The Techno-politics of Colour: Britain and the European Struggle for a Colour Television Standard

Andreas Fickers

The first colour television transmissions in Great Britain in 1967 marked the end of more than ten years of national and international debate over the technical specifications of the colour television system to be adopted on a European scale. From 1955 a group of European experts – mainly television engineers from broadcasting institutions, national post offices and the television industry – met at regular meetings of the CCIR (Comité Consultatif International de Radiocommunications) to discuss the possibilities of introducing a common European colour television standard. Engineers hoped that this would transform the fragmented European television landscape with its numerous different line standards for black-and-white television (Fickers 2006a). With the foundation in November 1962 of an ad hoc commission on colour television of the EBU (European Broadcasting Union), the discussion intensified and concentrated on comparing three existing technical alternatives: the American NTSC system, the 'French' SECAM system and the 'German' PAL system. But what started as a scientific endeavour to determine the best colour television system for Europe slowly but surely mutated into a fierce techno-political controversy between the major stakeholders. The most intense phase of the colour television debate took place between the 1962 EBU ad hoc commission meetings and the 1965 and 1966 CCIR conferences in Vienna and Oslo. While both contemporaries and historians have described this European debate as being primarily a French-German argument (Fickers 2007), the interests and influence of the British television industry, the broadcasters and various political institutions including the Post Office, the Foreign Office and the Board of Trade have received less academic scrutiny. This article highlights the interferences of technical, industrial and political interests in

a complex European decision-making process, demonstrating the inscription of political and symbolic capital into debates over technical standards.

The colour television debate reveals a number of interesting and highly topical insights into the complexity and political sensitivity of such seemingly apolitical objects as technical standards. While technical standards are generally referred to as 'neutral' agreements between different stakeholders (such as manufacturers, sellers, purchasers, users and regulators) in order to establish codes or compare formats, the analysis of 'standardisation' as a social practice and process reveals the hidden motives and interests of the parties involved. As Schmidt and Werle remind us, 'the process of standardization is by no means the execution of a linear techno-logic. It is, rather, contingent on institutional factors, actor constellations, actor's interests and perceptions, technical knowledge [. . .]' (1998: 109). As the example of the European colour television debate shows, economic and industrial interests, political strategies and even cultural norms and values are inscribed into the apparently neutral characteristics of a technical standard (Akrich 1994). The historian of technology Hugh Aitken stated that 'standardisation processes take place in a "grey area" where science, technology, business, and government meet, overlap, and interpenetrate; where resources and information flow between the systems' (Aitken 1985: 22). To illuminate the 'grey area' of colour television standardisation is the main aim of this article.

After an introduction into the institutional framework of the technical discussions of the different colour television systems and a short presentation of the main industrial and private actors involved in these technical debates, this article will focus its attention on the politicisation of colour television. In the United Kingdom and on the continent, broadcasters, post offices, ministries of Foreign Affairs and Boards of Trade became players in a techno-political struggle for the definition of a single European colour television standard. In concentrating on two critical moments of techno-political diplomacy, the CCIR conferences in Vienna (1965) and Oslo (1966), I hope to offer a substantial description of the tactical games and strategic manoeuvres that have characterised this European standardisation process. Mainly based on British primary sources, this historical reconstruction offers new insights into techno-political debate from a British perspective without reducing it to a national story. Instead it should be read as the transnational historiography of a techno-political European event.

The battle for a European system: the EBU/CCIR debates on colour

When the Americans started regular colour television transmissions on the basis of the NTSC-system, most European countries were concerned about realising a television infrastructure for black and white. But despite this 'technological gap' between the two continents, the technology of colour television was also an object of scientific study for European television engineers. The BBC had started experimenting with colour television in 1956 on the basis of NTSC. In the following years, demonstrations were given by the BBC to the Postmaster General, the Television Advisory Committee and the House of Commons. Experimental transmissions were regularly made in 1957–58 which established the soundness of the NTSC-system when adapted to the British 405 lines (Pawley 1972: 518). But the British 405 line standard was to become a major reverse salient in the development of colour television in the United Kingdom (Hughes 1983). While the basic parameters[1] for such a harmonisation already had been agreed upon during a CCIR conference in Stockholm in 1961 (Müller 1967), the introduction of a colour television system on the basis of a 625-line system meant a huge challenge for the British television industry. The BBC had pressed for an introduction of colour television on 405 lines, but the Pilkington Committee finally recommend a colour television service on UHF and 625 lines (Briggs 1995: 257–308). This decision involved the duplication of existing programmes in bands IV and V and produced capital costs (to the BBC, ITA and Post Office) of an estimated £45 to 50 million. The major advantage of this changeover nevertheless was that it gave the viewing public a better picture and accelerated the exchange and sales of television programme material overseas.

