Television

Technology and Cultural Form

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Foreword

This book is an attempt to explore and describe some of the relationships between television as a technology and television as a cultural form. In the contemporary debate about the general relations between technology, social institutions and culture, television is obviously an outstanding case. Indeed its present importance, as an element in each of these areas, and as a point of interaction between them, is in effect unparalleled.

I have been meaning to attempt this inquiry since I wrote *The Long Revolution* and *Communications*, which were more closely concerned with the cultural institutions of print. As in those earlier studies, the social history and the social analysis needed to be directly related to critical and analytical examination of the materials and processes of the specific communication. Over four years, from 1968 to 1972, I wrote a monthly review of television for the BBC weekly journal *The Listener*. I was able to choose my own subjects and on several occasions tried to sum up my impressions of a particular television use or form – sport, travel, police serials, commercials, political reporting, discussions. These articles are a necessary background for the present inquiry, and I have drawn on some of their experience for this book, which was, however, mainly written in California, in a very different television situation. I have taken the opportunity to make some comparisons between British and American practice. I also took the opportunity of discussion with colleagues in the Department of Communications at Stanford University and was especially helped by some of their work on new and emerging television technologies. I am

1. The technology and the society

It is often said that television has altered our world. In the same way, people often speak of a new world, a new society, a new phase of history, being created – 'brought about' – by this or that new technology: the steam-engine, the automobile, the atomic bomb. Most of us know what is generally implied when such things are said. But this may be the central difficulty: that we have got so used to statements of this general kind, in our most ordinary discussions, that we can fail to realise their specific meanings.

For behind all such statements lie some of the most difficult and most unresolved historical and philosophical questions. Yet the questions are not posed by the statements; indeed they are ordinarily masked by them. Thus we often discuss, with animation, this or that 'effect' of television, or the kinds of social behaviour, the cultural and psychological conditions, which television has 'led to', without feeling ourselves obliged to ask whether it is reasonable to describe any technology as a cause, or, if we think of it as a cause, as what kind of cause, and in what relations with other kinds of causes. The most precise and discriminating local study of 'effects' can remain superficial if we have not looked into the notions of cause and effect, as between a technology and a society, a technology and a culture, a technology and a psychology, which underlie our questions and may often determine our answers.

It can of course be said that these fundamental questions are very much too difficult; and that they are indeed difficult is very soon obvious to anyone who tries to follow them through. We

could spend our lives trying to answer them, whereas here and now, in a society in which television is important, there is immediate and practical work to be done: surveys to be made, research undertaken; surveys and research, moreover, which we know how to do. It is an appealing position, and it has the advantage, in our kind of society, that it is understood as practical, so that it can then be supported and funded. By contrast, other kinds of question seem merely theoretical and abstract.

Yet all questions about cause and effect, as between a technology and a society, are intensely practical. Until we have begun to answer them, we really do not know, in any particular case, whether, for example, we are talking about a technology or about the uses of a technology; about necessary institutions or particular and changeable institutions; about a content or about a form. And this is not only a matter of intellectual uncertainty; it is a matter of social practice. If the technology is a cause, we can at best modify or seek to control its effects. Or if the technology, as used, is an effect, to what other kinds of cause, and other kinds of action, should we refer and relate our experience of its uses? These are not abstract questions. They form an increasingly important part of our social and cultural arguments, and they are being decided all the time in real practice, by real and effective decisions.

It is with these problems in mind that I want to try to analyse television as a particular cultural technology, and to look at its development, its institutions, its forms and its effects, in this critical dimension. In the present chapter, I shall begin the analysis under three headings: (a) versions of cause and effect in technology and society; (b) the social history of television as a technology; (c) the social history of the uses of television technology.

A. VERSIONS OF CAUSE AND EFFECT IN TECHNOLOGY AND SOCIETY

We can begin by looking again at the general statement that

television has altered our world. It is worth setting down some of the different things this kind of statement has been taken to mean. For example:

(i) Television was invented as a result of scientific and technical research. Its power as a medium of news and entertainment was then so great that it altered all preceding media of news and entertainment.

(ii) Television was invented as a result of scientific and technical research. Its power as a medium of social communication was then so great that it altered many of our institutions and forms of social relationships.

(iii) Television was invented as a result of scientific and technical research. Its inherent properties as an electronic medium altered our basic perceptions of reality, and thence our relations with each other and with the world.

(iv) Television was invented as a result of scientific and technical research. As a powerful medium of communication and entertainment it took its place with other factors – such as greatly increased physical mobility, itself the result of other newly invented technologies – in altering the scale and form of our societies.

(v) Television was invented as a result of scientific and technical research, and developed as a medium of entertainment and news. It then had unforeseen consequences, not only on other entertainment and news media, which it reduced in viability and importance, but on some of the central processes of family, cultural and social life.

(vi) Television, discovered as a possibility by scientific and technical research, was selected for investment and development to meet the needs of a new kind of society, especially in the provision of centralised entertainment and in the centralised formation of opinions and styles of behaviour.

(vii) Television, discovered as a possibility by scientific and

technical research, was selected for investment and promotion as a new and profitable phase of a domestic consumer economy; it is then one of the characteristic 'machines for the home'.

(viii)   Television became available as a result of scientific and technical research, and in its character and uses exploited and emphasised elements of a passivity, a cultural and psychological inadequacy, which had always been latent in people, but which television now organised and came to represent.

(ix)   Television became available as a result of scientific and technical research, and in its character and uses both served and exploited the needs of a new kind of large-scale and complex but atomised society.

These are only some of the possible glosses on the ordinary bald statement that television has altered our world. Many people hold mixed versions of what are really alternative opinions, and in some cases there is some inevitable overlapping. But we can distinguish between two broad classes of opinion.

In the first – (i) to (v) – the technology is in effect accidental. Beyond the strictly internal development of the technology there is no reason why any particular invention should have come about. Similarly it then has consequences which are also in the true sense accidental, since they follow directly from the technology itself. If television had not been invented, this argument would run, certain definite social and cultural events would not have occurred.

In the second – (vi) to (ix) – television is again, in effect, a technological accident, but its significance lies in its uses, which are held to be symptomatic of some order of society or some qualities of human nature which are otherwise determined. If television had not been invented, this argument runs, we would still be manipulated or mindlessly entertained, but in some other way and perhaps less powerfully.

For all the variations of local interpretation and emphasis,

these two classes of opinion underlie the overwhelming majority of both professional and amateur views of the effects of television. What they have in common is the fundamental form of the statement: 'television has altered our world'.

It is then necessary to make a further theoretical distinction. The first class of opinion, described above, is that usually known, at least to its opponents, as *technological determinism*. It is an immensely powerful and now largely orthodox view of the nature of social change. New technologies are discovered, by an essentially internal process of research and development, which then sets the conditions for social change and progress. Progress, in particular, is the history of these inventions, which 'created the modern world'. The effects of the technologies, whether direct or indirect, foreseen or unforeseen, are as it were the rest of history. The steam engine, the automobile, television, the atomic bomb, have *made* modern man and the modern condition.

The second class of opinion appears less determinist. Television, like any other technology, becomes available as an element or a medium in a process of change that is in any case occurring or about to occur. By contrast with pure technological determinism, this view emphasises other causal factors in social change. It then considers particular technologies, or a complex of technologies, as *symptoms* of change of some other kind. Any particular technology is then as it were a by-product of a social process that is otherwise determined. It only acquires effective status when it is used for purposes which are already contained in this known social process.

The debate between these two general positions occupies the greater part of our thinking about technology and society. It is a real debate, and each side makes important points. But it is in the end sterile, because each position, though in different ways, has abstracted technology from society. In *technological determinism*, research and development have been assumed as self-generating. The new technologies are invented as it were in an independent sphere, and then create new societies or new human conditions. The view of *symptomatic technology*, similarly, assumes that research and development are self-generating, but

in a more marginal way. What is discovered in the margin is then taken up and used.

