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FIRST EDITION OF THE FIRST BOOK ON THE ARTIFICIAL KIDNEY
BY WILLEM JOHAN KOLFF, CONSIDERED THE FATHER OF ARTIFICIAL ORGANS

KOLFF, WILLEM JOHAN. *De kunstmatige nier* [The artificial kidney]. Uitgave J.H. Kok, N.V. Kampen, 1946.

4to [24,5 x 16 cm], original paper wrapper, title in blue ink on front wrapper, pp. [4], 200, text in Dutch with some summaries in English.

THE BEGINNING OF HAEMODIALYSIS

First edition of the commercial printing of Kolff's Ph.D. dissertation on the construction of the artificial kidney and haemodialysis.



“This was his doctoral dissertation. There were two versions published. The first was designated *Proefschrift* and credited KOLFF as WILLEM JOHAN KOLFF on the title page.



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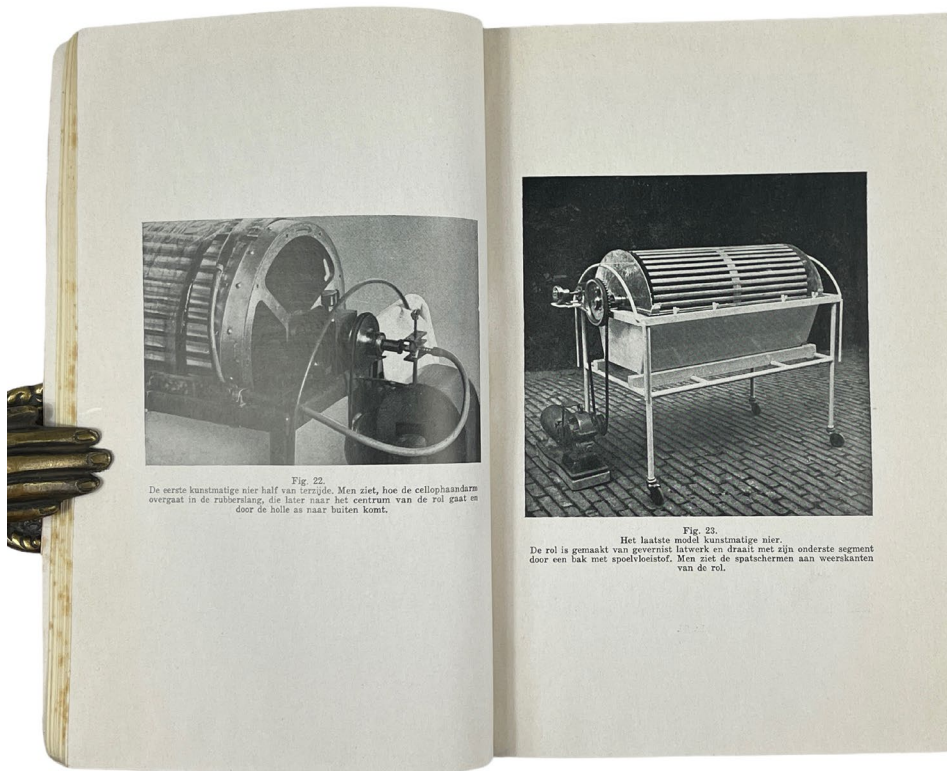
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It indicated on the title page that Kolff defended the dissertation on January 16, 1946. The imprint of this edition read Drukkerij J. H. Kok N.V. Te Kampen [without a date.]

The other edition [offered here], published for commercial circulation, designated Kolff as Dr. W. J. Kolff on the title page and printed wrapper." [Garrison-Morton, 11510].



"Pioneers of dialysis were regarded as mavericks, perhaps even dangerous men, by their colleagues for more than two decades. The first of these unusual men was a tenacious and talented Dutchman, Willem Johan Kolff [...].

