In Memoriam

His Excellency Councillor of State
Carl von Bach

1847 - 1931

On the Occasion of his 150th Birthday on March 8, 1997
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Life History of Carl Julius Bach

08.03.1847 Born in Stollberg, Saxon Erzgebirge (Father: Master Saddler and Coachbuilder, Mother née Keller)
10.10.1931 Died in Stuttgart
14.10.1931 Interment in the Waldfriedhof Stuttgart

His Years of Training and Travel

1853-1861 Public and private schooling
1861-1863 Apprentice fitter in Stollberg; Attendance at evening classes and Sunday classes of the Stollberg Trade Association
1863-1864 Richard Hartmann Steam Engine Works, Chemnitz; Piecework
1864-1866 Higher Trade School and Foremens’ School in Chemnitz; Technician, R. Hartmann Engineering Works
1866 Participation in the planning work for the Chemnitz water pipeline under Prof. Kankelwitz
1866-1868 Dresden Polytechnic; Bach subsequently followed Prof. Kankelwitz on his appointment to the Stuttgart Polytechnic
1868-1870 Assistant and special teaching post for preliminary courses in mathematics and mechanics at the Stuttgart Polytechnic: Conclusion of studies; practical work for Prof. Kankelwitz
1870-1871 Volunteer in the 12th Field Artillery Regiment, Siege of Paris
1872 Termination of assistant and lecturing activities at Stuttgart Polytechnic and activity as engineer with Prof. Kankelwitz in private practice relationship
1872-1873 Conclusion of two terms of study at the Karlsruhe Technical University; Diploma examination under Prof. Grashof
1873-1874 Work as engineer in England; Attendance at evening lectures at Kings College London
1874-1876 Chief Engineer at W. Knaust Engineering Works Vienna. Special task - design of a locomotive steam fire engine
1876-1878 Managing Director and Board Chairman of Lausitzer Engineering Works AG, Bautzen
18.12.1877 First correspondence with Prof. Kankelwitz concerning Bach’s professorial chair at Stuttgart

Teaching and Research, Material Testing and Strength Calculation

1878 Appointment as Professor of Mechanical Engineering at Stuttgart with special teaching post for steam engines, steam boilers, elasticity and machine components
1884 Founding of the Staatliche Materialprüfungsanstalt (State Material Testing Institute) Stuttgart
1885-1888 First Rector on the introduction of the rectorial office at the Polytechnic
1899 Completion of the machine laboratory at TH Stuttgart
1.10.1922 Appointed Professor Emeritus

His Work for Associations and in Technical Organisations
1881 Board of the Württemberg regional association of the Verein Deutscher Ingenieure VDI (Society of German Engineers)
1884-1927 Chairman of the Württemberg Steam Boiler Inspection Society
1896 Co-founder of the DVM (now: German Association for Material Research and Testing e.V.) Participant in all of the fundamental discussions of the German Steam Boiler Standards Commission, exceptionally after 1908
1892 Committee member of the Physical-Technical State Institution soon after its foundation on the initiative of W. v. Siemens
1900 Committee member of the Jubilee Foundation of German Industry
1903 Member of the Reinforced Concrete Committee
1906 Member of the German Reinforced Concrete Committee
from 1920 Fundamental investigations for the VGB (now: Technical Association of Large Power Plant Operators)

His Appointments and Honours
1893 Offer of chair at the Federal Polytechnic in Zürich
1895 Offer of chair at Berlin Technical University
1902 Offer of chair at Vienna Technical University
1903 Honorary Doctorate of Berlin Technical University
1927 Honorary Doctorate of Stuttgart Technical University
1927 Honorary Doctorate of Tübingen University
1892 Knight’s Cross of the Order of the Württemberg Crown
1894 Golden Grashof Memorial Medal as the highest decoration of the Society of German Engineers
1895 Cross of Honour of the Württemberg Crown and award of the title of Superintendent of Constructions
1911 Commander’s Cross of the Albrechts Order 2nd Class by the King of Saxony
1913 Freeman of the town of Stollberg
1914 Appointed Councillor of State
1916 Honorary Chairman of the Württemberg Society of Engineers
1916 Award of the Wilhelms Cross by the King of Württemberg
1918 Award of the title Excellency as Senior Professor and Senior Engineer in Württemberg
1918 Award of the Commander’s Cross of the Order of the Württemberg Crown
1927 Freeman of the city of Stuttgart
Extracts from the Extensive Obituaries in Representative Professional Journals