Each view can then be seen to depend on the isolation of technology. It is either a self-acting force which creates new ways of life, or it is a self-acting force which provides materials for new ways of life. These positions are so deeply established, in modern social thought, that it is very difficult to think beyond them. Most histories of technology, like most histories of scientific discovery, are written from their assumptions. An appeal to 'the facts', against this or that interpretation, is made very difficult simply because the histories are usually written, consciously or unconsciously, to illustrate the assumptions. This is either explicit, with the consequential interpretation attached, or more often implicit, in that the history of technology or of scientific development is offered as a history on its own. This can be seen as a device of specialisation or of emphasis, but it then necessarily implies merely internal intentions and criteria.

To change these emphases would require prolonged and co-operative intellectual effort. But in the particular case of television it may be possible to outline a different kind of interpretation, which would allow us to see not only its history but also its uses in a more radical way. Such an interpretation would differ from technological determinism in that it would restore *intention* to the process of research and development. The technology would be seen, that is to say, as being looked for and developed with certain purposes and practices already in mind. At the same time the interpretation would differ from symptomatic technology in that these purposes and practices would be seen as *direct*: as known social needs, purposes and practices to which the technology is not marginal but central.

B. THE SOCIAL HISTORY OF TELEVISION AS A TECHNOLOGY

The invention of television was no single event or series of events. It depended on a complex of inventions and developments in electricity, telegraphy, photography and motion

pictures, and radio. It can be said to have separated out as a specific technological objective in the period 1875–1890, and then, after a lag, to have developed as a specific technological enterprise from 1920 through to the first public television systems of the 1930s. Yet in each of these stages it depended for parts of its realisation on inventions made with other ends primarily in view.

Until the early nineteenth century, investigations of electricity, which had long been known as a phenomenon, were primarily philosophical: investigations of a puzzling natural effect. The technology associated with these investigations was mainly directed towards isolation and concentration of the effect, for its clearer study. Towards the end of the eighteenth century there began to be applications, characteristically in relation to other known natural effects (lightning conductors). But there is then a key transitional period in a cluster of inventions between 1800 and 1831, ranging from Volta's battery to Faraday's demonstration of electro-magnetic induction, leading quickly to the production of generators. This can be properly traced as a scientific history, but it is significant that the key period of advance coincides with an important stage of the development of industrial production. The advantages of electric power were closely related to new industrial needs: for mobility and transfer in the location of power sources, and for flexible and rapid controllable conversion. The steam engine had been well suited to textiles, and its industries had been based on local siting. A more extensive development, both physically and in the complexity of multiple-part processes, such as engineering, could be attempted with other power sources but could only be fully realised with electricity. There was a very complex interaction between new needs and new inventions, at the level of primary production, of new applied industries (plating) and of new social needs which were themselves related to industrial development (city and house lighting). From 1830 to large-scale generation in the 1880s there was this continuing complex of need and invention and application.

In telegraphy the development was simpler. The transmission

of messages by beacons and similar primary devices had been long established. In the development of navigation and naval warfare the flag-system had been standardised in the course of the sixteenth and seventeenth centuries. During the Napoleonic wars there was a marked development of land telegraphy, by semaphore stations, and some of this survived into peacetime. Electrical telegraphy had been suggested as a technical system as early as 1753, and was actually demonstrated in several places in the early nineteenth century. An English inventor in 1816 was told that the Admiralty was not interested. It is interesting that it was the development of the railways, themselves a response to the development of an industrial system and the related growth of cities, which clarified the need for improved telegraphy. A complex of technical possibilities was brought to a working system from 1837 onwards. The development of international trade and transport brought rapid extensions of the system, including the transatlantic cable in the 1850s and the 1860s. A general system of electric telegraphy had been established by the 1870s, and in the same decade the telephone system began to be developed, in this case as a new and intended invention.

In photography, the idea of light-writing had been suggested by (among others) Wedgwood and Davy in 1802, and the *camera obscura* had already been developed. It was not the projection but the fixing of images which at first awaited technical solution, and from 1816 (Niepce) and through to 1839 (Daguerre) this was worked on, together with the improvement of camera devices. Professional and then amateur photography spread rapidly, and reproduction and then transmission, in the developing newspaper press, were achieved. By the 1880s the idea of a 'photographed reality' – still more for record than for observation – was familiar.

The idea of moving pictures had been similarly developing. The magic lantern (slide projection) had been known from the seventeenth century, and had acquired simple motion (one slide over another) by 1736. From at latest 1826 there was a development of mechanical motion-picture devices, such as the wheel-

of-life, and these came to be linked with the magic lantern. The effect of persistence in human vision – that is to say, our capacity to hold the 'memory' of an image through an interval to the next image, thus allowing the possibility of a sequence built from rapidly succeeding units – had been known since classical times. Series of cameras photographing stages of a sequence were followed (Marey, 1882) by multiple-shot cameras. Friese-Greene and Edison worked on techniques of filming and projection, and celluloid was substituted for paper reels. By the 1890s the first public motion-picture shows were being given in France, America and England.

Television, as an idea, was involved with many of these developments. It is difficult to separate it, in its earliest stages, from photo-telegraphy. Bain proposed a device for transmitting pictures by electric wires in 1842; Bakewell in 1847 showed the copying telegraph; Caselli in 1862 transmitted pictures by wire over a considerable distance. In 1873, while working at a terminal of the Atlantic telegraph cable, May observed the light-sensitive properties of selenium (which had been isolated by Berzelius in 1817 and was in use for resistors). In a host of ways, following an already defined need, the means of transmitting still pictures and moving pictures were actively sought and to a considerable extent discovered. The list is long even when selective: Carey's electric eye in 1875; Nipkow's scanning system in 1884; Elster and Geitel's photoelectric cells in 1890; Braun's cathode-ray tube in 1897; Rosing's cathode-ray receiver in 1907; Campbell Swinton's electronic camera proposal in 1911. Through this whole period two facts are evident: that a system of television was foreseen, and its means were being actively sought; but also that, by comparison with electrical generation and electrical telegraphy and telephony, there was very little social investment to bring the scattered work together. It is true that there were technical blocks before 1914 – the thermionic valve and the multi-stage amplifier can be seen to have been needed and were not yet invented. But the critical difference between the various spheres of applied technology can be stated in terms of a social dimension: the new systems of

production and of business or transport communication were already organised, at an economic level; the new systems of social communication were not. Thus when motion pictures were developed, their application was characteristically in the margin of established social forms – the sideshows – until their success was capitalised in a version of an established form, the motion-picture *theatre*.

The development of radio, in its significant scientific and technical stages between 1885 and 1911, was at first conceived, within already effective social systems, as an advanced form of telegraphy. Its application as a significantly new social form belongs to the immediate post-war period, in a changed social situation. It is significant that the hiatus in technical television development then also ended. In 1923 Zworykin introduced the electronic television camera tube. Through the early 1920s Baird and Jenkins, separately and competitively, were working on systems using mechanical scanning. From 1925 the rate of progress was qualitatively changed, through important technical advances but also with the example of sound broadcasting systems as a model. The Bell System in 1927 demonstrated wire transmission through a radio link, and the pre-history of the form can be seen to be ending. There was great rivalry between systems – especially those of mechanical and electronic scanning – and there is still great controversy about contributions and priorities. But this is characteristic of the phase in which the development of a technology moves into the stage of a new social form.