Britain was not the only country to experiment with colour in Europe. By 1956 the French television pioneer Henri de France, inventor of the 819-line system, had developed an alternative system called 'Séquentiel Couleur à Mémoire' (SECAM). Although it was based on the principle inventions of NTSC, the transmission method of the colour signal was varied. SECAM promised to solve one of the biggest vulnerabilities of NTSC, namely its sensitivity to phase shifting, influenced by the topographic structure mountainous terrain or city skyscrapers (Townsend 1963; Bernath and Kobelt 1964). With the support of two of the biggest enterprises in French industry, the electronics groups Compagnie de Télégraphie sans Fil (CSF) and the glass manufacturer Saint-Gobain, de France's invention was scientifically studied, technically improved and developed into a real industrial alternative to NTSC.

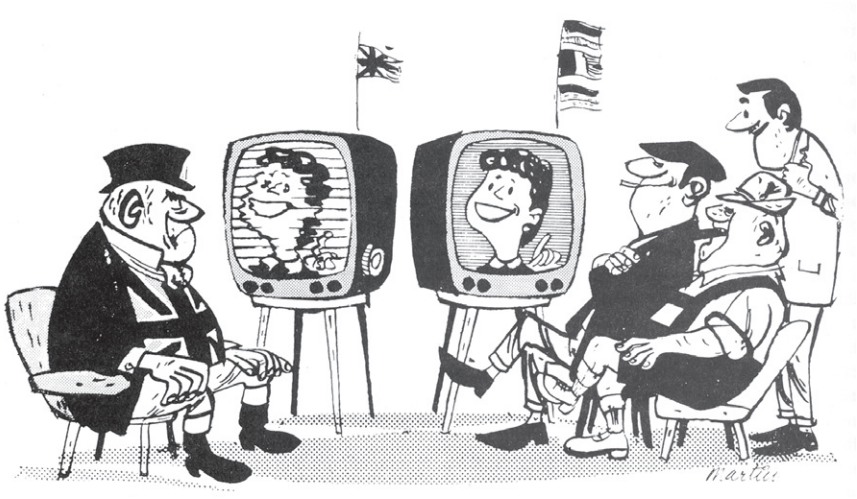


Fig. 1. Pye's 1958/59 Annual Report ridicules Britain's continuing adherence to 405 lines. Source: Pye Industries (ed.) (1959), Annual Report 1958/59, London: Pye Industries, p. 36.

The French were not alone in studying and trying to ameliorate the American system. In the Netherlands, the renowned Philips research laboratories (Nat-Lab) made intensive colour television experiments but their efforts were, however, concentrated on research and development of an alternative to the RCA shadow-mask colour television tube. In the Federal Republic of Germany the Telefunken television laboratory in Hanover worked on a NTSC-variant heavily inspired by SECAM (Fickers 2007: 114–137). But when a discussion on the future standard of colour television finally started at a European level, only three systems were taken into serious consideration by the experts of the ad hoc commission on colour television of the European Broadcast Union: NTSC, SECAM and the 'German' PAL-system developed at Telefunken.

The interim meetings of the CCIR where the different technical parameters of the three competing systems were discussed by technical experts, much the same as the technical meetings of the EBU study committees, 'normally pass unrecorded', as a British Post Office official noted in an internal report of the Vienna conference. He explained:

> They [CCIR interim meetings] are occasions when experts steeped in their subjects meet to discuss specific problems lying at the heart of international telecommunication. The business of these meetings is tedious, technical, detailed and – seen over experience of

Fig. 2. In this 1962 advertisement in *Time Magazine*, the SECAM system was advertised as the European alternative to the fragile American NTSC system. Because of the unreliability of the colour stability, the NTSC abbreviation was turned into 'Never Twice the Same Colour'.

