 kBq, activity of 241Am ~ 1MBq, dose rate in contact from 0.1 to 3 _Gy/hr. The photograph supplied by SÚRO

Figure 7.9 The cable amplifiers fitted with 226Ra surge arresters that were found in metal scrap. Produced by Tesla Rožnov. Activity of 226Ra ~ 30 kBq, dose rate in contact of 3 _Gy/hr. The photograph supplied by SÚRO

Figure 7.10 The cable amplifiers that are fitted with 226Ra surge arresters. A general view on the complete system. The photograph supplied by SÚRO

Figure 7.11 The metallurgical products that are contaminated by 60Co from randomly melted sources. Their activities are in a range from tens of kBq/kg up to tens of MBq/kg. Dose rates in contact from 1 to 100 _Gy/hr. Pulley. The photograph supplied by SÚRO

Figure 7.12 The metallurgical products that are contaminated by 60Co from randomly melted sources. Their activities are in a range from tens of kBq/kg up to tens of MBq/kg. Dose rates in contact from 1 to 100 _Gy/hr. Blade. The photograph supplied by SÚRO

Figure 7.13 The agricultural machine (i.e. cultivator), some of its elastic blade holders were produced in 60Co contaminated heat. The photograph supplied by SÚJB

Figure 7.14 The elastic cultivator blade holder that is made in 60Co contaminated heat. The specific activity in the year 2000 was about 2 MBq/kg, dose rate in contact of about 500 _Gy/hr. The photograph supplied by SÚJB

Figure 7.15 The 90Sr source of the thickness gauge which was found in metal scrap. The original activity was 740 MBq, dose rate at a distance of 1 m is about 1 _Gy/h. The photograph supplied by SÚRO