What is interesting throughout is that in a number of complex and related fields, these systems of mobility and transfer in production and communication, whether in mechanical and electric transport, or in telegraphy, photography, motion pictures, radio and television, were at once incentives and responses within a phase of general social transformation. Though some of the crucial scientific and technical discoveries were made by isolated and unsupported individuals, there was a crucial community of selected emphasis and intention, in a society characterised at its most general levels by a mobility

and extension of the scale of organisations: forms of growth which brought with them immediate and longer-term problems of operative communication. In many different countries, and in apparently unconnected ways, such needs were at once isolated and technically defined. It is especially a characteristic of the communications systems that *all were foreseen – not in utopian but in technical ways – before the crucial components of the developed systems had been discovered and refined*. In no way is this a history of communications systems creating a new society or new social conditions. The decisive and earlier transformation of industrial production, and its new social forms, which had grown out of a long history of capital accumulation and working technical improvements, created new needs but also new possibilities, and the communications systems, down to television, were their intrinsic outcome.

C. THE SOCIAL HISTORY OF THE USES OF TELEVISION TECHNOLOGY

It is never quite true to say that in modern societies, when a social need has been demonstrated, its appropriate technology will be found. This is partly because some real needs, in any particular period, are beyond the scope of existing or foreseeable scientific and technical knowledge. It is even more because the key question, about technological response to a need, is less a question about the need itself than about its place in an existing social formation. A need which corresponds with the priorities of the real decision-making groups will, obviously, more quickly attract the investment of resources and the official permission, approval or encouragement on which a working technology, as distinct from available technical devices, depends. We can see this clearly in the major developments of industrial production and, significantly, in military technology. The social history of communications technology is interestingly different from either of these, and it is important to try to discover what are the real factors of this variation.

The problem must be seen at several different levels. In the

very broadest perspective, there is an operative relationship between a new kind of expanded, mobile and complex society and the development of a modern communications technology. At one level this relationship can be reasonably seen as causal, in a direct way. The principal incentives to first-stage improvements in communications technology came from problems of communication and control in expanded military and commercial operations. This was both direct, arising from factors of greatly extending distance and scale, and indirect, as a factor within the development of transport technology, which was for obvious reasons the major direct response. Thus telegraphy and telephony, and in its early stages radio, were secondary factors within a primary communications system which was directly serving the needs of an established and developing military and commercial system. Through the nineteenth and into the twentieth century this was the decisive pattern.

But there were other social and political relationships and needs emerging from this complex of change. Indeed it is a consequence of the particular and dominant interpretation of these changes that the complex was at first seen as one requiring improvement in *operational* communication. The direct priorities of the expanding commercial system, and in certain periods of the military system, led to a definition of needs within the terms of these systems. The objectives and the consequent technologies were operational within the structures of these systems: passing necessary specific information, or maintaining contact and control. Modern electric technology, in this phase, was thus oriented to uses of person to person, operator and operative to operator and operative, within established specific structures. This quality can best be emphasised by contrast with the electric technology of the second phase, which was properly and significantly called *broadcasting*. A technology of specific messages to specific persons was complemented, but only relatively late, by a technology of varied messages to a general public.

Yet to understand this development we have to look at a wider communications system. The true basis of this system had preceded the developments in technology. Then as now there was a major, indeed dominant, area of social communication, by word of mouth, within every kind of social group. In addition, then as now, there were specific institutions of that kind of communication which involves or is predicated on social teaching and control: churches, schools, assemblies and proclamations, direction in places of work. All these interacted with forms of communication within the family.

What then were the new needs which led to the development of a new technology of social communication? The development of the press gives us the evidence for our first major instance. It was at once a response to the development of an extended social, economic and political system and a response to crisis within that system. The centralisation of political power led to a need for messages from that centre along other than official lines. Early newspapers were a combination of that kind of message – political and social information – and the specific messages – classified advertising and general commercial news – of an expanding system of trade. In Britain the development of the press went through its major formative stages in periods of crisis: the Civil War and Commonwealth, when the newspaper form was defined; the Industrial Revolution, when new forms of popular journalism were successively established; the major wars of the twentieth century, when the newspaper became a universal social form. For the transmission of simple orders, a communications system already existed. For the transmission of an ideology, there were specific traditional institutions. But for the transmission of news and background – the whole orienting, predictive and updating process which the fully developed press represented – there was an evident need for a new form, which the largely traditional institutions of church and school could not meet. And to the large extent that the crises of general change provoked both anxiety and controversy, this flexible and competitive form met social needs of a new kind. As the struggle for a share in decision and control became sharper, in campaigns for the vote and then in competition for

the vote, the press became not only a new communications system but, centrally, a new social institution.

This can be interpreted as response to a political need and a political crisis, and it was certainly this. But a wider social need and social crisis can also be recognised. In a changing society, and especially after the Industrial Revolution, problems of social perspective and social orientation became more acute. New relations between men, and between men and things, were being intensely experienced, and in this area, especially, the traditional institutions of church and school, or of settled community and persisting family, had very little to say. A great deal was of course said, but from positions defined within an older kind of society. In a number of ways, and drawing on a range of impulses from curiosity to anxiety, new information and new kinds of orientation were deeply required: more deeply, indeed, than any specialisation to political, military or commercial information can account for. An increased awareness of mobility and change, not just as abstractions but as lived experiences, led to a major redefinition, in practice and then in theory, of the function and process of social communication.

What can be seen most evidently in the press can be seen also in the development of photography and the motion picture. The photograph is in one sense a popular extension of the portrait, for recognition and for record. But in a period of great mobility, with new separations of families and with internal and external migrations, it became more centrally necessary as a form of maintaining, over distance and through time, certain personal connections. Moreover, in altering relations to the physical world, the photograph as an object became a form of the photography of objects: moments of isolation and stasis within an experienced rush of change; and then, in its technical extension to motion, a means of observing and analysing motion itself, in new ways – a dynamic form in which new kinds of recognition were not only possible but necessary.

Now it is significant that until the period after the First World War, and in some ways until the period after the Second World War, these varying needs of a new kind of society and a

new way of life were met by what were seen as specialised means: the press for political and economic information; the photograph for community, family and personal life; the motion picture for curiosity and entertainment; telegraphy and telephony for business information and some important personal messages. It was within this complex of specialised forms that broadcasting arrived.

The consequent difficulty of defining its social uses, and the intense kind of controversy which has ever since surrounded it, can then be more broadly understood. Moreover, the first definitions of broadcasting were made for sound radio. It is significant and perhaps puzzling that the definitions and institutions then created were those within which television developed.

We have now become used to a situation in which broadcasting is a major social institution, about which there is always controversy but which, in its familiar form, seems to have been predestined by the technology. This predestination, however, when closely examined, proves to be no more than a set of particular social decisions, in particular circumstances, which were then so widely if imperfectly ratified that it is now difficult to see them as decisions rather than as (retrospectively) inevitable results.

Thus, if seen only in hindsight, broadcasting can be diagnosed as a new and powerful form of social integration and control. Many of its main uses can be seen as socially, commercially and at times politically manipulative. Moreover, this viewpoint is rationalised by its description as 'mass communication', a phrase used by almost all its agents and advisers as well, curiously, as by most of its radical critics. 'Masses' had been the new nineteenth-century term of contempt for what was formerly described as 'the mob'. The physical 'massing' of the urban and industrial revolution underwrote this. A new radical class-consciousness adopted the term to express the material of new social formations: 'mass organisations'. The 'mass meeting' was an observable physical effect. So pervasive was this description that in the twentieth century multiple serial production was

called, falsely but significantly, 'mass production': mass now meant large numbers (but within certain assumed social relationships) rather than any physical or social aggregate. Sound radio and television, for reasons we shall look at, were developed for transmission to *individual* homes, though there was nothing in the technology to make this inevitable. But then this new form of social communication – broadcasting – was obscured by its definition as 'mass communication': an abstraction to its most general characteristic, that it went to many people, 'the masses', which obscured the fact that the means chosen was the offer of individual sets, a method much better described by the earlier word 'broadcasting'. It is interesting that the only developed 'mass' use of radio was in Nazi Germany, where under Goebbels' orders the Party organised compulsory public listening groups and the receivers were in the streets. There has been some imitation of this by similar regimes, and Goebbels was deeply interested in television for the same kind of use. What was developed within most capitalist societies, though called 'mass communication', was significantly different.

