Inventors and innovators

Marek-Wellmann-Urbányi formula

Many of the diseases of livestock are due to poor nutrition and husbandry. József Marek with Oszkár Wellmann, head of the department of animal breeding, and the chemist László Urbányi, head of the department of chemistry, did extensive research into rachitis and found that the lack of vitamin D is not its only cause. They have developed a formula for the determination of the so-called FAA (earth alcaly alcalicity) of feeds which was (CaO+MgO)-P2O5. Any abnormal shift in the acid-base balance of the diet results in metabolic disorders, e.g. abnormal bone development in young animals or rickets. Nutritional regimes based on the formula play an important role in the prevention and therapy of diseases. Marek, Wellmann and Urbányi revealed already at the begininng of the 1930's that in order to compensate the characteristically slight acidity of metabolism it is beneficial to introduce a slightly base diet. If the acid-balance of the diet is not correct several problems or diseases may follow such as thin and fragile egg shells, formation of urinary calculi, or deformity of bones. Their discovery was long forgotten and nutrition research focused on the „base diet" only several decades later.

Oszkár Wellmann (1876-1943) veterinarian, member of the Hungarian Academy of Sciences, head of the department of animal breeding from 1910 to 1943, rector of the Hungarian Royal Veterinary College (1931–1933).

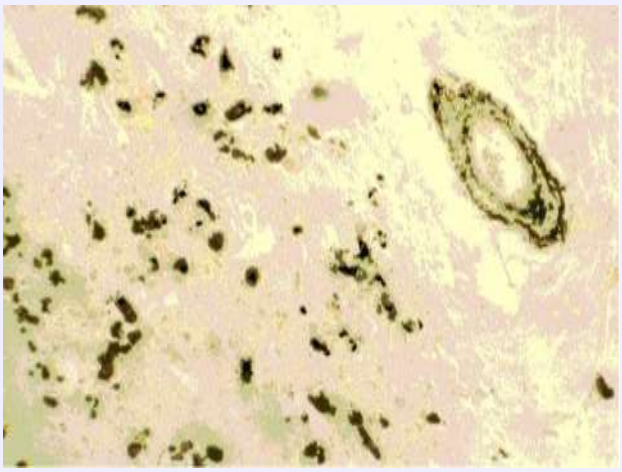
László Urbányi (1902-1977) chemical engineer, doctor of agricultural science, head of the department of chemistry from 1943 to 1957.

The von Kossa reaction

Magyary-Kossa Gyula (1865-1944)was a doctor of medicine, professor of pharmacology and toxicology from 1896 to 1936. Beside his numerous important contributions and experiments in the field of pharmacology and toxicology, he was an outstanding figure of the history of Hungarian medicine. He was also teaching veterinary history from 1896 till 1905.

The von Kossa reaction

The reaction revealing calcium deposits was elaborated by Gyula (Magyary-)Kóssa in 1901 and served to show calcium deposits in different parts of the body. During the histochemical reaction, calcium phosphate or calcium carbonate accumulating in tissues reacts with the silver nitrate used as an indicator, thus silver phosphate and silver carbonate are created. Under light these compounds release pure silver which can be observed as black stain in slides. Gyula Magyary-Kossa presented his method first in volume 29. 1901 of Beiträge der Pathologischen Anatomie und allgemeinen Pathologie under the title „Ueber die im Organismus künstlich erzeugbaren Verkalkungen".