Together with Hendrik Berk, head of the local enamel factory and a practical engineer, he went on to design and construct a 'dialyser with a large surface area' whose design has become one of the icons of nephrology[...]. At the end of the war, Kolff published an expanded version of his thesis in a now classic monograph [offered here]" (Cameron, *History of the Treatment of Renal Failure by Dialysis*, pp. 74-80)



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KOLFF, WILLEM JOHAN (1911 – 2009) was a Dutch physician and inventor, a pioneer in the field of artificial organs.

He established the first blood bank in Europe, and devised a series of medical inventions, including an intra-aortic balloon pump for patients with acute cardiac failure.

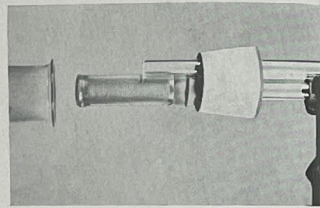


Fig. 31.
Zijn zeefje is onbruikbaar voor de kunst-
nieren, want het is niet bestand tegen de
stroomafwaarts vormt zich een dikke
fluwelijke afschaling.

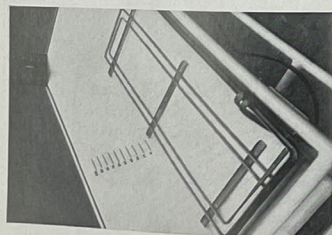


Fig. 30a.
De schaatverdeling in het bad en het
verwarmingselement, van boven gezien

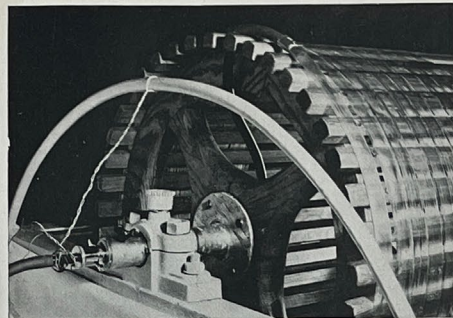


Fig. 32.
Het toevoer-einde van de dialysator, half van terzijde.
Het bloed, dat door de rubberslang links aankomt, stroomt door de in de holle
as gemonteerde draaikoppeling in een tweede rubberslang, die buiten op de
trommel overgaat in de cellophaandarm. (Dit is niet een foto van het laatste
type nier, maar van de tweede nier die gebouwd werd.)

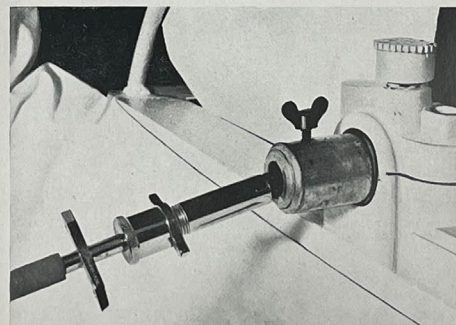


Fig. 33.
Een draaikoppeling, half uit de holle as getrokken. Men ziet de vleugelmoer,
waarmee de koppeling in de as gefixeerd wordt. Tegen de schroefkop is een
contramoer gedraaid.

Kolff and his team developed a series of artificial implantable hearts, each named after the member of the group responsible for that particular device. The model that eventually proved itself in patients was perfected by one of the young doctors in the



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team, Robert Jarvik. In December 1982, the first recipient of the new heart was a retired dentist named Barney Clark. He lived for almost four months. Most notably, Kolff developed the first artificial kidney[, initially constructed using wooden drums, cellophane tubing, and laundry tubs, thus marking the beginning of haemodialysis. He successfully treated his first patient, Sofia Maria Schafstadt, a 67-year-old woman suffering from kidney failure, using his haemodialysis machine.