There was early official intervention in the development of broadcasting, but in form this was only at a technical level. In the earlier struggle against the development of the press, the State had licensed and taxed newspapers, but for a century before the coming of broadcasting the alternative idea of an independent press had been realised both in practice and in theory. State intervention in broadcasting had some real and some plausible technical grounds: the distribution of wavelengths. But to these were added, though always controversially, more general social directions or attempts at direction. This social history of broadcasting can be discussed on its own, at the levels of practice and principle. Yet it is unrealistic to extract it from another and perhaps more decisive process, through which, in particular economic situations, a set of scattered technical devices became an applied technology and then a social technology.

A Fascist regime might quickly see the use of broadcasting for direct political and social control. But that, in any case, was

when the technology had already been developed elsewhere. In capitalist democracies, the thrust for conversion from scattered techniques to a technology was not political but economic. The characteristically isolated inventors, from Nipkow and Rosing to Baird and Jenkins and Zwyorkin, found their point of development, if at all, in the manufacturers and prospective manufacturers of the technical apparatus. The history at one level is of these isolated names, but at another level it is of EMI, RCA and a score of similar companies and corporations. In the history of motion pictures, capitalist development was primarily in production; large-scale capitalist distribution came much later, as a way of controlling and organising a market for given production. In broadcasting, both in sound radio and later in television, the major investment was in the means of distribution, and was devoted to production only so far as to make the distribution technically possible and then attractive. Unlike all previous communications technologies, radio and television were *systems primarily devised for transmission and reception as abstract processes, with little or no definition of preceding content.* When the question of content was raised, it was resolved, in the main, parasitically. There were state occasions, public sporting events, theatres and so on, which would be communicatively distributed by these new technical means. *It is not only that the supply of broadcasting facilities preceded the demand; it is that the means of communication preceded their content.*

The period of decisive development in sound broadcasting was the 1920s. After the technical advances in sound telegraphy which had been made for military purposes during the war, there was at once an economic opportunity and the need for a new social definition. No nation or manufacturing group held a monopoly of the technical means of broadcasting, and there was a period of intensive litigation followed by cross-licensing of the scattered basic components of successful transmission and reception (the vacuum tube or valve, developed from 1904 to 1913; the feedback circuit, developed from 1912; the neutrodyne and heterodyne circuits, from 1923). Crucially, in the mid-1920s, there was a series of investment-guided technical solutions

to the problem of building a small and simple domestic receiver, on which the whole qualitative transformation from wireless telegraphy to broadcasting depended. By the mid-1920s – 1923 and 1924 are especially decisive years – this breakthrough had happened in the leading industrial societies: the United States, Britain, Germany and France. By the end of the 1920s the radio industry had become a major sector of industrial production, within a rapid general expansion of the new kinds of machines which were eventually to be called 'consumer durables'. This complex of developments included the motorcycle and motor-car, the box camera and its successors, home electrical appliances, and radio sets. Socially, this complex is characterised by the two apparently paradoxical yet deeply connected tendencies of modern urban industrial living: on the one hand mobility, on the other hand the more apparently self-sufficient family home. The earlier period of public technology, best exemplified by the railways and city lighting, was being replaced by a kind of technology for which no satisfactory name has yet been found: that which served an at once mobile and home-centred way of living: a form of *mobile privatisation*. Broadcasting in its applied form was a social product of this distinctive tendency.

The contradictory pressures of this phase of industrial capitalist society were indeed resolved, at a certain level, by the institution of broadcasting. For mobility was only in part the impulse of an independent curiosity: the wish to go out and see new places. It was essentially an impulse formed in the breakdown and dissolution of older and smaller kinds of settlement and productive labour. The new and larger settlements and industrial organisations required major internal mobility, at a primary level, and this was joined by secondary consequences in the dispersal of extended families and in the needs of new kinds of social organisation. Social processes long implicit in the revolution of industrial capitalism were then greatly intensified: especially an increasing distance between immediate living areas and the directed places of work and government. No effective kinds of social control over these transformed industrial and political processes had come anywhere near being achieved or even foreseen. Most people were living in the fall-out area of processes determined beyond them. What had been gained, nevertheless, in intense social struggle, had been the improvement of immediate conditions, within the limits and pressures of these decisive large-scale processes. There was some relative improvement in wages and working conditions, and there was a qualitative change in the distribution of the day, the week and the year between work and off-work periods. These two effects combined in a major emphasis on improvement of the small family home. Yet this privatisation, which was at once an effective achievement and a defensive response, carried, as a consequence, an imperative need for new kinds of contact. The new homes might appear private and 'self-sufficient' but could be maintained only by regular funding and supply from external sources, and these, over a range from employment and prices to depressions and wars, had a decisive and often a disrupting influence on what was nevertheless seen as a separable 'family' project. This relationship created both the need and the form of a new kind of 'communication': news from 'outside', from otherwise inaccessible sources. Already in the drama of the 1880s and 1890s (Ibsen, Chekhov) this structure had appeared: the centre of dramatic interest was now for the first time the family home, but men and women stared from its windows, or waited anxiously for messages, to learn about forces, 'out there', which would determine the conditions of their lives. The new 'consumer' technology which reached its first decisive stage in the 1920s served this complex of needs within just these limits and pressures. There were immediate improvements of the condition and efficiency of the privatised home; there were new facilities, in private transport, for expeditions from the home; and then, in radio, there was a facility for a new kind of social input – news and entertainment brought into the home. Some people spoke of the new machines as gadgets, but they were always much more than this. They were the applied technology of a set of emphases and responses within the determining limits and pressures of industrial capitalist society.

The cheap radio receiver is then a significant index of a general

condition and response. It was especially welcomed by all those who had least social opportunities of other kinds; who lacked independent mobility or access to the previously diverse places of entertainment and information. Broadcasting could also come to serve, or seem to serve, as a form of *unified* social intake, at the most general levels. What had been intensively promoted by the radio manufacturing companies thus interlocked with this kind of social need, itself defined within general limits and pressures. In the early stages of radio manufacturing, transmission was conceived before content. By the end of the 1920s the network was there, but still at a low level of content-definition. It was in the 1930s, in the second phase of radio, that most of the significant advances in content were made. The transmission and reception networks created, *as a by-product*, the facilities of primary broadcasting production. But the general social definition of 'content' was already there.

This theoretical model of the general development of broadcasting is necessary to an understanding of the particular development of television. For there were, in the abstract, several different ways in which television as a technical means might have been developed. After a generation of universal domestic television it is not easy to realise this. But it remains true that, after a great deal of intensive research and development, the domestic television set is in a number of ways an inefficient medium of visual broadcasting. Its visual inefficiency by comparison with the cinema is especially striking, whereas in the case of radio there was by the 1930s a highly efficient sound broadcasting receiver, without any real competitors in its own line. Within the limits of the television home-set emphasis it has so far not been possible to make more than minor qualitative improvements. Higher-definition systems, and colour, have still only brought the domestic television set, as a machine, to the standard of a very inferior kind of cinema. Yet most people have adapted to this inferior visual medium, in an unusual kind of preference for an inferior immediate technology, because of the social complex – and especially that of the privatised home – within which broadcasting, as a system, is operative. The

cinema had remained at an earlier level of social definition; it was and remains a special kind of theatre, offering specific and discrete works of one general kind. Broadcasting, by contrast, offered a whole social intake: music, news, entertainment, sport. The advantages of this general intake, within the home, much more than outweighed the technical advantages of visual transmission and reception in the cinema, confined as this was to specific and discrete works. While broadcasting was confined to sound, the powerful visual medium of cinema was an immensely popular alternative. But when broadcasting became visual, the option for its social advantages outweighed the immediate technical deficits.