> decades – cooperatively progressive. Without a free international technical forum of this sort there could be no room for technical manoeuvre; without room for technical manoeuvre there can be no unanimity; without unanimity on vital technical issues international telecommunication is inhibited, if not impracticable. Thus the conduct of the work of these Study Groups has always been on the basis of discussion, with statement of points of agreement and disagreement, and eventual erosion of the areas of disagreement. (Merriman 1965)

This statement perfectly describes the *habitus* of the engineers and technicians, who believed in the rationality of their profession and neutrality of their behaviour as men of science and technology. Although they might not agree with it (at least not publicly), these experts, who were all members of national delegations, representing either state or private institutions, all acted following a strategic agenda prepared in advance in order to accomplish their missions

Fig. 3. 'Gaullovision' or 'Television from the Atlantic to the Ural', caricature in the German newspaper Die Weltwoche. Source: Archive of the German Museum in Munich, estate of Walter Bruch, signature NL 191, nr. 123.

(Henrich-Franke 2008). These goals were clearly of a technical nature, but economic and political objectives always played an important role. Before going to Vienna, all delegations were briefed by their national post and telecommunication authorities as to which system they should give their support. The chairman of the Television Advisory Committee informed the Postmaster General at the end of February about the position to be adopted by the British delegation in Vienna. His advice was short but unmistakable: 'Press strongly for NTSC; oppose the adoption of PAL; strongly oppose the adoption of SECAM' (Willis 1965).

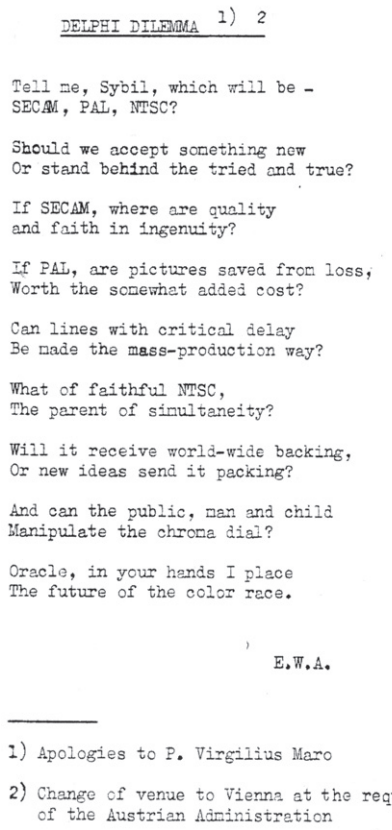
While the British debate on colour mainly concentrated on the technical and economic merits of the American system, the topic became highly politicised in the German and French cases. In both countries, colour television technology was charged with symbolic capital, stylising respectively the SECAM system as 'national champion' and expression of French (and especially Gaullist) grandeur and PAL as an expression of German workmanship and technical quality (Fickers 2007: 244–63; Hecht 2000). But while the Germans attempted to avoid an open politicisation of the colour television question and tried to cover their strategic interests under the pall of scientific considerations, the French strategy focused on an aggressive political instrumentalisation of the SECAM. As numerous studies have shown, large technological projects have played a crucial role in the

reconstruction of French postwar national identity, functioning as symbolic pillars of a nation deeply concerned with its political status in the Cold War (Gilpin 1968: 12).

In order to put this strategy of political SECAM propagation into action and to give it the highest political authority, President Charles de Gaulle advised his Minister of Information to nominate a plenipotentiary at the level of Minister to handle this delicate affair (Peyrefitte 1994: 529). With the nomination of François de Laboulaye as 'délégué interministériel' and head of the newly founded SECAM propagation company FRANTECO on 27 January 1965, colour television had definitely moved to the top of the political agenda in France. SECAM became the focus of the President's new European policy which aimed at resisting the 'American challenge' by developing a self-confident French foreign policy with the Soviet Union as its new strategic ally. In the words of the British Ambassador in Paris, Sir Patrick Reilly, SECAM had become the 'Concorde' of French-Soviet collaboration (Fickers 2007: 248). The French advances to the Russians turned into a demonstration of the smartness of Soviet negotiation skills that definitely capitalised on the fact that the French paid so much importance to a successful bargain. In the end, the Russians managed to negotiate terms linking the execution of a contract on (1) the parallel signature of a broader agreement on techno-scientific cooperation; (2) the condition that no royalties needed to be paid for SECAM; and (3) that the Soviet Union would have the right to further develop the system. In return, they assured full political backing for the SECAM system at the CCIR meetings and guaranteed an adoption of SECAM in all satellite states of the Soviet Union (Baudet 1965). Because of the high political importance that de Gaulle attributed to SECAM and the time pressure – the agreement needed to be signed before the start of the CCIR interim meeting in Vienna in order to deploy its strategic function – the French finally accepted the Soviet conditions and fixed the date for the solemn ratification of the contract in Paris on 22 March (Laboulaye1965).