Journal of the VDI (German Society of Engineers) Vol. 75 (26 Dec. 1931) No. 52, p. 1545ff

"Bach is one of the personalities who at a significant juncture have experienced and fought to achieve the development of German technology. He owed his success not to ingenious notions but to fundamental work and perseverance and to his courage in standing up for his convictions which were often at variance with prevailing views. He was combative soul with an outstanding capacity for work and uncompromising decisiveness. For that which he had recognised as correct he fought willingly and passionately and sought by every means at his disposal to carry it through. He was that gifted researcher and teacher who lived for his work from an inner necessity. Thankful for that which this engineer was to them German engineers will cherish his memory for all time."

Stahl und Eisen Yr. 51 (1931) Vol. 48, p. 1500 (Society of German Ironworks Operatives/Verein deutscher Eisenhüttenleute)

"His works in material science were above all the bridge which brought him into close contact with the field of work of our Society of which he was a member since 1895. In particular the steam boiler field to which he devoted his special attention in later years resulted in an in-depth collaboration through the former German Steam Boiler Standards Commission and later the German Steam Boiler Committee. ... The extraordinary high capacity for work, the great devotion to duty, the unflagging diligence, the variety of knowledge and his excellent organisational talents meant that Bach was also frequently in demand outside his sphere of activity within the University. Thus he was a member of the Committee of the Physical-Technical State Institution, was for many years the leader of the Württemberg Steam Boiler Inspection Association, was outstandingly active in the Society of German Engineers (VDI) and in the German Steam Boiler Committee, was on the Administrative Council of the Helmholtz Society, was Senator of the Kaiser-Wilhelm Society and many others. Alongside the many official and honorary activities Bach was up until his final years outstandingly active in the literary field apart from his above-mentioned main works. With his relatives, students and friends the German Ironworks Operatives also mourn the researcher and man Carl von Bach."

Reports of the German Society for Metallurgy 24th Yr. (VDI, Jan. 1932) Vol. 1, p. 24 (now German Society for Material Science)

"With him a man is gone from us whose life's work has presented us with an astonishing richness of research work not least in the field of metallurgy. The fruits of his activity have today become so much common property that we still hardly realise the extensive pioneering work which was achieved...

No less are Bach's achievements as a teacher of distinction. Here he was convinced that what mattered was the education of the whole person. Therefore he campaigned against overfeeding with material and
spoke up for the necessity of practical work, not least because it ought to serve to teach the future engineer how to treat and assess the workman correctly. Especially close to his heart lay the surmounting of class differences, the ever increasing intensification of which he hunted down with great concern."

Communications of the Association of Large Boiler Owners E.V. No. 35. 10th November 1931 (now: VGB Technical Association of Large Power Plant Operators)

"Through his researches he established the basis of knowledge of the strength properties of constructional materials and taught technology by means of testing in order to gain an insight into the internal processes where pure calculation failed or exhibited the reality of its shortcomings. This early recognition led the inspired engineer to the founding of his Material Testing Institute in Stuttgart, started with the most limited means and finally excellently equipped, in which the countless pioneering tests were then conducted which have carried Bach's name across the world. The development of technology in general was influenced and promoted to a high degree by Bach's work. Of outstanding significance however was Bach's life's work on the technology of steam boilers. Without his pioneering work the present achievements in steam boiler construction and its paths of development are inconceivable. Since its foundation in 1920 our association has maintained close contact with C. von Bach in the knowledge that this man of experience could best show the path to follow which the catastrophic boiler failures at that time made necessary. Thus C. von Bach remained up to that time at which his great age compelled him to retire from engineering life, a loyal friend and advisor to our association who in many of our working meetings and many investigations placed his vast knowledge and mature experience at our disposal."