The transition to television broadcasting would have occurred quite generally in the late 1930s and early 1940s, if the war had not intervened. Public television services had begun in Britain in 1936 and in the United States in 1939, but with still very expensive receivers. The full investment in transmission and reception facilities did not occur until the late 1940s and early 1950s, but the growth was thereafter very rapid. The key social tendencies which had led to the definition of broadcasting were by then even more pronounced. There was significantly higher investment in the privatised home, and the social and physical distances between these homes and the decisive political and productive centres of the society had become much greater. Broadcasting, as it had developed in radio, seemed an inevitable model: the central transmitters and the domestic sets.

Television then went through some of the same phases as radio. Essentially, again, the technology of transmission and reception developed before the content, and important parts of the content were and have remained by-products of the technology rather than independent enterprises. As late as the introduction of colour, 'colourful' programmes were being devised to persuade people to buy colour sets. In the earliest stages there was the familiar parasitism on existing events: a coronation, a major sporting event, theatres. A comparable parasitism on the cinema was slower to show itself, until the decline of the cinema altered the terms of trade; it is now very

widespread, most evidently in the United States. But again, as in radio, the end of the first general decade brought significant independent television production. By the middle and late 1950s, as in radio in the middle and late 1930s, new kinds of programme were being made for television and there were very important advances in the productive use of the medium, including, as again at a comparable stage in radio, some kinds of original work.

Yet the complex social and technical definition of broadcasting led to inevitable difficulties, especially in the productive field. What television could do relatively cheaply was to transmit something that was in any case happening or had happened. In news, sport, and some similar areas it could provide a service of transmission at comparatively low cost. But in every kind of new work, which it had to produce, it became a very expensive medium, within the broadcasting model. It was never as expensive as film, but the cinema, as a distributive medium, could directly control its revenues. It was, on the other hand, implicit in broadcasting that given the tunable receiver all programmes could be received without immediate charge. There could have been and can still be a socially financed system of production and distribution within which local and specific charges would be unnecessary; the BBC, based on the licence system for domestic receivers, came nearest to this. But short of monopoly, which still exists in some state-controlled systems, the problems of investment for production, in any broadcasting system, are severe.

Thus within the broadcasting model there was this deep contradiction, of centralised transmission and privatised reception. One economic response was licensing. Another, less direct, was commercial sponsorship and then supportive advertising. But the crisis of production control and financing has been endemic in broadcasting precisely because of the social and technical model that was adopted and that has become so deeply established. The problem is masked, rather than solved, by the fact that as a transmitting technology – its functions largely limited to relay and commentary on other events – some balance could be struck; a limited revenue could finance this limited service. But many of the creative possibilities of television have been frustrated precisely by this apparent solution, and this has far more than local effects on producers and on the balance of programmes. When there has been such heavy investment in a particular model of social communications, there is a restraining complex of financial institutions, of cultural expectations and of specific technical developments, which though it can be seen, superficially, as the effect of a technology is in fact a social complex of a new and central kind.

It is against this background that we have to look at the development of broadcasting institutions, at their uses of the media, and at the social problems of the new technical phase which we are about to enter.

The model house with gold coins pouring out of it is interactive with children's entertainment television. The girl inviting a telephone call (from a money-borrower to a money-lender) uses the look and accent of a generalised 'personal' (partly sexual) invitation.

In all these ways, and in their essential combination, this is the flow of meanings and values of a specific culture.

5. Effects of the technology and its uses

A. CAUSE AND EFFECT IN COMMUNICATIONS SYSTEMS

Since television became a popular social form there has been widespread discussion of its effects. The most significant feature of this discussion has been the isolation of the medium. Especially in advanced industrial societies the near-universality and general social visibility of television have attracted simple cause-and-effect identifications of its agency in social and cultural change. What is significant is not the reliability of any of these particular identifications; as will be seen, there are very few such effects which come near to satisfying the criteria of scientific proof or even of general probability. What is really significant is the direction of attention to certain selected issues – on the one hand 'sex' and 'violence', on the other hand 'political manipulation' and 'cultural degradation' – which are of so general a kind that it ought to be obvious that they cannot be specialised to an isolated medium but, in so far as television bears on them, have to be seen in a whole social and cultural process. Some part of the study of television's effects has then to be seen as an ideology: a way of interpreting general change through a displaced and abstracted cause.

Cultural science, when it emerged as a method in early classical sociology, was concerned with the necessary differentiation of its procedures from those of natural science. In its central concept of 'understanding', and in its sensitivity to the problems of judgment of value and of the participation and

involvement of the investigator, it was radically different from the assumptions and methods of the 'sociology of mass communications' which is now orthodox and which at times even claims the authority of just this classical sociology. The change can be seen in one simple way, in the formula which was established by Lasswell as the methodological principle of studies of communication: the question 'who says what, how, to whom, with what effect?'. For what this question has excluded is *intention*, and therefore all real social and cultural process.

Suppose we rephrase the question as 'who says what, how, to whom, with what effect and for what purpose?'. This would at least direct our attention to the interests and agencies of communication, which the orthodox question excludes. But the exclusion is not accidental. It is part of a general social model which abstracts social and cultural processes to such concepts as 'socialisation', 'social function' or 'interaction'. Thus socialisation has been defined as 'learning the ways and becoming a functioning member of society', but while it is clear that in all societies this process occurs, it is for just this reason an indifferent concept when applied to any real and particular social and cultural process. What the process has in common, in many different societies, is given a theoretical priority over just the radical differences of 'ways' and 'functioning', and over the highly differential character of being a 'member' of the society, which in practice define the real process. The abstract notions of 'socialisation' and 'social function' have the effect of conferring normality and in this sense legitimacy on any society in which a learning and relating process may occur. And when this is so, intention, in any full sense, cannot be recognised, let alone studied. To say that television is now a factor in socialisation, or that its controllers and communicators are exercising a particular social function, is to say very little until the forms of the society which determine any particular socialisation and which allocate the functions of control and communication have been precisely specified.

The central concepts of cultural science – understanding, value-judgment, the involvement of the investigator – have thus

been excluded or circumvented. This explains the consequent emphasis on 'effects', and the dissolution of causes into abstract notions of 'socialisation' or 'social function' or into the false particularisation of a self-directing technology. It explains also the orthodox description of such studies as the study of 'mass communications'. What is really involved in that descriptive word 'mass' is the whole contentious problem of the real social relations within which modern communications systems operate. Its merely descriptive and assumptive use is a way of avoiding the true sociology of communications, yet it is orthodox over a very wide range and in theories and studies which are otherwise sophisticated. A particular version of empiricism – not the general reliance on experience and evidence, but a particular reliance on evidence within the terms of these assumed functions (socialisation, social function, mass communications) – has largely taken over the practice of social and cultural inquiry, and within the terms of its distortion of cultural science claims the abstract authority of 'social science' and 'scientific method' as against all other modes of experience and analysis. Against this confident and institutionalised practice it cannot be said too often that the work of social and cultural science is only secondarily a matter of methodological procedures; it is primarily the establishment of a consciousness of process, which will include consciousness of intentions as well as of methods and of working concepts.