Colour diplomacy at the CCIR interim meeting in Vienna (25 March – 7 April 1965)

The work of the CCIR was organised into 'Study Groups' and members of Group XI (television) spent the first week of the meeting on a point-by-point technical discussion of the relative merits of the three systems: NTSC, SECAM and PAL. Based on long and detailed preparatory



DELPHI DILEMMA 1) 2

Tell me, Sybil, which will be -
SECAM, PAL, NTSC?

Should we accept something new
Or stand behind the tried and true?

If SECAM, where are quality
and faith in ingenuity?

If PAL, are pictures saved from loss,
Worth the somewhat added cost?

Can lines with critical delay
Be made the mass-production way?

What of faithful NTSC,
The parent of simultaneity?

Will it receive world-wide backing,
Or new ideas send it packing?

And can the public, man and child
Manipulate the chroma dial?

Oracle, in your hands I place
The future of the color race.

E.W.A.

1) Apologies to P. Virgilius Maro

2) Change of venue to Vienna at the request of the Austrian Administration

Fig. 4. The 'Delphi Dilemma' – a humoristic commentary of the colour television debates during the Vienna meeting (unknown author). Source: Archives of the German Museum in Munich, estate of Walter Bruch, signature NL 101, nr. 270.

studies completed by the EBU ad hoc committee on colour television, the British delegation emphasised the merits of NTSC 'against the equally determined efforts of the French on behalf of SECAM'. What clearly distinguished the Vienna discussions from earlier CCIR meetings of Study Group XI was the fact that the French delegation was not only staffed with technical experts of the national broadcasting institution, PTT engineers and emissaries of the television industry, but was 'reinforced' by diplomats and SECAM Minister François de Laboulaye. This unprecedented and overt politicisation of a CCIR experts meeting changed the tone of negotiations from technical and scientific debate to strategic and political bargaining – a situation that

clearly took other delegations by surprise and created discomfort among the technical experts (Merriman 1965).

Not surprisingly, the Vienna meeting failed to achieve a clear recommendation for a single European colour television standard and the final decision was postponed until the next CCIR Plenary Conference to be held in Oslo in June 1966. As Sir G. Johnston of the Foreign Office wrote in a letter to the British Ambassador in Paris, Sir Patrick Reilly:

> 'The struggle is by no means over, and if it is a mark of bad European to refuse to switch to SECAM, we are in pretty good company. [. . .] If the General (de Gaulle) has luck with his present campaign, he may perhaps be able to manoeuvre everyone into a position where the UK attitude to SECAM becomes a test of our European spirit. But he has not yet achieved his result. (Johnston 1965).

'Our major European partner' – the German-British closing of ranks

The results of the interim meeting in Vienna created considerable difficulties for the British television interests. While the politicisation of the question had produced the expected effects in the French-Soviet camp, the most striking result for the British was the volume of support for PAL. Surprised by this 'solid belt of support in Western Europe from the North Cape to Sicily', J. H. H. Merriman invited the West German delegation to come to London in May 1965 in order to demonstrate PAL to Post Office engineers and to members of the Technical Committee of the Television Advisory Committee. When the Television Advisory Committee met on 15 April for a review of the Vienna meeting, Merriman expressed his doubts about whether NTSC would be able to reunite a larger group of European countries in view of the strong support for PAL by the Scandinavian countries, Switzerland, Austria and Italy. In addition, Sir Hugh Green reported that his colleagues from the West German broadcasting institutions stood firmly behind the PAL-system. As a result of this briefing, both Sir Robert Fraser (ITA) and some representatives of the British television industry declared that they would be prepared to accept PAL. In summarising the meeting, Professor Willis Jackson declared that 'there were good reasons why we should take a closer look at PAL with a view to assessing what penalties we should incur by adopting it' (Jackson 1965). This prudent change of mind in the British circles also alerted the Foreign Office. A confidential letter from the Foreign Office to the British Embassy in Bonn reported that 'after these discussions

the view of our experts is that there is no decisive balance of advantages one way or the other as between PAL and NTSC' (O'Neill 1965). Because the Foreign Office feared that in his visit to the West German Chancellor in the following week General de Gaulle could have a shot at getting a degree of commitment from Adenauer, they asked their diplomats in Bonn to carefully investigate the German position in this matter and, if possible, to imply a potential support of PAL by Britain (Brown 1965a).