Yearbook of the Shipbuilding Technical Society, 33rd Vol. (Jahrbuch der Schiffbautechnischen Gesellschaft, Hamburg)

"Bach's life's work has exerted a lasting and deep influence on the widest of circles. The superiority of German technology, its purposeful work as compared with the trial based approach of foreign engineers is to be attributed to a large measure to compliance with Bach's fundamentals. Thus Bach stands before us as a pioneering researcher, as a leader of youth, as an exemplary personality, as a complete man."

Württemberg Inspection Association, Business Report for the Association Year 1931, p. 5ff (now: TÜV Süddeutschland)

"Our Honorary Chairman and from 1884 to 1927 Chairman of the Board, Professor Dr.-Ing. E. h. Excellency State Councillor von Bach departed this life on 10th October of this year and was committed to eternal rest in the Waldfriedhof in Stuttgart on the 14th October in the presence of a large number of participants from the highest official, scientific and industrial circles of our land and from German technology. ... thus he was decisively involved in the establishment of the German Steam Boiler Standards, he was the permanent representative for Württemberg on the German Steam Boiler Committee, was outstandingly active in International Federation of Steam Boiler Supervisory Associations and was co-founder and long-serving Chairman of the General Federation which combined all the German Steam Boiler Supervisory Associations. He was known to us all as an untiring champion of all measures for smoke abatement. However these short references may suffice here. If we now reflect that Bach's activity in the Württemberg Inspection Association was only an insignificant part of the work which he had performed as teacher, researcher and writer in both technical and general human areas then we may well say; he was a colossus of work; ..."
Although Bach's life's work was in mechanical engineering in which field he played a truly pioneering and leading role, so also do civil and especially reinforced concrete engineers still owe to the researches of Bach such encouragement that his name is most closely coupled for all time with the development of concrete and reinforced concrete constructions. Bach also reported the results of his research work in numerous presentations to the German Concrete Association and it was always a particular joy to follow his expositions. Together with his close collaborator Otto Graf the most valuable foundations of the present knowledge of the characteristics of our composite constructional material were laid in the Material Testing Institute of the Stuttgart Technical University. The reinforced concrete specialist world has thus lost in Bach its most significant patron and researcher.

But the human side of Bach was also exemplary. He did much for science and for the public at large but particularly also for many individuals in need of help without making any kind of fuss as he was at heart always a modest man which all the most abundant honours he received could not persuade from his real nature. He always put the requirements of the matter in hand in the foreground without regard to personal questions even if his own interests had to suffer thereby. Averse to any pretence, he was a tireless servant of his science, a restlessly active worker but also an energetic friend of the fatherland and a convinced opponent of all half-measures. Even the last honour accorded to him, the award of the title Councillor of State on the part of the last King of Württemberg could only spur him to carry on in the pursuit of his scientific aims. All those who had the honour as his students to hear his lectures and to participate in the practical exercises will hold him in quite special memory as one who was hard on himself but a generous advisor and well-meaning friend to others. With him one of our greats whose memory extends far beyond the personal has passed away,

Carl von Bach died in Stuttgart on 10 October 1931 at the age of 84. He was Councilor of State, Excellency, and Honorary Member of the Society of German Engineers (VDI) since 1899. Bach embarked on his scientific activities about 50 years ago. He held lectures on Machine Components and Structural Science which helped him to initiate a decisive change in the fundamental technical sciences. Following a period during which all the advances in science were regarded in view of the formal building up and further development of given theories under the influence of Bach people turned again back towards the reinforcement of the experimental principles of science. Even though in the first onset Bach sometimes overshot the mark in some direction he gradually reflected on the correct middle course. It was him who included again the basic equations of the mathematical elasticity theory and others in the later editions of "Elastizität und Festigkeit" ("Elasticity and Strength") which he had rejected right from the beginning, and he, who had contributed towards the establishment of laboratories more than others, finally warned of the possible danger of overemphasizing laboratory-related teaching.