The von Kossa-reaction under the microscope
Source: Istvan Kótai DVM

Virus research of Jármai

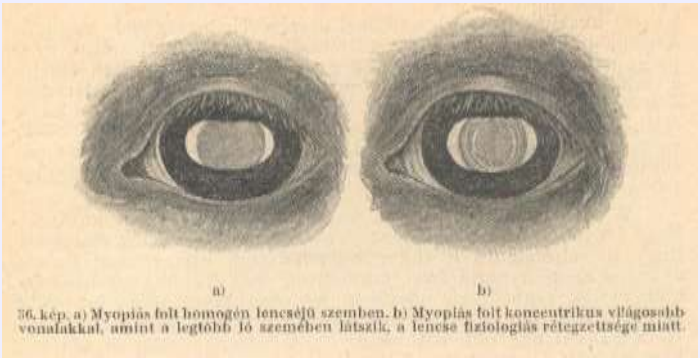
Károly Jármay (1887-1941) veterinarian, professor of pathology, head of the department of pathology (1919-1941), honorary lecturer of comparative pathology at the faculty of medicine at Pázmány Péter University. He became an acknowledged veterinary pathologist by the examination of transmissible viral tumors (fowl leukosis, cutaneous papillomatosis of cattle). He was a founding member of the Hungarian Society of Pathologists, and its president in 1939. He was the first to verify the suitability of embryonic eggs for virus research. He predicted the importance of the electron microscope in virus research. His books entitled General pathology (1925) and Pathology of Domestic Animals (1936 and 1941) are the first illustrated works of veterinary pathology in Hungarian.

Enlarged hen spleens due to experimental leukosis infection (inoculation)
Source: Museum of the Department of Pathology and Forensic Veterinary Medicine

Cutaneous papillomatosis. Cattle.
Source: Museum of the Department of Pathology and Forensic Veterinary Medicine

Berrár's myopic spot

Mihály Berrár (1884–1929) veterinarian, head of the department of surgery and ophthalmology. The first Hungarian veterinary ophthalmologist; he developed numerous examination techniques and instruments. He also wrote the first complete textbook of veterinary surgery. The examination technique, developed by Berrár for the easy and most practical diagnosis of myopy (short-sightedness) of considerable degree in horses, requires only one single ophthalmic mirror. The so-called myopy spot is the reflection of the opening in the ophthalmic mirror at the bottom of the eye as it is magnified by the reflective media of the organ. A clear image is created on the retina only if the mirror is in the focal point of the eye. The extent of short-sightedness may be calculated on the basis of the distance between the myopic spot and the focal point..



Source: Berrár M.: Állatorvosi sebészet. I. kötet. Az általános sebészet és a szemészet. Budapest : Centrum Kiadó Rt., Állatorvosi Főiskola „Lehel" Bajtársi Egyesülete, 1924. 320. p.

Laboratory of the department of parasitology

New parasite species

István Rátz (1860-1917) doctor of medicine and veterinary medicine, professor of pathology, head of the department of pathology (1860-1917), the first veterinary parasitologist in Hungary.

Sándor Kotlán (1887-1967) veterinarian, professor, member of the Hungarian Academy of Sciences awarded the Kossuth Prize, acknowledged expert in parasitology, organizer and the first head of the independent department of parasitology.

Both István Rátz and Sándor Kotlán have described numerous new parasite species mainly in domestic animals, but also in wild fowls. Most of the parasites they have described still bear the scientific names they have given them.

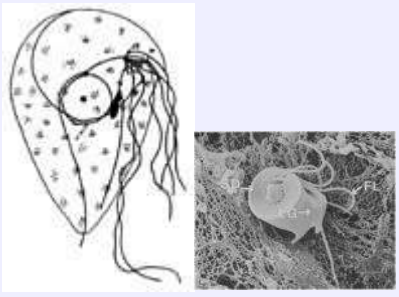
Parazites described by István Rátz:
Echinochasmus perfoliatus Rátz
Opistorchis entzii Rátz
Pegosomum saginatum Rátz
Pegosomum spiniferum Rátz
Dipylidium sexcoronalum Rátz
Dipylidium örleyi Rátz

Monocellulars and helminths described by Sándor Kotlán:
Cochlosoma anatis Kotlán
Protrichomonas anatis Kotlán
Eimeria parva Kotlán, Mócsy és Vajda
Eimeria anseris Kotlán
Eimeria parvula Kotlán
Eimeria nocens Kotlán
Eimeria piriformis Kotlán és Pospesch
Petasiger megacanthum Kotlán
Echinochasmus amphibolus Kotlán
Poteriostomum rátzii Kotlán
Cylicostomum cymatostomum Kotlán
Cylicostomum acuticaudatum Kotlán
Cylicostomum calicatiforme Kotlán
Cylicostomum ornatum Kotlán
Cylicostomum sagittatum Kotlán
Cylicostomum elongatum macrobursatum Kotlán
Cylicostomum hybridum Kotlán
Cylicostomum leptostomum Kotlán
Cylicostomum ihlei Kotlán
Cylicostomum prionodes Kotlán
Capillaria perforans Kotlán és Orosz
Capillaria phasianina Kotlán
Cochlosoma anatis Kotlán