Effects, after all, can only be studied in relation to real intentions, and these will often have to be as sharply distinguished from declared intentions as from assumed and indifferent general social processes. This will require the study of real agency, rather than of its apparent forms. As it is, however, the study of effects has mainly been rationalised in advance. It studies effects in 'the socialisation process', that is to say in the practice or breach of social norms – 'violence', 'delinquency', 'permissiveness', or in 'mass reactions' (a mass, to be sure, that is then classified into sectors) – the reactions of political or cultural or economic consumers, in voting, ticket-buying or spending. With this distinction however: that the latter studies have been mainly

financed by interested agencies (broadcasting organisations, market research and advertising agencies, political parties), while the former have been mainly financed by social-interest groups and political and cultural authorities. Some studies have escaped the definitions of interest which their true agencies have imposed; in some universities, while there has been hiving and blurring, there has also been some independent initiative. But very little has escaped the overall definitions, including the definitions of procedure, which are the real consequences of the social system and the ideology within which the inquiries are framed. If we are to begin to approach any real study of effects, we shall have to return to a scientific consideration of causes.

B. SOME STUDIES OF EFFECTS

The case of 'violence on television' is a useful example. Here the experimental evidence is extraordinarily mixed (see the useful summary in Halloran, *The Effects of Television*, 1970; pp. 54–64). In majority it supports the view that 'the observation of mass media violence' may be, while not a determining, a contributory factor to subsequent aggressive behaviour. A minority view is quite different: that the effect of observing violence on television is cathartic. A further minority view stresses the possibility of both provocative and cathartic effects. Useful attempts have been made to distinguish, as is crucially necessary, between different forms of violence, different levels of its portrayal or representation, and different groups of viewers. There has also been a necessary distinction between immediate and long-term effects.

It is important that this work should continue and be developed. But 'violence' is a notable example of the effects of the abstract concept of 'socialisation'. It is assumed, for example, that violent behaviour is undesirable, in that it contradicts the norms of accepted social behaviour. But it must be immediately evident, if we look at real societies, that this is not the case. Each of the societies in which this work was done was at the time engaged in violent action – some of it of exceptional scale and

intensity – which had been authorised by the norms of the society, in the sense of political decisions within normal procedures to undertake and continue it. At the same time, and for discoverable social reasons, certain other violent practices – notably 'violent protest' and armed robbery *within* the societies – had been identified and condemned. In what sense then are we to say that 'violence' is a breach of the socialisation process? The real norm, in these actual societies, would seem rather to be: '*unauthorised* violence is impermissible'. This would depend on a precise set of distinctions, within a given social system, between approved and impermissible forms of behaviour, and at the level of this true agency the identifications would never be in doubt and would indeed be rationalised as 'law'. (The law may punish you if you refuse to kill in a foreign war; the law may punish you if you kill or assault in the course of domestic robbery or internal political struggle.) This rationalisation corresponds to a particular social structure.

But then, while it may at that level be clear to the agency concerned, it may also, as it enters the communication process, be far from clear not only to the viewers but to the producers of its representations. Such confusion in viewers may indeed be separately studied: that is a discoverable and important effect. But it is at the level of agency and production that the real practices, and their implicit or possible confusions, require analysis. The ordinary assumption seems to run: 'this society discourages violent behaviour; violent behaviour is constantly represented and reported on television; we need to study its effects on people'. But surely anyone looking analytically at those first two statements would feel the need to examine their quite extraordinary relationship. Of course the apparent contradiction can be rationalised: the controllers of television are indifferent and greedy, governed only by the profit that can be made from programmes which show violence. (At a further level of rationalisation the medium itself can be reified: 'television finds violence exciting'.) But this does not explain the odd relationship between 'discouragement by the society' and constant representation by a major social communications system.

Are we to assume perhaps that the television organisations are outside the normal social structure? But in all the countries in which the research is done the control and ownership of television systems is centrally characteristic of general social control and ownership and (in part) authority. When this is realised, it would be as reasonable to say: 'this society encourages violent behaviour; violent behaviour is constantly represented and reported on television, its major communications system'. But the truth is that neither assumption will do. What we are really faced with is a contradiction within the social system itself. And it is then to the sociology of that contradiction that we should direct our primary scientific attention.

A different kind of problem arises when we look at studies of the effects of television on political behaviour. These have been usefully reviewed by Jay G. Blumler (*The Effects of Television*, pp. 70–87). The centre of the problem is that a given society defines political behaviour in its own terms: in Britain and the United States, for example, as voting or as rating of political leaders. These have the additional advantage that they are relatively easy to count. Early studies seemed to show, moreover, that television had little discernible influence on either. Later studies, while not controverting this, found some measurable influence on information about party policies and, though it remains difficult to interpret, on the persuasibility of those with initially low party-political motivations or attachments.

But while it is useful to know these findings, and to look for similar further work, the most important question to ask is about the causes of these definitions of political effects. It is true that there is now beginning to be some study of 'system effects', as distinct from effects on countable individual voters. But this, too, has normally been undertaken within the terms of the political model from which the initial definitions were shaped. Thus it has been observed, correctly, that during elections but also at other times of general controversy, television as a system has become the most evident area in which political argument is conducted. Television interviewers and commentators have become, in a sense, political figures in their own right, and there

has been evident tension between them and orthodox (usually elected) political leaders. Yet to the degree that elected leaders depend, or believe they depend, on television coverage, this tension does not prevent leaders submitting themselves to more open and public questioning of their policies than has ever been the case in any comparable communications system. This much, at least, is clear gain.

Yet it remains true that this kind of effect is within the terms of a given political system and its definitions of political behaviour. The competitive assessment of leaders and through them (but normally only through them) of policies is taken as a norm. But this at once raises a question. In Britain at least, during the period of television as a majority service, this mode of political behaviour has in fact been declining, in the important sense that the proportion of people voting at elections has been steadily going down. In the same period, other forms of political behaviour – notably demonstrations and political strikes – have quite markedly increased. It would require a very different model of cause and effect to inquire into this. It could be argued that increased exposure to competitive assessment in these terms has weakened adherence to occasional election as a political mode, or even that (given other kinds of political stimulation by television – the reporting of demonstrations, the dramatisation of certain issues) it has had some strengthening influence on alternative modes. Hardly anything is known about this, for the important reason that the assumption of effect was made, initially, in terms of the functioning of a given system.

Underlying orthodox investigation of the effects of television, whether on a matter like violence or on a quite different matter like voting, we can then see a particular cultural model, which tends to determine scope and method. What is usually asked about television is what influence it has by comparison with other influences. All these influences – television, the home, the school, the press, work – are assumed as discrete though then conceded to interact. Effects can then be measured, and techniques refined. But in an important sense there can be no inquiry about cause because the total social practice has been

either disintegrated into these separable factors, or – an important condition for just this separation – has been assumed as normal: the *real* process of socialisation or democratic politics or what may be. Thus effect is ordinarily studied at a tertiary level, as between competing or alternative factors, and in the breach or observance of given social, cultural and political norms. Yet just these factors and norms are themselves effects; they are the established institutions, relationships and values of a given order of society. Primary causes, in the given order of society, are then ordinarily displaced by a doubtful sphere of effects taken as causes, with the study of effects then becoming, in real terms, the isolable effects of effects.

The particular importance of this, in the case of television, is that it reinforces tendencies to think of a given cultural system – the intentions and uses of a technology – in limited or misleading ways. That is to say, it studies the symptoms of the operation of an otherwise unexamined agency or – for this is the position which the former position in part prepares – it studies an agency as a system, in extreme cases performing the final feat of abstraction when it is supposed that what is being studied is simply 'a medium', 'a technology', with its own quite internal laws of cause and effect.