Gifted to see things clearly, completely taken with interest in all questions concerning technology and economy, Bach in time earned unlimited reputation in all circles of engineers both researchers and practicians, and also far beyond. His achievements will continue to be still effective for a long time to come and his name will be preserved forever.
Dear Excellency!

I express to you my heartiest congratulations on your 80th birthday. I commemorate this occasion with appreciation of the great service which you have rendered to German technology by your researches and tireless practical and educational activity. May a pleasant Autumn of life be granted to you!

With best wishes
Your devoted

von Hindenburg
Dear Sir,

in your letter of the 18th of this month you touch a subject which is a guiding motif of my professional life and on which I am pleased to let you have my views.

I studied at the "Polytechnikum" in Munich where Professor Ludwig who was a student of Reuleaux taught us mechanical engineering by exclusive use of the system of "proportional numbers" and the "sixfold safety margin"; our only textbook, the "Constructeur" by Reuleaux, was said to be the revelation, the bible of mechanical engineering. When I was a student and without really knowing why, I already had a strong dislike of this working method which was unscientific, unimaginative, lacking independence and mechanical so that I gradually began to hate it.

At the beginning of the nineties when I started to design my engine this method failed completely. The tremendous pressures which developed in my machine and the friction energy in the sliding parts at a level which up to that time was unknown, forced me to examine as accurately as possible both the loading of every single component and
the material problems. It was my endeavour not to leave to
the chance of "proportional numbers" or "safety-
coefficients" even the slightest detail. I was seized by the
humiliating and discouraging feeling of not being able to
accomplish the task I had set myself.

In a state of helplessness, I searched the current
literature for advice and came across the second edition of
"Die Maschinenelemente" by C. Bach which had just been
published. I was so inspired by the book that I just decided
to put my engine aside and studied the book eagerly from
first page to the last; a task which, having regard to my
ordinary practical activities which were rather strenuous,
occupied me for almost one year.

But the time I spent studying was not wasted,
since I was then in a position, at least I think so, to
design; I had learnt from the book to develop a feeling for
what was going on in each part of the machine, just like a
gymnast feels how his limbs are stretched, compressed and
bent when doing his exercises; the machine became a
living creature to me which I entirely understood and with
which I felt in perfect harmony.
It was only then that I returned to work at my engine and after a short period had the great feeling that things would work out right.

I am proud to say that today I am one of Mr. von Bach's friends and have often drawn his attention to his indirect influence upon the construction of my engine and declared myself his thankful student. Several times I expressed my gratitude also towards Mr. Zeuner with respect to the theory on which my engine is based.

I hardly need mention that the activities of Mr. von Bach form the cornerstones of my design office; they gain in importance nowadays because of the outstanding development of modern high-grade materials for mechanical engineering, the correct evaluation and application of which are only possible on the basis of fundamental scientific knowledge.

At this later stage the marvellous works of Martens on the strength properties of materials used in mechanical engineering were of great benefit to me, and in my opinion his works are destined to influence the younger generation of designers to a much higher degree than the older ones.

Yours faithfully

R. Diesel
Extract from the Book "Robert Bosch - Life and Achievements"
Theodor Heuss, 1986 Deutsche Verlags-Anstalt Stuttgart

"The first great endowment which had brought Robert Bosch before the public in 1910 had given rise to a proliferation of rumours; it had marked the start of his sheer incomparable legendary munificence and was intended for the technical sciences. Smaller, though not insignificant sums had preceded it, in 1902 for the Jubilee Foundation of the Württemberg Engineers Society. The tendency to devotion to the 'humble abode' had found its expression through state gifts for house building. Now, at the close of the first decade he was preoccupied with the thought of making funds available for an aeronautics and aircraft engineering institute in Friedrichshafen. However the Württemberg government considered itself unable to take on the continuing commitment connected therewith. His benevolence then found another path.