Forrás: Dr. Majoros Gábor
Parazitológiai és Állattani Tanszék

Poteriostomum rátzii Kotlán
Source: Gábor Majoros DVM
Department of Parasitology and Zoology

Capillaria perforans with autographic lable by Sándor Kotlán
Source: Department of Parasitology and Zoology



Cochlosoma anatis Kotlán
Source: Gábor Majoros DVM

Department of Parasitology and Zoology

An speciment of Dipylidium oerleyi Rátz described in cats by István Rátz
Source: Gábor Majoros DVM
Department of Parasitology and Zoology

Hungarian casting method for horses

It is a simple method to lay down a horse for some purpose like an operation. A long and thick rope is required. A non-sliding loop is prepared to the middle of the rope and is placed over the head to the neck. The two ends of the rope are passed between the front legs backwards and are bent round the fatlocks just over the hooves of the hind legs, returned through the loop over the neck. If the two ends of the rope are pulled forcefully at the same time, the horse goes into sitting position and may easily be turned over on either side. Sometimes we fail to lay the horse down to the required place, and the rope may also rub the skin over the hooves.

Tamas L. – Fellner F.: Állatorvosi sebészeti műtéttan. 2. átdolg. Bőv. Kiad. Budapest, Mezőgazdasági K., 1969. 29-30. p.

Azary's endotracheal tube

Ákos Azary (1850-1888) doctor of medicine and veterinary medicine, surgeon, professor, head of the department of internal medicine from 1882-1888, professor of infectious diseases and veterinary administration. A new era began by his short-time work in the field of internal medicine education. The endotracheal tube is inserted into an incision on the trachea. The patient can breathe with its help.

„The advantage of Azary's cannula is that the tube is fixed just like Hauptner's. The disadvantage of these tubes is that they may cause post tracheal stenosis."

Berrár Mihály: Állatorvosi sebészet. II. kötet. Budapest, Centrum K. Rt. 1924. 141. oldal

Azary's plessimeter

A plessimeter or percussion plate and hammer is used for percussion. In large animals, the plessimeter is pressed into the intercostal space and conclusions concerning pathological changes in the lungs can be drawn from the sound generated by the percussion strokes of the hammer.
Ákos Azary was an expert in diagnostics and percussion as well, and has also developed its instrument.

Obstetrical forceps modified by Plósz

The forceps are used for extracting the foetus which got stuck in the birth canal. It is a convenient tool which is easy to use. It may be inserted deeply and gives a firm hold on the foetus.