C. THE TECHNOLOGY AS A CAUSE

Sociological and psychological studies of the effects of television, which in their limited terms have usually been serious and careful, were significantly overtaken, during the 1960s, by a fully developed theory of the technology – the medium – as determining. There had been, as we have seen, much implicit ideology in the sociological and psychological inquiries, but the new theory was explicitly ideological: not only a ratification, indeed a celebration, of the medium as such, but an attempted cancellation of all other questions about it and its uses. The work of McLuhan was a particular culmination of an aesthetic theory which became, negatively, a social theory: a development and elaboration of formalism which can be seen in many fields,

from literary criticism and linguistics to psychology and anthropology, but which acquired its most significant popular influence in an isolating theory of 'the media'.

Here, characteristically – and as explicit ratification of particular uses – there is an apparent sophistication in just the critical area of cause and effect which we have been discussing. It is an apparently sophisticated technological determinism which has the significant effect of indicating a social and cultural determinism: a determinism, that is to say, which ratifies the society and culture we now have, and especially its most powerful internal directions. For if the medium – whether print or television – is the cause, all other causes, all that men ordinarily see as history, are at once reduced to effects. Similarly, what are elsewhere seen as effects, and as such subject to social, cultural, psychological and moral questioning, are excluded as irrelevant by comparison with the direct physiological and therefore 'psychic' effects of the media as such. The initial formulation – 'the medium is the message' – was a simple formalism. The subsequent formulation – 'the medium is the massage' – is a direct and functioning ideology.

There are of course specific characteristics of different media, and these characteristics are related to specific historical and cultural situations and intentions. Much of the initial appeal of McLuhan's work was his apparent attention to the specificity of media: the differences in quality between speech, print, radio, television and so on. But in his work, as in the whole formalist tradition, the media were never really seen as practices. All specific practice was subsumed by an arbitrarily assigned psychic function, and this had the effect of dissolving not only specific but general intentions. If specific media are essentially psychic adjustments, coming not from relations between ourselves but between a generalised human organism and its general physical environment, then of course intention, in any general or particular case, is irrelevant, and with intention goes content, whether apparent or real. All media operations are in effect desocialised; they are simply physical events in an abstracted sensorium, and are distinguishable only by their variable sense-ratios. But it is

then interesting that from this wholly unhistorical and asocial base McLuhan projects certain images of society: 'retribalisation' by the 'electronic age'; the 'global village'. As descriptions of any observable social state or tendency, in the period in which electronic media have been dominant, these are so ludicrous as to raise a further question. The physical fact of instant transmission, as a technical possibility, has been uncritically raised to a social fact, without any pause to notice that virtually all such transmission is at once selected and controlled by existing social authorities. McLuhan, of course, would apparently do away with all such controls; the only controls he envisages are a kind of allocation and rationing of particular media for particular psychic effects, which he believes would dissolve or control any social problem that arises. But the technical abstractions, in their unnoticed projections into social models, have the effect of cancelling all attention to existing and developing (and already challenged) communications institutions. If the effect of the medium is the same, whoever controls or uses it, and whatever apparent content he may try to insert, then we can forget ordinary political and cultural argument and let the technology run itself. It is hardly surprising that this conclusion has been welcomed by the 'media-men' of the existing institutions. It gives the gloss of avant-garde theory to the crudest versions of their existing interests and practices, and assigns all their critics to pre-electronic irrelevance. Thus what began as pure formalism, and as speculation on human essence, ends as operative social theory and practice, in the heartland of the most dominative and aggressive communications institutions in the world.

The particular rhetoric of McLuhan's theory of communications is unlikely to last long. But it is significant mainly as an example of an ideological representation of technology as a cause, and in this sense it will have successors, as particular formulations lose their force. What has to be seen, by contrast, is the radically different position in which technology, including communication technology, and specifically television, is at once an intention and an effect of a particular social order.

D. TECHNOLOGY AS AN EFFECT

If we cancel history, in the sense of real times and real places, we can conceive an abstract human nature which has specific psychic needs and which variable forms of technology and intercourse come to satisfy. This purely idealist model of human history may have variable specific culminations – the end of alienation, the rediscovery of the tribe – but within it technology is a simple human effusion, the extension of a limb or a sense. The destiny and the process can be believed in only if we assume a human essence waiting to come to realisation, in these ways, with inbuilt if not yet realised metaphysical purposes. The model can be related to history only by endless retrospect, in which by selection such a process can be generalised or demonstrated. Characteristically, in such a model, there will be no more history: a culminating age has arrived.

Any cancellation of history, in the sense of real times and real places, is essentially a cancellation of the contemporary world, in which, within limits and under pressures, men act and react, struggle and concede, co-operate, conflict and compete. A technology, when it has been achieved, can be seen as a general human property, an extension of general human capacity. But all technologies have been developed and improved to help with known human practices or with foreseen and desired practices. This element of intention is fundamental, but it is not exclusive. Original intention corresponds with the known or desired practices of a particular social group, and the pace and scale of development will be radically affected by that group's specific intentions and its relative strength. Yet at many subsequent stages other social groups, sometimes with other intentions or at least with different scales of priority, will adopt and develop the technology, often with different purposes and effects. Further, there will be in many cases unforeseen uses and unforeseen effects which are again a real qualification of the original intention. Thus an explosive may be developed at the command or by the investment of a ruling class, or by the investment or for the profit of an industrial enterprise, yet come to be used

also by a revolutionary group against that ruling class, or by criminals against the industrialist's property.

In other words, while we have to reject technological determinism, in all its forms, we must be careful not to substitute for it the notion of a determined technology. Technological determinism is an untenable notion because it substitutes for real social, political and economic intention, either the random autonomy of invention or an abstract human essence. But the notion of a determined technology has a similar one-sided, one-way version of human process. Determination is a real social process, but never (as in some theological and some Marxist versions) as a wholly controlling, wholly predicting set of causes. On the contrary, the reality of determination is the setting of limits and the exertion of pressures, within which variable social practices are profoundly affected but never necessarily controlled. We have to think of determination not as a single force, or a single abstraction of forces, but as a process in which real determining factors – the distribution of power or of capital, social and physical inheritance, relations of scale and size between groups – set limits and exert pressures, but neither wholly control nor wholly predict the outcome of complex activity within or at these limits, and under or against these pressures.

The case of television is an excellent example. We have seen that the complex process of its invention had specific military, administrative and commercial intentions, and each of these interacted with what were, for real if limited periods and in real if limited ways, scientific intentions. At the stage of transition from invention to technology, the process of its development came to be dominated by commercial intentions, though still with some real political and military interests. But then a primarily commercial intention acquired social and political intentions of a general kind, in notions of social training and social control which in part harmonised and in part conflicted with the driving commercial intention (the latter gaining ascendancy in the United States, though never an unqualified ascendancy; the former gaining but then losing ascendancy in

Britain, though again the loss is not unqualified). Yet as intention became effect another dimension opened. It was not only ruling or commercial groups who recognised the problems of communication in conditions of complex or of privatised mobility. It was also the many people who were experiencing this process as subjects. To controllers and programmers they might seem merely objects: a viewing public or a market. But from their own side of the screen there was a different perspective: if they were exposed by need in new ways, they were also exposed to certain uncontrollable opportunities. This complicated interaction is still very much in the process of working itself out.

Literacy had shown similar complications. It is interesting that at the beginning of the industrial revolution in Britain, when education had to be reorganised, the ruling class decided to teach working people to read but not to write. If they could read they could understand new kinds of instructions and, moreover, they could read the Bible for their moral improvement. They did not need writing, however, since they would have no orders or instructions or lessons to communicate. At most they might struggle to produce simple signatures, which would be occasionally required for official purposes. The full range of writing came later, with further development of the society and the economy. But it is what happened to reading that is really significant. For there was no way to teach a man to read the Bible which did not also enable him to read the radical press. A controlled intention became an uncontrolled effect. Yet the acquisition of literacy, then as now, almost always involved submission to a lengthy period of social training – education – in which quite other things than literacy or similar skills were taught; in which, in fact, values and norms were taught which became, very often, inextricable from the literacy.