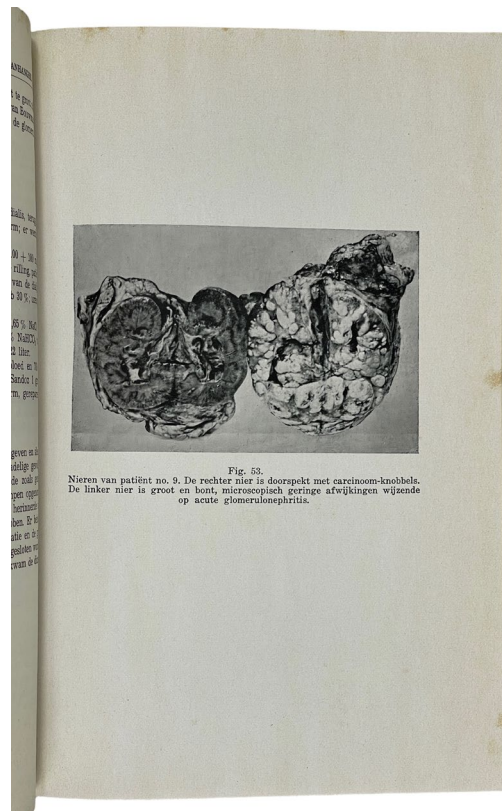


Fig. 53.
Nieren van patiënt no. 9. De rechter nier is doorspekt met carcinoom-knobbels.
De linker nier is groot en bont, microscopisch geringe afwijkingen wijzende op acute glomerulonephritis.

In 1944, he published his discoveries on the artificial kidney in *Acta Medica Scandinavica*, and eventually, in 1946, published the present complete study, the first in the world, followed by the Swede Nils Alwall in 1947.

In the years immediately following the war, he shipped free dialysis machines to researchers in England, Canada, and the United States, completed his postgraduate



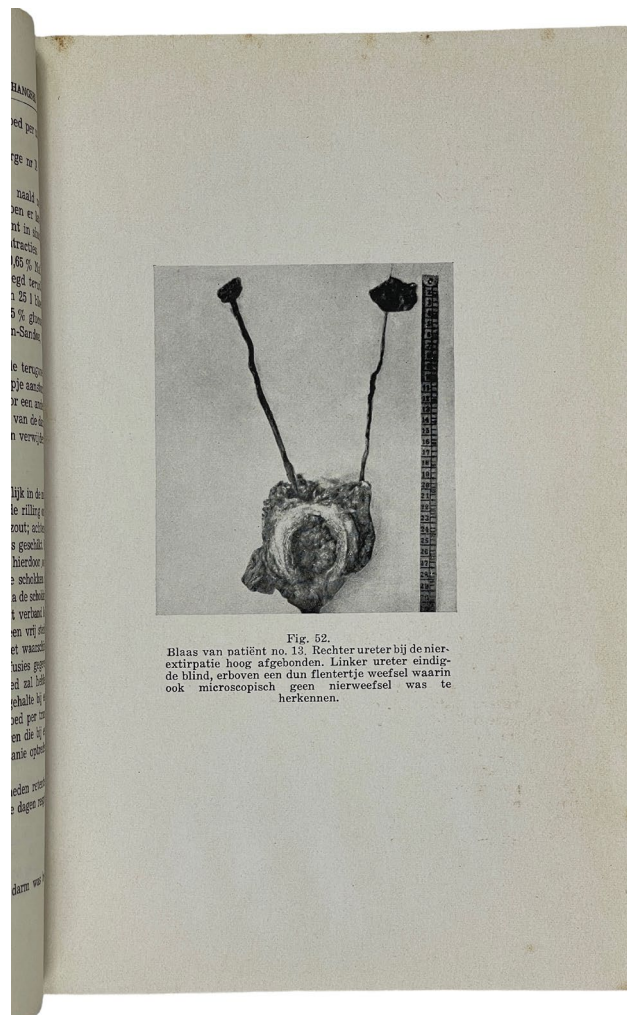
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work at Groningen, receiving his Ph.D. in internal medicine, continued his duties in Kampen, and lectured at the University of Leiden.



In 1975, he introduced the Wearable Artificial Kidney, an eight-pound chest pack with an 18-pound auxiliary tank.

Over his long career, he published more than 600 papers and articles, and numerous books, including *Artificial Organs*. He was inducted into the National Inventors Hall



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of Fame in 1985, and in 1990 was named by *Life* magazine in its list of the 100 Most Important Americans of the 20th Century.