Indeed, when the members of the Television Advisory Committee finally met to analyse the meeting with their West German colleagues that had taken place in early May, they came to the conclusion that there were no technical or operational reasons why the UK should not abandon its strong support for NTSC and instead be prepared to adopt PAL.[2] While the Foreign Office, the majority of the British television industry and the ITA welcomed this change of position based on strategic reasoning (the Dutch meanwhile had made a similar move), one major British stakeholder remained sceptical: the BBC. The BBC's central spokesman who criticised the TAC recommendation to switch over to PAL was chief engineer Francis McLean. McLean, who had been a member of the EBU ad hoc commission on colour television and attended the CCIR meeting in Vienna as a member of the British delegation, principally agreed on the technical equivalency of PAL and NTSC. To McLean, the British decision should not purely be based on technical considerations. In his view, questions like the programme exchange with the USA, the export of television equipment and broader political circumstances clearly spoke in favour of NTSC (McLean 1965a).

Although the colour television issue remained unresolved during de Gaulle's visit to Bonn, the Foreign Office perceived a new opportunity for a strategic collaboration with the Federal Republic. This view was supported by the British ambassador in Bonn, Sir Frank Roberts, who believed that the British policy had without doubt to be based on an agreed technical verdict, but that there was a risk of Britain missing 'a very promising political opportunity of functional cooperation and alignment with what is now I suppose our major European partner' (Roberts 1965). Because the Foreign Office interpreted the situation as a political window of opportunity for a new German-British alliance, they were seriously concerned and displeased with the refusal of the BBC to align with the recommendation of the TAC. In the eyes of the Foreign Office, the result was that British policy was paralysed while the French continued their efforts to win support for SECAM (Brown 1965b). When in October – five months after the Vienna meeting – the

TAC still was unable to formulate a concordant recommendation because of the BBC's second thoughts, Foreign Office intermediary D. Brown was at the end of his tether. Until June he had been confident that 'the BBC will come round in the end', but by October this optimism had vanished: 'The technicians in the United Kingdom have now been discussing the question for a good six months,' he bewailed. 'If they are still unable to reach agreement among themselves surely the time must come when a decision has to be taken by a higher authority, in the light not only of technical advice but of political and economic considerations' (Brown 1965c). The pressure from the Foreign Office and the television industry to eventually make a decision finally induced the Postmaster General to circulate an internal statement declaring the adoption of PAL as the British colour television standard on 30 November. Before this decision could be made public, it had to be approved by the government, but the Foreign Office informed its Embassy in Bonn about the decision on the same day, adding that 'you have the discretion to let the Federal German authorities know of this recommendation.' Both the German Minister of Economic Affairs Kurt Schmücker and Karl Günther von Hase were very delighted by this news and expressed their understanding that the decision could not be made public (Gorham 1965).

'A rumour is going round' – the Russian NIR-system as the last chance for a European standard

With the unofficial decision to introduce PAL circulated by the Postmaster General Anthony Wedgwood Benn in November 1965, the West Germans had won an important and – as we shall see – reliable partner in the propagation of PAL on the international stage. In addition, the British were rather confident that the Dutch – or more importantly, the Philips Company – had made a similar decision, which considerably strengthened the PAL faction. While the latter had closed ranks in late 1965, thus half a year before the CCIR Plenary Conference in Oslo, truly unexpected developments occurred on the side of SECAM that transformed the final episode in the early history of European colour television. In June 1965, BBC engineer-in-chief McLean reported a rumour 'that all is not well with the Franco-Russian agreement'. He had heard that the French were not able to live up to the expectations of the Russian authorities in terms of supplying manufacturing information, especially on colour tubes. But even more important, it was said that the Soviets had developed an alternative

colour television system and therefore showed less interest in SECAM (McLean 1965b). Indeed, when the French delegation travelled to Moscow to attend the first meeting of the newly founded bilateral *Commission mixte pour la télévision en couleur* in May 1965, their Russian counterparts gave them a rather irritating surprise by demonstrating a colour television system called NIR, named after the Soviet Committee for the Coordination of Science and Technology (KNIR). Although the French engineers had no occasion to study the system in detail it was evident that it differed substantially from the original SECAM system.[3]

Though the scientific advisor at the Soviet Embassy in Paris tried his best to convince François de Laboulaye that the NIR-system represented a development 'based on the SECAM system' and so conformed to the Franco-Soviet agreement, the French authorities were alarmed and felt cheated. Though the French did their best to avoid the spread of this irritating news, rumours were soon going round in CCIR and EBU circles. Interestingly, it was Francis McLean who went to great lengths to make this obscure Russian system known. During a meeting of the EBU ad hoc commission on colour television in Hanover in early June, McLean had heard about NIR from his French colleagues in ORTF, and promptly contacted the British Embassy in Moscow to obtain details about the new invention (McLean 1965b). What made the system so interesting for McLean and his colleagues was the fact that NIR seemed to be a kind of technical compromise between SECAM and PAL. It was all the more remarkable since this compromise had always been pronounced by the experts as being technically impossible. This unexpected revival of the technical debate about colour television systems inspired McLean to study the system as much as possible, driven by the motivation that NIR – because of its character of a technical compromise – possibly had the potential of being the long-desired European standard which might prevent splitting the continent into PAL and SECAM divisions.