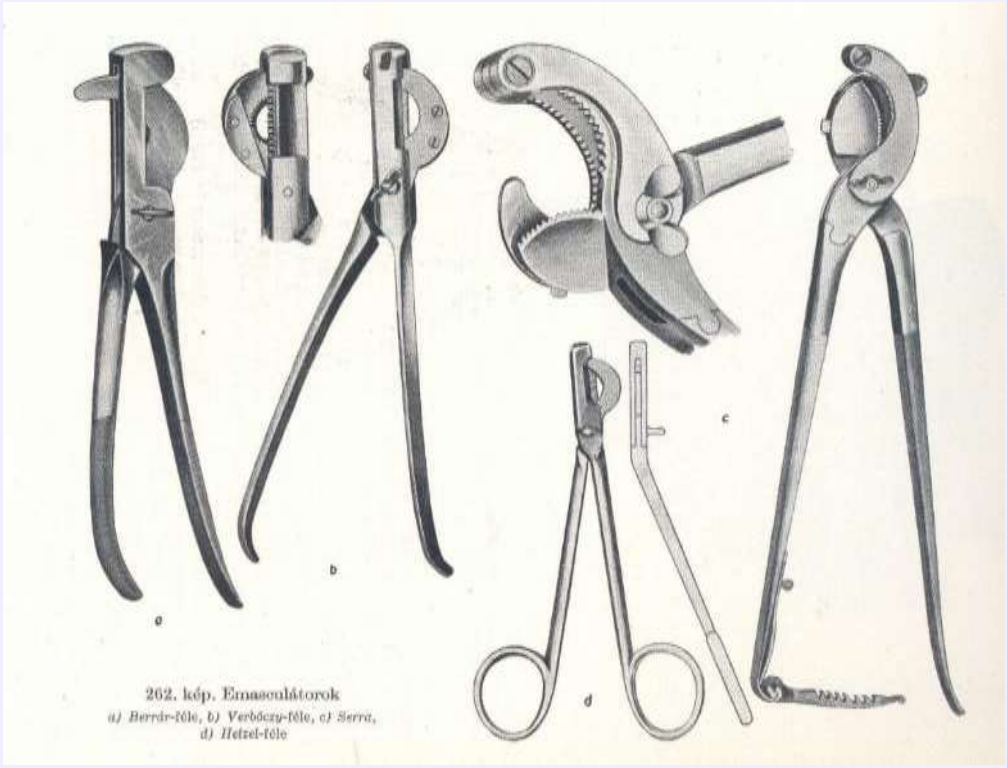
Plósz's surgical knife (scalpel)

For incisions knife and scissors are used in the soft tissues to minimize tissue destruction. Plósz's is one of the most frequently used scalpels.

Hetzel's finger knife (obstetrics)

Henrik Hetzel (1875-1949) veterinarian, organizer and head of the department of obstetrics (1929–1946), head of the polyclinic (1936–1945). Professor of obstetrics, and researcher of the pathology and therapy of infertility. Finger knives serve the purposes of fetotomy. „The instrument is a 7 cm long, bending knife with two rings on its back to hold the index finger that can be moved forward and backward, and with a ring at its end for the thumb. I also put a button above the blade to which the middle finger can be pressed. A thread may be fixed into the small hole on the blade thus we can help in making the incision with our hand outside the sex organs." Hetzel Henrik: Állatorvosi szülészet. Gödöllő, a szerző kiadása, 1925. 271-272. p.

Emasculators



262. kép. Emasculátorok
a) Berrár-féle, b) Verbóczy-féle, c) Serra, d) Hetzel-féle

The emasculator is an instrument resembling scissors used for the castration of male animals which simultaneously crushes and cuts the spermatic cord thus preventing hemorrhaging.

Hetzel's emasculator

It is an emasculator for small animals, a kind of the emasculator by Berrar with longer handle. The scissors-like emasculator is the best for crushing the ovaries as well.

Verbőczy's emasculator

It also has blades which close next to each other. „Verbőczy broadened the crushing surface with 2-3 centimeters… We are using the Verbőczy's emasculator at the college's clinic and crushing is really satisfactory as we have not experienced postoperative hemorrhaging at all." Plósz Béla: Sebészeti műtéttan. Budapest, Pátria, 1908. 324. p.