AANHANGSEL A

heid en rugpijn. Er ontstond een aan een buurman ongeveer 1/2 liter erwijl hij zoveel ad. t, al werd het eleden was het t ureumgehalte e kleur van de teeds lager, de ch de concen-

ogenomen. Wij g toen hij nog emen aan het nog wel goed t opgeven van ttheem op de op de romp. dik beslagen, halte van het

or de kunst- reumgehalte 192 mgr per en was soms de toestand,

t tot 43 %, er wat bloed was stellig klaren. de veneuze bloed, 500 fteze trans- arteriële na de 3 uur ig braken. nds kreeg loed afge- e, en met erde.

1) Om 19 uur; 41 % om 20 uur; 55 % om 23 uur.
2) Voor dialyse 606-608.
3) Voor dialyse 631-638.

	Bloed pat. vóór dialyse 24/6 21 u.	Bloed pat. na dialyse v. 20 liter	Bloed pat. na dialyse v. 55 liter	Bloed pat. na dialyse v. 80 liter	Bloed pat. na dialyse v. 120 liter	Bloed nier na dialyse v. 12 liter	Bloed nier na dialyse v. 120 liter	1e Bad na dialyse 30 liter	2e Bad na dialyse 50 liter	3e Bad na dialyse 90 liter	4e Bad na dialyse v. 120 liter	Bloed pat. 26/6	Bloed pat. voor dialyse 28/6	Bloed pat. na dialyse v. 22 liter	Bloed pat. na dialyse v. 72 liter	Bloed nier na dialyse v. 16 liter	Bloed nier na dialyse v. 72 liter	1e Bad na dialyse v. 22 liter	2e Bad na dialyse v. 61 liter	3e Bad na dialyse v. 72 liter	Bloed pat. 30/6
Stof	(699 708)	490	354	272	192	134	63	108	83	50	36	263	386	308	187	56	30	35	50	11	303
Urea	(6,9 7,0)				(2,8 2,19)		(2 2,1)					(4,9 5,1)	(6,6 7,0)			(3,3 3,4)					5,3
Chloor	(10,7 11,3)				5		(3,1 3,1)					(6 6)	(7,2 7,6)			(4,6 4,7)					(17 18)
Albumine	18%	19%	15%	20%	17%		15%					27%	32%		27%	25%	28%				
Red. N.																					
Alb.	(21,5 21,6)											(14,8 14,9)						± 20 bij begin	± 20 bij begin	± 20 bij begin	25,6
Ca	(7,0 7,9)											(8,4 9,10)									(5,9 6,2)
Phosphat.	15				4,5		3,1					7	11		4	5,6					8,8
Indgedr. als NaCl	(500 500)	(585 589)	(645 648)	(650 651)	(639 640)	(670 680)	(643 644)	± 650	id.	id.	id.	(618 618)	(648 648)	(623 627)	599	(603 604)	(600 599)	674 ²⁾	648 ²⁾	± 600 +40 KCl	(655 656)
Na	321				(333 335)		(361 369)	± 1500	± 1500	± 1500	± 2000	350	(371 382)		(329 344)	(328 329)		± 300 bij begin	id.	id.	152
Alb.					452													± 300 NaHCO ₃	id.	id.	
Alb. reserve	39 vol. %				50 vol. % 53 %		27 vol. % 27 %	± 200 NaHCO ₃	d.	id.	id.										
Uremie						?															
Uremie	62 %				43 % 46 %		42 % 43 %					67 %	37 % ¹⁾		50 %						72 %
Uremie	dir. — Ind. <0,4				dir. — Ind. <0,4		dir. — Ind. <0,4					dir. — Ind. <0,4									130/80
Bloeddruk	220/110											165/100			90/50 135/90						

CONDITION: Light foxing along the text; overall a very good copy

REFERENCES: Geoff Watts, *Willem Johan Kolff*, The Lancet, 2009; Cameron, *History of the Treatment of Renal Failure by Dialysis*, pp. 74-80; Garrison-Morton, 11510.