In order to get a deeper insight into the Russian developments, McLean organised a visit to Moscow where he discussed NIR with his colleagues from the colour laboratory of the Ministry of Communication and the staff of the Moscow television centre. He came to the conclusion that although 'the people at the laboratory level favour NIR rather than SECAM', the final decision on which system would be chosen by the Soviets would be taken at the political level (McLean 1966). Various sources demonstrate that McLean made no secret of his interest in NIR and that the BBC seriously considered supporting it at the CCIR Plenary Conference in Oslo if there seemed to be the likelihood of a European agreement on the basis of this

system (Williams 1966). Not surprisingly, McLean's activities were not welcomed by the Foreign Office and the General Post Office. Peter Lillicrap, director of the radio services at the GPO, who had already lamented about McLean's hostility towards the PAL system after the Vienna conference, decided to inform BBC Director General Hugh Carleton Greene about McLean's unilateralist leanings. He wrote in a letter on 24 March 1966.

> What chiefly bothers us is that the BBC have put in a lot of work on NIR and given a series of demonstrations to visitors from other European countries. It is fair to say that they have been careful to avoid press publicity for the demonstrations in this country. But it will clearly not help us to secure support for PAL if the BBC plays a prominent part in the development and demonstration of a rival system. (Lillicrap 1965)

But Lillicrap's colleague H. Stanesby, the designated leader of the British delegation for the Oslo conference, expressed his doubts as to whether Greene would be able to assuage McLean. 'I hope that your letter to Sir Hugh Greene will help to bring McLean in line,' he wrote to Lillicrap. 'But I must confess my concern about the damage that has already been done and the possibility, indeed my belief that McLean will continue to draw attention to the BBC's work on NIR' (Stanesby 1966a). Stanesby's doubts proved to be correct.

After a short period of consternation, the French tried their best to remind the Soviet partners of the original spirit of the France-Soviet treaty. During the second meeting of the *Commission mixte* in Paris in January 1966, the two delegations came – after long and fierce discussions – to the diplomatic compromise to rebaptise the Russian system 'SECAM IV'.[4] This act of political correctness – such was the hope of the French – would pay tribute to the symbolic capital attributed to the French 'original invention'. But a definite decision about which system would be presented as the Franco-Soviet candidate at Oslo was postponed to the next meeting of the commission to be held in Moscow in April 1966. Between the two meetings, the French authorities – including President Charles de Gaulle – activated all their diplomatic resources in order to 'convince' their Soviet friends about the superiority of SECAM. Much to the relief of the French delegation during the third *Commission mixte* meeting in Moscow, these political efforts finally paid off. The commission agreed that the SECAM III system should be officially presented as the Franco-Soviet system in Oslo. But next to the official line, a theoretical window of opportunity for the NIR system (or SECAM IV) was kept open. If, during the Oslo meeting, it appeared that NIR had a real chance of being

recommended as the unique colour television standard for Europe, neither the French nor the Soviet delegation would oppose such a vote.[5]

The diplomatic showdown: Oslo, 22 June – 22 July 1966

When the eleventh Plenary Conference of the CCIR opened in Oslo on 22 June, it was the biggest event to date in the CCIR's history. During the plenary sessions, CCIR director Leslie Hayes had to identify the speakers with the help of binoculars! The Study Group XI A2 (colour television) met for the first time two days after the opening of the conference and started its work with a questionnaire, aiming at producing a survey of the spectrum of opinions of all delegations represented. The result of this questionnaire was published in a fifteen-page document on 1 July and showed a clear separation of positions in three camps: Two large groups supported SECAM and PAL respectively, whereas a smaller group of countries (including Belgium, Luxemburg, Portugal and Tunisia) expressed their favour for the NIR/SECAM IV system. In order to facilitate the negotiations, the chairman of Study Group XI A2, the Swede Erik Esping, decided to form a small sub-group consisting of the delegations of France, West Germany, United Kingdom, Yugoslavia, Czechoslovakia, Italy, Soviet Union, The Netherlands and Switzerland. When this sub-group came together for the first time on 7 July, the French delegation made – to the surprise of the other members of the group – an official declaration, offering their abandonment of the SECAM III system in favour of NIR/SECAM IV. But this 'generous offer' was tied to the claim that all other delegations had to accept the latter as the European standard and to invest all their research and development capacities in the coming six to twelve months in making improvements that would increase its commercial viability. As several written records and oral testimonies reveal, the French staged their grand entrance in such a dramatic way that it caused serious discomfort among the other delegations.[6]