Berrár's emasculator

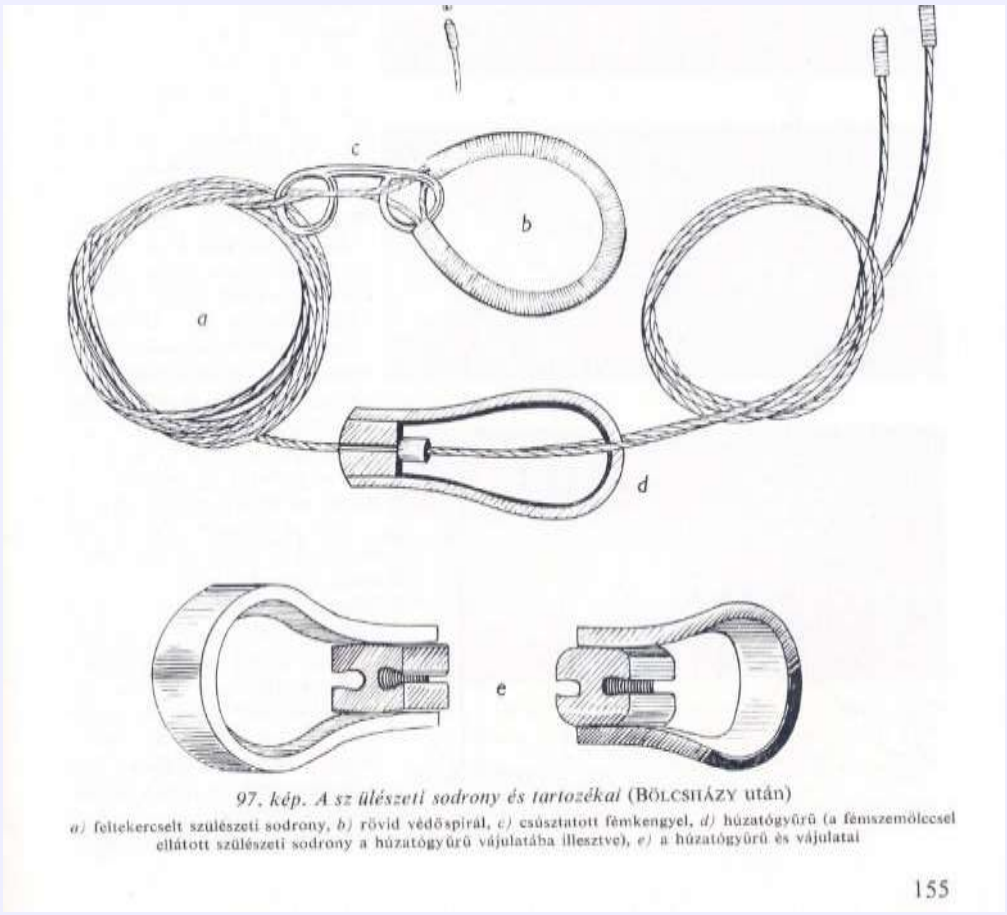
The distance between the crushing and the cutting edges is optimal. There is a small, a medium and a large version. It is also suitable to crush the ovaries of older sows.

Castration of a horse with emasculator
Phtot: János Perényi DVM

Bölcsházy's extractor (obstetrical wire)

Kálmán Bölcsházy (1901–1978) veterinarian, professor of the Department and Clinic of Obstetrics (1948-1966), the first researcher of the problems in obstetrics and reproductive biology occurring in large scale farms. He constructed a number of obstetrical instruments.

The wire served the pulling out of the foetuses of large animals which got stuck in the birth canal. The set consists of three wires two of which should be fixed on the limbs, and one on the head. The wire is stainless of high endurance, flexible but it does not wrinkle. The wire is covered by steel spirals to prevent lesions. The loop should be pulled through a metal stirrup which is broad enough and makes the regulation of tightness possible. It is easy to put it around the fetus and makes high energy traction possible.



97. kép. A sz ülészeti sodrony és tartozékai (BÖLCSHÁZY után)

a) feltekercselt szülészeti sodrony, *b)* rövid védőspirál, *c)* csúsztatott fémkengyel, *d)* húzatógyűrű (a fémszemölccsel ellátott szülészeti sodrony a húzatógyűrű vájulatába illesztve), *e)* a húzatógyűrű és vájulatai

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Forrás: Cseh Sándor: Állatorvosi szülészeti műtéttan. Budapest, Mezőgazdasági K., 1967. 155. p.