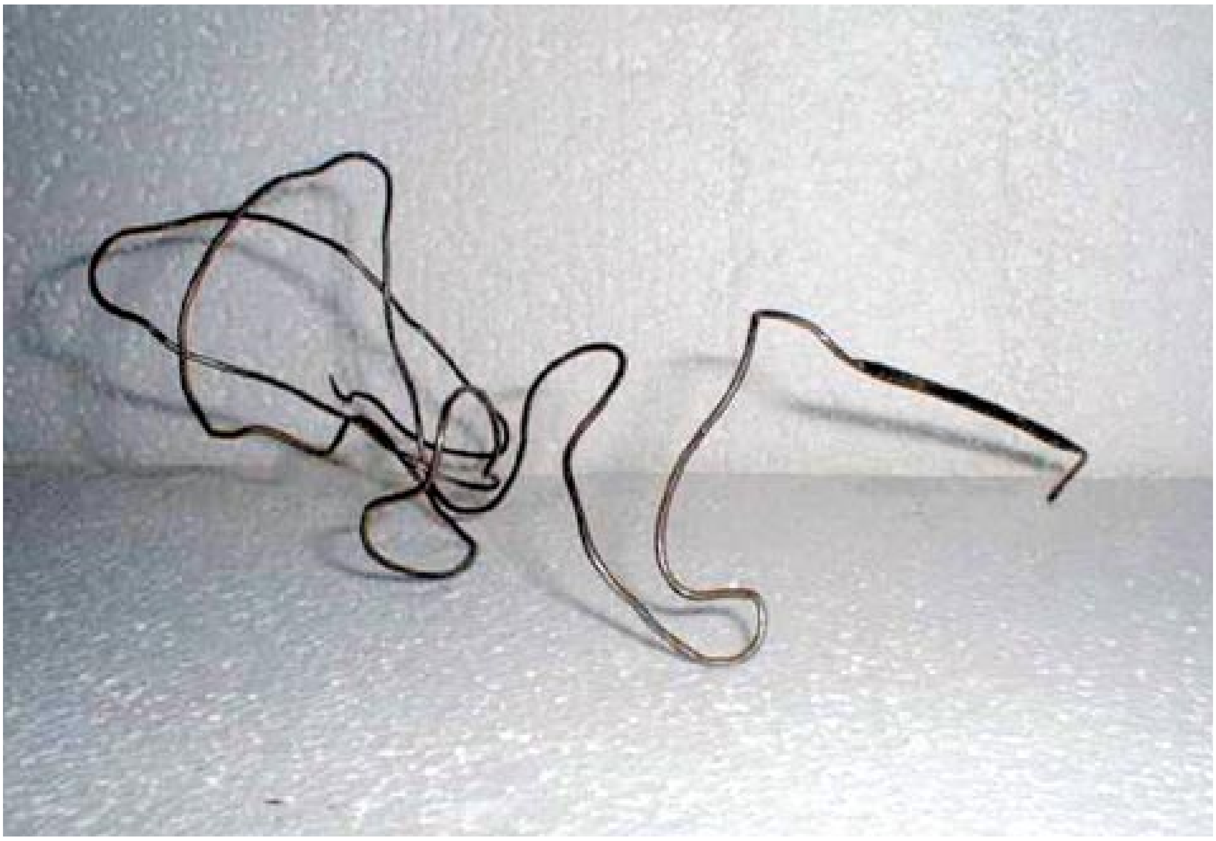

Figure 7.16 The 60Co source (probably) from the level gauge that was found in metal scrap. Activity of about 500 kBq. The photograph supplied by SÚRO