The British and West German delegation leaders (Stanesby and Pressler) particularly felt under heavy pressure as the French enjoyed the strong support of Chairman Erik Esping and two other important figures, namely CCIR director Leslie Hayes and EBU director George Hansen who had been nominated as permanent members of the sub-group by Esping. Esping asked Pressler and Stanesby if they would accept the French proposition, which in fact meant that the introduction of a regular colour television service in both countries had to be delayed for at least a year. But both the British and the

West German delegation leaders responded that the decision to postpone the introduction of colour television in their countries exceeded their competences as such decisions were the exclusive responsibility of their governments. In addition, they declared that it was impossible to dictate to the industry which system they should work on. As the French delegation felt provoked by the formal argumentation of the British and West German delegations, they resolved – 'in a quietly dramatic way' as Stanesby reported later – to withdraw their offer and to introduce SECAM III instead. CCIR director Leslie Hayes' repeated urging not to do so 'in a most undignified way' persuaded the French to sustain their initial offer (Stanesby 1966b).

Confronted with this situation, both the West German and the British delegations had to contact their Post Offices to report the dramatic turn of the negotiations and to ask for new orders. In his evening report to the General Post Office, Stanesby made no secret about his displeasure with the evolution of the negotiations. 'Unfortunately the French proposal appeared to gain a large measure of support of those delegations represented at the meeting'. He concluded that: 'Only the F.R.G., the U.K. and – in a luke-warm measure – the Netherlands indicated their continued support for PAL' (Stanesby 1966c). When the discussions continued the following day, the heads of the delegation of the Federal Republic and the UK stated that they had been in contact with their administrations but that their instructions remained unchanged. To the great annoyance of Stanesby, the British position was undermined by members of his own delegation – especially Francis McLean:

> I am sorry to say that the PAL position has been seriously undermined by the widely publicised BBC work on NIR/SECAM IV which was reported to the EBU and which is frequently mentioned during this Conference. The BBC's favourable opinion on NIR/SECAM IV is widely known and seriously embarrasses us, and I am afraid that McLean, in casual conversation, makes no effort to support the PAL point of view. (Stanesby 1966b)

Despite the fact that the representatives of the BBC and ITA in the British delegation had been hinting in favour of altering the UK brief, both the British and the West German delegation stayed firm on their PAL commitment. As a result of their 'policy of denial', they were repeatedly accused of 'standing in the way of the unity of Europe' by both by the French and by the Soviet delegations. But the partial way in which the discussions of the sub-group had been chaired by

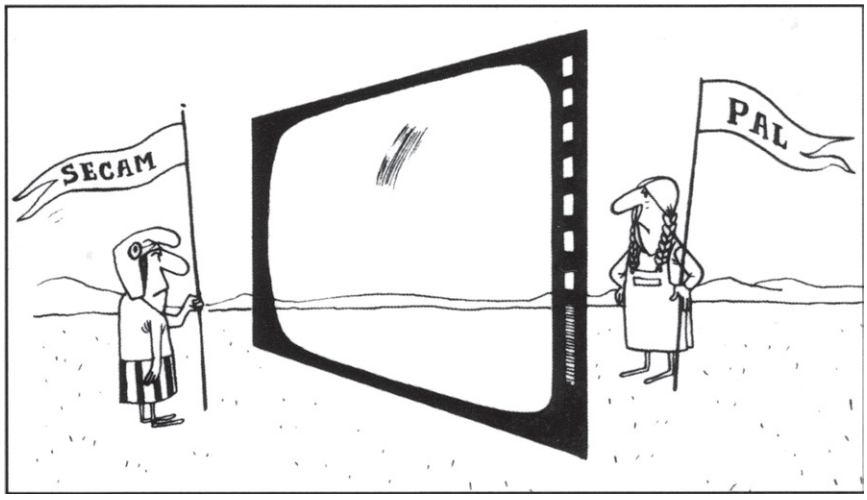


Fig. 5. The 'colour television curtain' was a popular metaphor to symbolise the politicisation of colour television in the realm of Cold War politics. Source: Archives of the German Museum Munich, estate of Walter Bruch, signature NL 101, nr. 123.