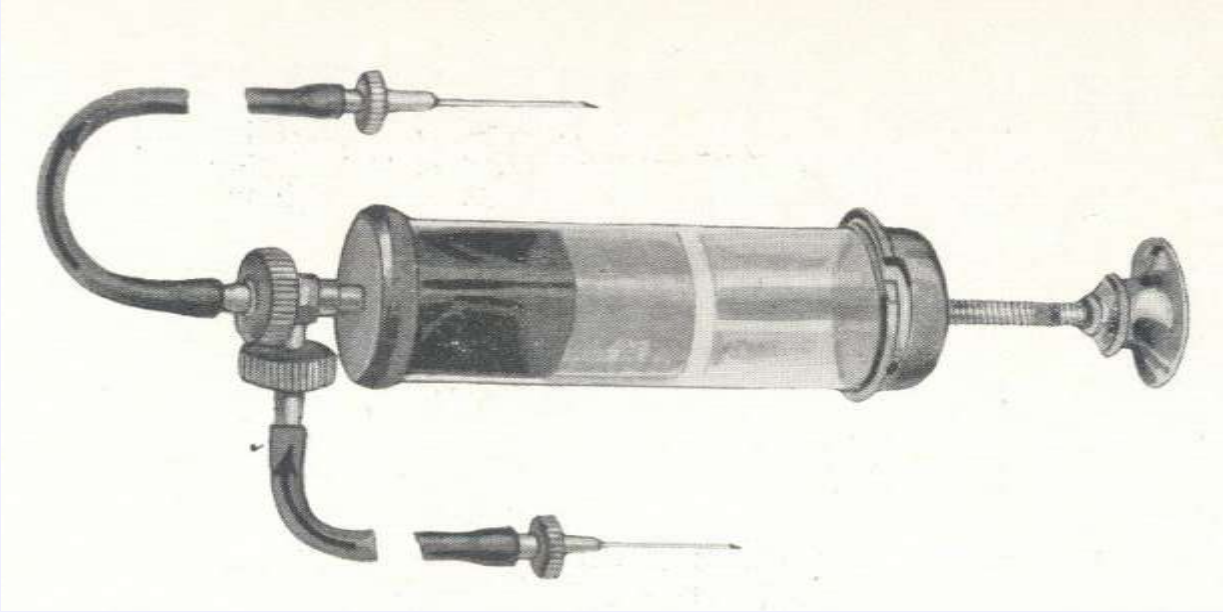
Karpfer's coelotom

This knife used for opening large animals' abdominal cavity for the purposes of post-mortem examination was introduced by Konrád Karpfer veterinarian in 1922. With its rounded end it prevents the opening of bowels.

Deseő's instrument

Dezső Deseő (1893–1967), doctor of medicine, professor of physiology. Dean of the Faculty of Agricultural and Veterinary Science at the Hungarian Royal Palatine Joseph University of Technology and Economics.

Deseő's mass transfusion instrument (1953) can be applied directly for blood transfusion from animal to animal. The small syringe-mounted unit is equipped with a rubber valve and is connected to the vein needles with two 50-inch rubber tubes. Air must be removed from the instrument before blood transfusion; blood can be sucked out from one tube and pressed immediately to the other.



Source: Tamas L. – Fellner F.: Állatorvosi sebészeti műtéttan. 2. átdolg. Bőv. Kiad. Budapest, Mezőgazdasági K., 1969. 118-119. p.

Berrár's mouth speculum

For rasping horses' teeth it is necessary to keep the mouth open, and the mouth speculum serves this purpose. The advantage of Berrár's mouth speculum is that it can be fixed to the head so it does not move.

Lehoczki's electric dental rasp

Dental rasps are used to remove the sharp ridges and points formed on horses' teeth. Electric instruments are more patient-friendly, precise and convenient for dental rasping. In Lehoczki's instrument the engine is in the handle.

Application of Berrár's mouth speculum during dental rasping
Photo: Dr. Perényi János

Gyula Magyary-Kossa's gas chamber patent

The patent is for getting rid of insect pests of horses, other animals, clothes or objects. The horse was introduced into a brick-built chamber plastered inside and outside as well. Its head was pulled through to the outside across a tight-fitting hood on the neck, and the doors were closed. The burning unit was placed inside the house, in which sticks of sulphur were burnt. Sulfur dioxide, arising from these, killed skin mites. This treatment took one or one and a half hours. Sulfur dioxide concentration were controlled by putting a candle in the inner window-ledge. The extinction of the flame indicated oxygen depletion, so knowing the amount of sulfur burnt, sulfur dioxide concentrations could be calculated.
Source: István Kótai DVM, Kamarai Állatorvos

Modell of the gas chamber