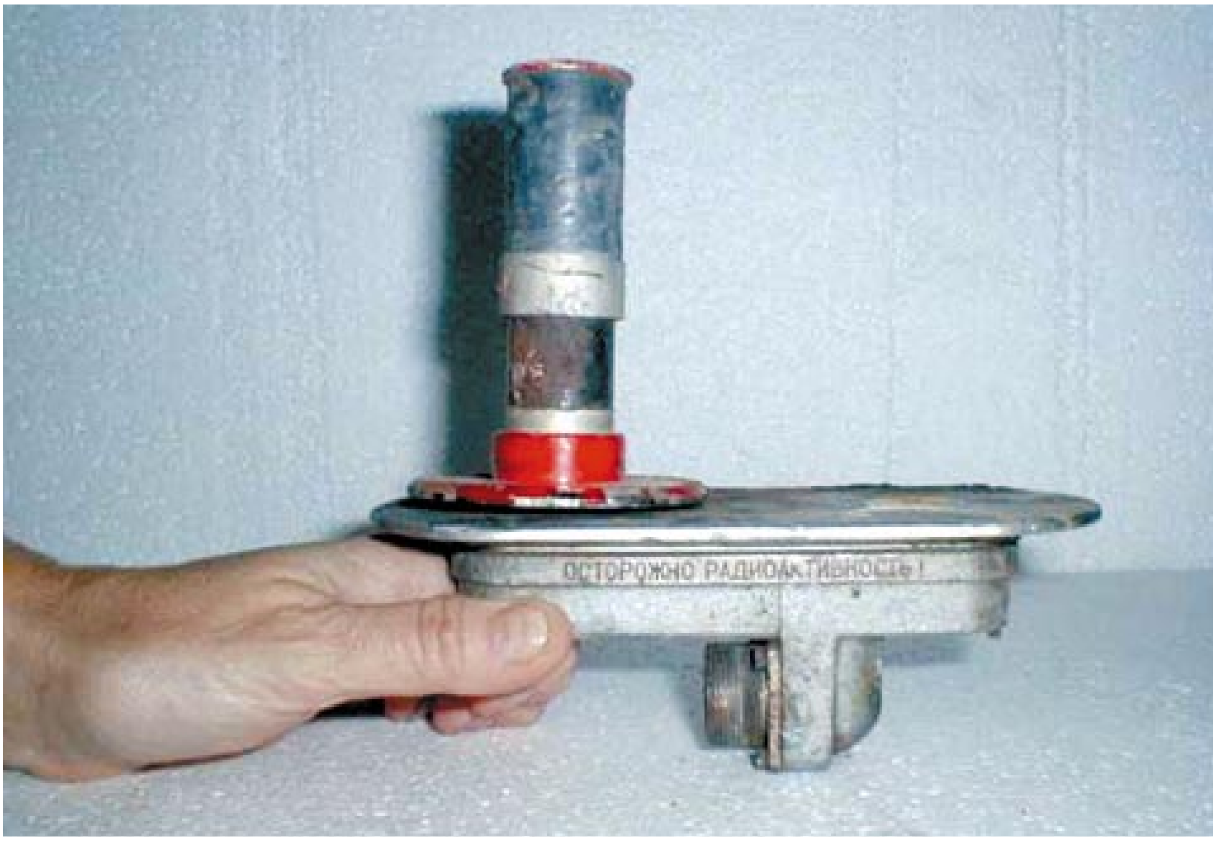

Figure 7.17 The ice thickness gauge with 90Sr from the military aircrafts that was found in metal scrap. Activity up to hundreds of MBq, dose rate in contact is units of mGy/hr (no lead shield). The photograph supplied by SÚRO

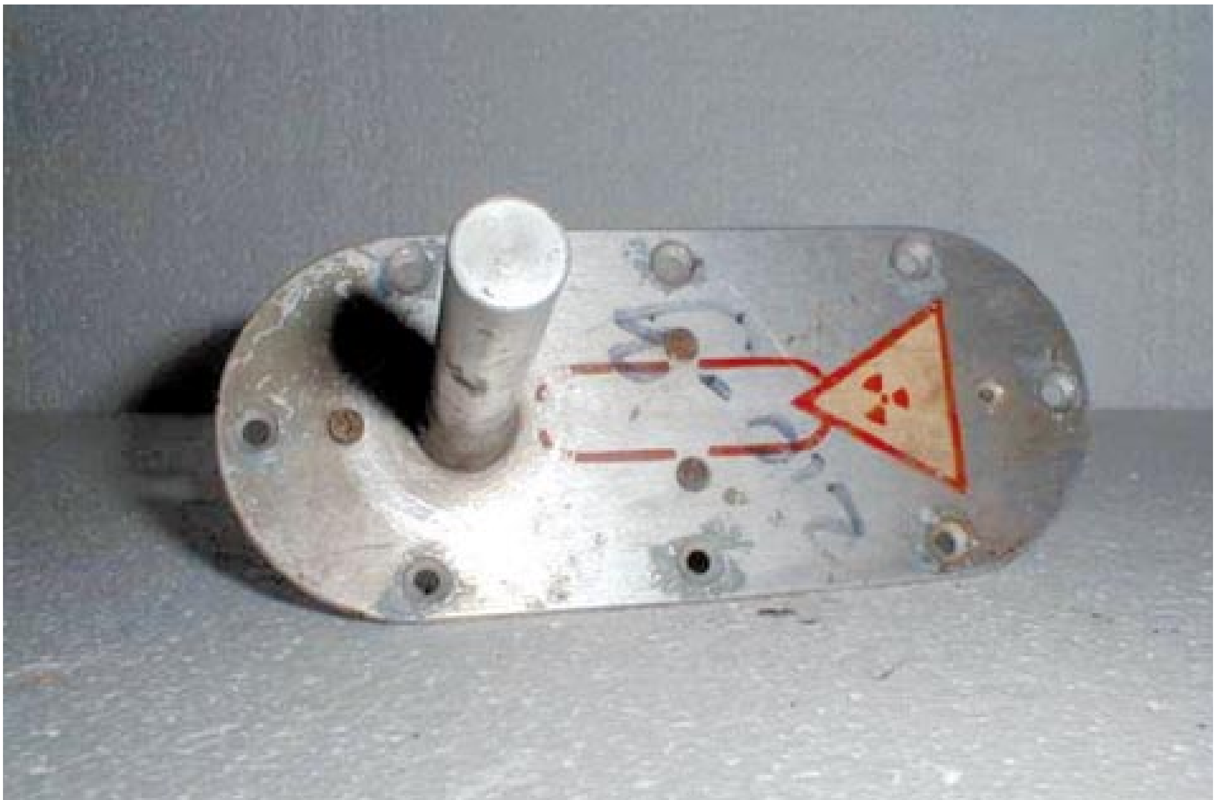

Figure 7.18 The same, but the other view. The photograph supplied by SÚRO.