At that time Carl Bach, a man of international authority as a researcher and exponent of machine elements, was working as Professor of Mechanical Engineering at the Stuttgart Technical University. In him who originating from a humble background, had achieved his leading position by a rare combination of scholarly vigour and practical educational activity, Bosch had met a personality whose advice he gladly heeded. He must have been impressed not only by the life history of this scholar who, an apprentice fitter without background, had himself fought for his advancement, but he also knew that in the Württemberg course of study Bach had attained the practical on-the-job training as a craftsman as a precondition for entry into the university and thus provided a pattern which the other federal states also followed. This corresponded with the basic feelings of Bosch. Furthermore Bach who on the one hand never tired of fighting for the position of engineers in public and state life without succumbing to corporate restriction, was also concerned by the nature of the spiritual relationship between the factory engineer and the workman. The dangers of internal differences between the design engineer and the craftsman for instance weighed heavily upon him.

Bach came to Bosch with his worries and Bosch came to Bach with his questions. The business-like exchange of correspondence which requested an opinion or advice was lively enough over decades. One cannot speak of an intimateness but both men knew what they had together. Bach's reflections on life also speaks of it, Bosch however, among whose talents that for flattery was certainly one of the least, wrote to the scholar as the latter in 1922 retired from his professorial chair at the age of 75: "All that you have achieved in your profession is way beyond common eulogies. It belongs to the history of technology." With such emotiveness in a personal exchange this writer was generally thrifty. In summer 1910 Bach now presented his concerns: how inadequate the financial provisions of some institute with annual funds would be which would enable it to tackle real research work. The sums varied between 5 and 8000 Marks. For the Material Testing Institute, a favourite creation of Bach, there were only 1800 Marks in the budget. Dietrich, Bosch's former teacher heard of these discussions; he urged that electrical engineering did not get a raw deal and was reassured. The rector was called in. On 20th November 1910 Bosch wrote to him that letter which after the current budgetary positions had been given, motivated the resolution: "These funds, so far as I am informed, have hitherto hardly sufficed to meet immediate needs; with them it is as good as impossible to carry out research work. Thus the fruitful influence of such work on the teaching has more or less lapsed completely. I consider this situation as not corresponding to the tasks and objectives of a technical university and have therefore decided to present to the Stuttgart Technical University a sum of one million marks as a Robert-Bosch-Foundation..."

The purpose of the foundation should be; fostering and promotion of the physical fundamentals of productive technology, in particular mechanical engineering science including electrical engineering and civil engineering, in the first instance through research and then through instruction. The aim of the latter (lec-
tures and practical) is to secure the designated physical fundamentals in knowledge and ability. The foundation charter which lays down the proportions of capital for the various intended purposes also outlines the conditions. The payments by the state shall not be reduced due to the gift, the increases of these which would still have become necessary at sometime without the foundation must be kept up. The council of the foundation should consist of the rector and the leaders of the institute and the founder after whose demise the son of whom on attaining the age of 25 and being willing, may succeed him. The board of the institute are free to use the accruing interest, recourse to the capital requiring the agreement of the founder. And others on formal rules.

These were established with the responsible professors with the perceptible objective of limiting the bureaucracy to a minimum. The significant use of the funds in the first years was the increase and refinement of the equipment, later systematic research works appeared. Prologue and epilogue are of biographical import. Bosch had required that they should made the occasion 'as painless as possible' for him personally, should abstain from academic honours, torchlight processions, honorary doctorate and the like for one only degraded the title if one brought with it a related financial action. This was brought to the attention of the rector but as the foundation charter was submitted and the formal ceremony completed the senate nevertheless passed a unanimous resolution to award Bosch an honorary doctorate. He was in an awkward position. That he should withdraw the foundation was out of the question. By declining the title should he snub the committee with whom he had just entered into this liaison? So he acquiesced to the award of the honour. He is supposed to have "later on often regretted it" as what he had feared and what perhaps in the view of the professors was seen as the respectable intention of having an encouraging effect on possible successors, did occur: the purely financial support of scientific institutes got into an association with academic honours which was not always wholly worthy. Bosch occasionally found himself in the company of people with whom he was not particularly happy. He personally made the most sparing use of the new honour. Within the firm he remained "Mr. Bosch".