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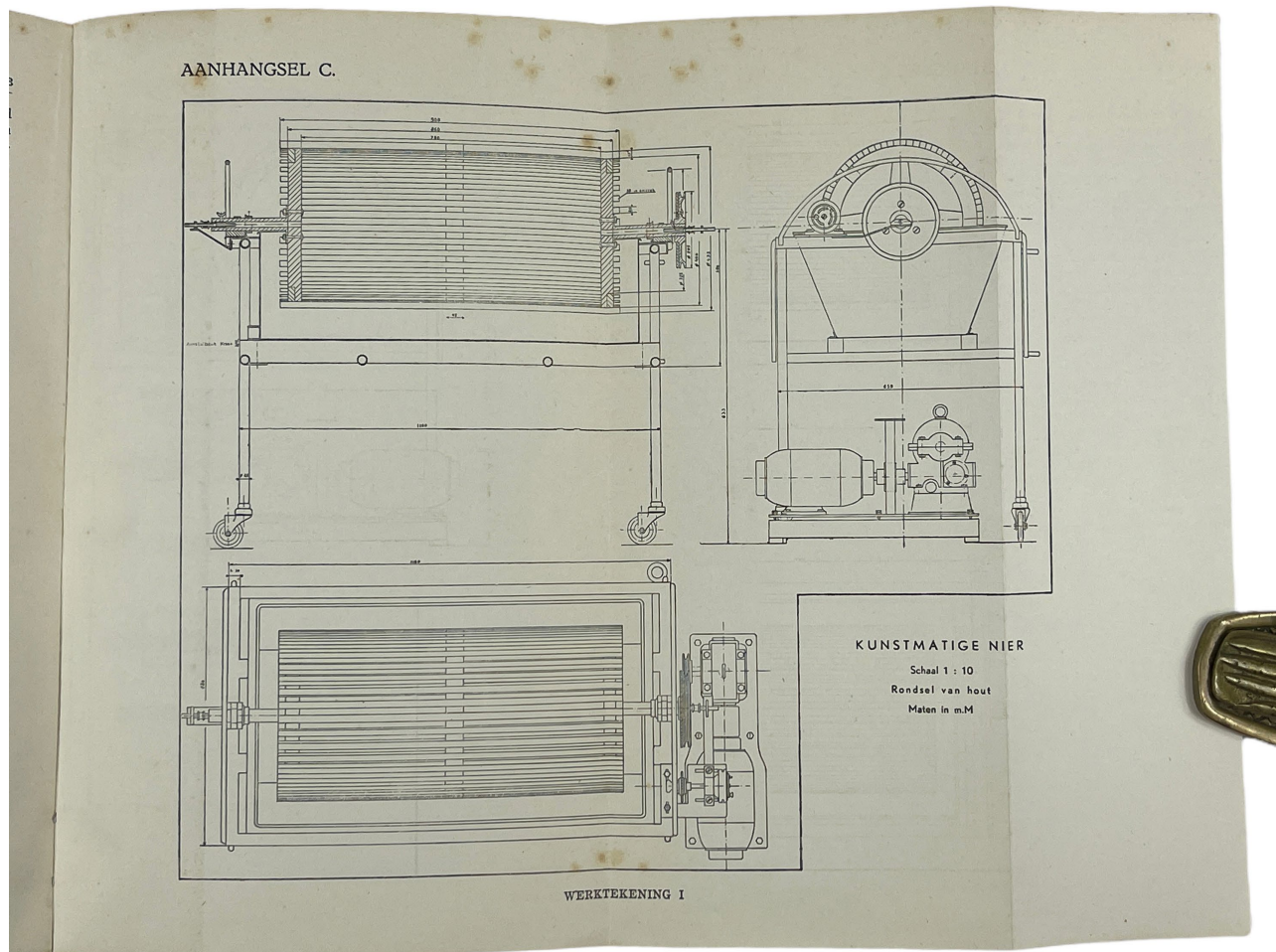
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