Esping and the overtly staged tactics of blaming increasingly created a feeling of discontent among the technical experts. When – after two days of fruitless discussions – CCIR Director Leslie Hayes prepared a brief report of the proceedings of the sub-group, the text was so biased that the leader of the US delegation, who had taken little part in the proceedings, showed his annoyance at its one-sidedness. As Stanesby mentioned in his final report of the conference, outside the meetings many colleagues had expressed the hope that the topic of colour television standards would never again come before the CCIR: 'It was felt that the subject had now become political rather than technical.' After the failure of negotiating a compromise in the sub-group, discussions continued in the larger framework of Study Group XI, but it was clear to all delegations that the chance of harmonising the antagonistic positions had definitely vanished. When the Study Group finally presented the results of their discussions to the Plenary Assembly 'there was a tense moment and no-one at all discussed it' (Stanesby 1966c). Immediately after the Oslo meeting both sides tried to legitimate their actions by either accusing the German-British camp of anti-European behaviour or by blaming the Franco-Soviet camp of having politicised a technical question and thereby abused the CCIR's code of honour. While the French and Soviets promoted the results of the Oslo meeting as a victory of SECAM, the British and the West

Germans congratulated themselves over their firm defence of PAL (Roberts 1966).

In retrospective, this account of the techno-political struggle for a European colour television standard sheds light on a rather obscure dimension of colour as a topic of historical reflection on media. By emphasising the techno-scientific and industrial character of colour television as a network technology consisting of the colour encoding (camera), colour transmission and colour reproduction (receiver) system, this article has demonstrated the contested nature of just one element of this system, namely the standardisation of the transmission system. Rather than focus on aesthetic questions surrounding colour television, I have introduced a number of key figures who normally pass unrecorded when talking about colour television: technical experts from broadcasting institutions, post offices and the television industry, all of whom were actively engaged in international standardisation processes.

What had started with the hope of harmonising the fragmented black-and-white television landscape in Europe turned into the establishment of yet another technical hurdle for television as a transnational and European medium. Undoubtedly, converters and multi-standard receivers have successfully overcome these technical differences for consumers, but different colour television systems still dominate the everyday practice of colour productions worldwide. Despite rhetoric about European integration and the transnational or global potential of television, cases such as the one presented here uncover the techno-political and industrial interests involved in technical discussions and international standardisation processes. Foreign politics, industrial interests, national stereotypes, expert habitus and personal networks – all these factors are 'inscribed' into the definition of a standard. The extended description of two decisive events in the year-long European debate on colour television has shown how the CCIR meetings turned into an arena for the staging of a drama on colour diplomacy, turning technical experts into political actors and colour television transmission systems into symbolic icons of techno-nationalism. Such were, in the mid-1960s, the colours of Europe.

Notes

1. The three basic parameters that needed to be standardised were the number of lines (625), the definition of the frequency bands (UHF bands IV and V) and the definition of the bandwidth for the colour signal (4.43 MHz).
2. See 'Television Advisory Committee, Technical Sub-Committee, Committee Paper No. 360, Report of informal discussion on the PAL television system, London 4./5. May 1965', in National Archives, signature HO 256/387.

3. The NIR system gave up one of the characteristics of the SECAM system which was the frequency modulation of the colour signal, and replaced it by the quadrature amplitude modulation as used in the NTSC and PAL system.
4. Because of the continuous improvement of the SECAM system, the different variants had been successively called SECAM I, SECAM II and SECAM III. The version that was at stake during the France-Soviet discussion in early 1966 was the SECAM IIIb version.
5. 'Protocole de la 3e session de la Commission mixte franco-sovietique sur la télévision en couleur', Moscow, 14 April 1966, in Archives du Comité d'Histoire de la Télévision/INA, Bry sur Marne, estate of Michel Dubail.
6. Handwritten at the negotiations, author unidentified but probably a member of the French delegation. Also referred to as 'Oslo diary', in Archives Nationales, signature ORTF/Année 1999, nr. 44.

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Andreas Fickers is Associate Professor of Comparative Media History, Faculty of Arts and Social Sciences, University of Maastricht, the Netherlands.

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