He was more successful at that time - and later on - in his defensive stance with respect to the government. Of course they had to accept the foundation and had available titles and orders as their form of service in return. That they would arouse little joy with these the Rector had after all made known in his report and the Minister for Culture Fleischhauer regretted that the "rare modesty" of Bosch would deny the King conferring his thankful recognition or some special expression which he would so gladly have done. Bosch may well have smiled as he knew the danger of the spurned Commercial Councillor or Friedrich Order. The Minister did not see things quite clearly when he wrote of "modesty" where in fact there was pride and indifferent disdain towards all the business of showy state honours which Bosch with mocking disdain, accepted as valid for others while never wishing to become involved himself.

The million gift of 1910 had also made the name Bosch known in those circles which were far removed from technical science or automobile engineering. Generally the private payment for such tasks which by historic tradition the state had taken in hand and the orderly performance of them by the state one therefore expected, had been very little developed in Germany in contrast to the Anglo-Saxon world. Actually only the creation of the Imperial Technical-Physical Institute by Werner von Siemens represented an event of impressive significance. Only the founding of the Kaiser-Wilhelm Society for Sciences and its judicious leadership by Adolf von Harnack and Oskar von Miller's industrious collecting activities for his "German Museum" in Munich aroused by lure and by pressure the feeling of noblesse oblige among the new industrial wealth. Bosch's inner decision was completely independent of this business-orientated and soon rather semi-officially biased development; perhaps it had, as a hopeful word from the Württemberg Ministry (December 1910) opined "now broken the spell on big industry to do something." To him it was
about practical will-to-help and ability-to-help. In this he wanted to reap neither glory and honour, nor win power or influence, nor did he pursue a sentimental urge towards unstructured charitableness. The magnificent, and in Germany incomparable, freedom with which Bosch now made available smaller, larger and finally gigantic sums for the purposes of the public at large over decades, stemmed from his sovereign conception of money and from the feeling for civic duty, to use a growing fortune for the benefit of the people's welfare in the widest sense."

100 Years of DVM

The State Material Testing Institute (MPA) of the University of Stuttgart congratulates the German Association for Material Research and Testing (DVM) on its 100th birthday. As a student of Erich Siebel and Karl Wellinger I also feel personally connected with the history of German material testing which my predecessors, Carl von Bach, Richard Baumann, Otto Graf, Erich Siebel and Karl Wellinger have helped to shape.

A short retrospective view might therefore be in order at this juncture. The DVM was founded after an appeal of the 15th August 1896 signed by Carl von Bach, Carl von Leibbrand and Adolf Martens. Since then this Association has exerted a decisive influence on material technology and afforded valuable service to both industry and the authorities. In co-operation with the Steam Boiler Inspection Associations, the present day Technical Supervision Associations (TÜVs) and the Technical Selfsupervisory Organisation of the Chemical Industry it was possible to make a contribution to first-rate technical achievements.

Preceding the founding there had been several conferences (1884 Munich, 1886 Dresden, 1890 Berlin, 1893 Vienna, 1895 Zürich) based on an appeal of Carl von Bach in 1881. At the general meeting of the Society of German Engineers in Stuttgart Carl von Bach made the proposal to standardise the test methods for technical constructional materials. The president of the first four "German Conferences" was Johann Bauschinger, Managing Director of the Mechanical-Technical Laboratory in Munich. At the last of the above-mentioned conferences in 1895 the International Federation for Technical Materials Testing (IVM) was founded, the first president of which was Ludwig von Tetmajer, Director of the Swiss Material Testing Institute. Adolf Martens, Head of the Berlin Mechanical-Technical Test Institute was appointed as his deputy. Thus in 1896, despite the prevailing opposition by the regional ministries in the German Empire, it was high time to create a workable organisation in the country in the form of the DVM in order to ensure national backing in the German Empire for the work of the IVM. Adolf Martens became Chairman and Carl von Bach his deputy. The constitution corresponded largely to that of the IVM which, after its dissolution in 1925, was re-established in 1927 under the name New International Federation for Technical Materials Testing (NIVM).

Even as the First World War raged the DVM Standards Committee for German Engineering was brought into being from which the present German Standards Committee (DNA) has emerged. This latter survived the post-war turmoil of the second world war despite the occupation zones thanks to the commitment of Erich Siebel (from 1940 to 1947 President of the Berlin Material Testing Office). The DVM, although not legally extinguished, because of the differing authorisation regulations for technical-scientific associations in the individual occupation zones, had practically expired. Its activities were however reintroduced in the West in 1947 at the instigation of Siebel in the Technical Standards Committee for Material Testing (FNIM). After his return to his old Stuttgart domain in 1947 Siebel set up a new business establishment. In this connection mention must be made of the Society for the Promotion of Non-destructive Test Methods (now DGZfP), the chairmanship of which Erich Siebel also held for more than ten years (1941 to 1952). Shortly after the building of the Berlin Wall the office of the DNA in the Soviet occupation zone was also closed down.
In spite of the great achievements of the German Material Testing Institutes in research, development and teaching and in spite of the high standing which its leader enjoyed, in eight years of intensive endeavours Erich Siebel did not succeed in achieving a statutory regulation and with it, a reorganisation of material testing science in the shape of the Association of Material Testing Offices (VMPA) and there integrating the tasks of the DVM in a unified manner. Therefore at the members' meeting of the VMPA in Stuttgart in 1953 he proposed the idea of re-establishing the DVM. On 26.10.1954 on a motion proposed by Ernst Hermann Schulz, FNM, the DVM was re-established.

The call from Erich Siebel and Max Pfender, his earlier Stuttgart collaborator and later successor as president of the Berlin Material Testing Establishment (now BAM) for a "law for the regulation of official material testing practice" did not meet with general approval, particularly by industry. A reason for this may have been the efforts being made at the same time to establish within the framework of this law a Technological Federal Institute with special powers based in Berlin. Siebel wrote at the time, inter alia, that with the failure of his plans there would be no centre "at which fundamental questions of material testing practice could be resolved. Likewise a centre which could deal with foreign organisations would be lacking. Here the Material Testing Standards Committee (FNM) is but a poor substitute. In particular it has turned out that on most occasions invitations to foreign meetings have not been passed to the FNM. Finally there is the lack of a centre which could be consulted in the assessment of new locations for machine investigations."

As the last assistant of Erich Siebel I became a co-worker of Karl Wellinger in 1957. On numerous occasions Siebel and Wellinger passed on to me details of the eventful history and also the outstanding achievements of the DVM and VMPA. In the light of present knowledge and in view of developments abroad as well as the activities of other technical-scientific organisations and industry specialist associations in the German Federal Republic, it is logical for the exertion of influence by the state to be limited to supervisory care and above all to be concentrated on the necessary protection against danger.

When today the research, development, qualification and standardisation of improved and new materials to a large extent takes place abroad, considerable efforts and still closer collaboration of the DVM are required with its German technical and scientific sister organisations listed below.

- VDI Verein Deutscher Ingenieure (Society of German Engineers), founded 1856
- Verein Deutscher Eisenhüttenleute VDEh (Society of German Ironworks Operatives), founded 1860
- Deutscher Verband für Schweißtechnik e.V. (DVS) (German Welding Association), founded 1897
- DGM Deutsche Gesellschaft für Materialkunde e.V. (German Society for Material Science), founded 1919
- DKG Deutsche Keramische Gesellschaft, (German Ceramics Society), founded 1919
- VGB Technische Vereinigung der Großkraftwerksbetreiber, founded 1920 (Technical association of large power plant operators)
- DECHHEMA Deutsche Gesellschaft für Chemisches Apparatewesen, Chemische Technik und Biotechnologie e.V., founded 1926 (German Society for Chemical Equipment Practice, Chemical Technology and Biotechnology)
- DGZIP Deutsche Gesellschaft für Zerstörungsfreie Prüfung (formerly Gesellschaft zur Förderung zerstörungsfreier Prüfverfahren), founded 1933 (German Society for Non-destructive Testing)

Through this and by additional interaction with the European institutions it must be possible together to overcome the backwardness which still exists in certain fields as compared with abroad and to contribute to the strengthening of the industrial position of Germany.

K. Kussmaul
26 April 1996