The unique factor of broadcasting – first in sound, then even more clearly in television – has been that its communication is accessible to normal social development; it requires no specific training which brings people within the orbit of public authority. If we can watch and listen to people in our immediate circle, we

can watch and listen to television. Much of the great popular appeal of radio and television has been due to this sense of apparently unmediated access. The real mediations will have to be noted, but again and again they are easy to miss. What is offered is a set with a tuner and a switch: we can turn it on or off, or vary what we are receiving. Throughout its history there has been this popular sense that broadcasting is a welcome alternative to the normal and recognisable social order of communications.

Many people who are aware of the manipulative powers of radio and television, or of its apparently inexhaustible appeal to children, react in ways which implicitly suppress all the other history of communication. Thus it is often indignantly said that television is a 'third parent', as if children had not in all developed societies had third parents in the shape of priests, teachers and workmasters, to say nothing of the actual parents and relations who, in many periods and cultures, intervened to control or to instruct. Against those real alternatives this switchable communication has profound attractions. Or it is said that people are exposed to propaganda by television, as if there had never been masters, employers, judges, priests.

It is interesting that many of the contradictions of capitalist democracy have indeed come out in the argument about television control. The British version of 'public responsibility' was an emphasis, in new terms, of the priest and the teacher, with behind them a whole dominant and normative set of meanings and values. The American version of 'public freedom' was open broadcasting subject only to the purchase of facilities, which then settled freedom in direct relation to existing economic inequalities. In each case the control theoretically lost by the switchable receiver was regained by the assertion of paternalist or capitalist ownership of transmission. This explains the realities of contemporary mediation, but it explains also the apparently irrepressible search, by listeners and viewers, for other sources. Many British working-class people welcomed American culture, or the Americanised character of British commercial television, as an alternative to a British 'public' version which, from a

subordinate position, they already knew too well. In many parts of the world this apparently free-floating and accessible culture was a welcome alternative to dominant local cultural patterns and restrictions. Young people all over Europe welcomed the pirate broadcasters, as an alternative to authorities they suspected or distrusted or were simply tired of. The irony was that what came free and easy and accessible was a planned operation by a distant and invisible authority – the American corporations. But in local and immediate terms, as in the other cases mentioned, this did not at first greatly matter; a choice was being exercised, here and now.

Television has now been a majority service for a whole generation. It has had certain intended effects corresponding to certain explicit intentions, essentially declared by the variable character of television institutions. But it has also had unforeseen effects, among them the desire to use the technology for oneself. In the young radical underground, and even more in the young cultural underground, there is a familiarity with media, and an eager sense of experiment and practice, which is as much an effect as the more widely publicised and predicted passivity. Indeed, by prolonged use of a technology which had seemed to be contained and limited to commercial or paternal or authoritarian ends, many people – we do not yet know whether they are enough people – conceived quite different intentions and uses. This is the critical answer to the notion of a determined technology as well as the more ordinary notion of a technological determinism. For these new uses are at least as appropriate to the technology as the uses and intentions which have hitherto defined it. It is from this generation, raised on television, that we are continually getting examples and proposals of electronic creation and communication which are so different from orthodox television as to seem a quite new technology and cultural form. The town-meeting by television is a radically alternative definition of the relations between 'broadcasters' and 'viewers'. The multi-screen play is a radically alternative definition of the framed projection or the framed flow. Just as television was coming to seem a determined cultural form or a determined

technology, there are these radically alternative definitions and practices, trying to find their way through.

How the technology develops from now on is then not only a matter of some autonomous process directed by remote engineers. It is a matter of social and cultural definition, according to the ends sought. From a range of existing developments and possibilities, variable priorities and variable institutions are now clearly on the agenda. Yet this does not mean that the issue is undetermined; the limits and pressures are real and powerful. Most technical development is in the hands of corporations which express the contemporary interlock of military, political and commercial intentions. Most policy development is in the hands of established broadcasting corporations and the political bureaucracies of a few powerful states. All that has been established so far is that neither the theory nor the practice of television as we know it is a necessary or a predicting cause. Current orthodox theory and practice are, on the contrary, effects. Thus whether the theory and the practice can be changed will depend not on the fixed properties of the medium nor on the necessary character of its institutions, but on a continually renewable social action and struggle. It is therefore to the immediately emergent problems of the technology and the institutions that we must now turn.

6. Alternative technology, alternative uses?

There can be little doubt that in the early 1970s we are already in a new generation of communications technology, and that much of this is centred on new forms of television. At the same time we are in a very contentious and confused situation about the institutions and social processes of all communications. There is still an unfinished struggle and argument over the institutions and control of sound and vision broadcasting: the conflict that has been clear for two generations between 'public service' and 'commercial' institutions and policies. It would be a major error to suppose that this conflict is over; indeed the signs are that it is now entering one of its most acute and difficult phases. But at the same time the actual and prospective development of new kinds of technology is altering some of the terms of this long-standing conflict, and may, if we are not careful, merely confuse it. On the other hand, some of the new technical developments seem to open the way to institutions of a radically different kind from either 'public service' or 'commercial' broadcasting; indeed of a different kind, in some cases, from 'broadcasting' itself.

We have then to try to clarify, first, the new technology and, second, the effects this may have on institutions, policies and uses of television. But we have to do this while remembering that the technology will not determine the effects. On the contrary, the new technology is itself a product of a particular social system, and will be developed as an apparently autonomous process of innovation only to the extent that we fail to identify and challenge its real agencies. But it is not only a question of

54. Walter P. Eaton, "The Menace of the Movies," *American Magazine* 76 (September 1909): 55–60, and "A New Epoch in the Movies," *American Magazine* 78 (October 1914): 44.

55. Walter P. Eaton, "Class Consciousness and the 'Movies,'" *Atlantic Monthly* 115 (January 1915): 55.

56. Robert Coady, "Censoring the Motion Picture," *Soil* 1 (December 1916): 38. See also Clayton Hamilton, "The Art of the Moving Picture Play," *The Bookman* 32 (January 1911): 512–16; "A Democratic Art," *The Nation* 97 (28 August 1913): 193. Myron D. Lounsbury, "'Flashes of Lightning': The Moving Picture in the Progressive Era," *Journal of Popular Culture* 3 (Spring 1970): 769–97, contains a useful analysis of two of the earliest regular film critics, Louis Reeves Harrison and Frank Woods.

57. Hugo Muensterberg, *The Photoplay: A Psychological Study* (New York: D. Appleton and Co., 1916), pp. 52, 71, 88, 106-7, 173, 228, 230.

58. Vachel Lindsay, *The Art of the Moving Picture* (New York: Macmillan Co., 1915), pp. 65–66, 206, 224, 7.

CHAPTER 3

1. For general reviews of telegraphy by conduction and induction, see J. J. Fahie, *A History of Wireless Telegraphy, 1838–1899* (New York: Dodd, Mead and Co., 1899), pp. 1–78; Silvanus P. Thompson, "Telegraphy Across Space," *Journal of the Society of the Arts* 46 (1 April 1898): 453–60, and "Telegraphy Without Wires," *Saturday Review* 83 (26 June 1897): 708–9; G. G. Blake, *History of Radio Telegraphy and Telephony* (London: Radio Press, 1926), pp. 5–11, 32–48. On Edison's motograph, see Thomas A. Edison, "The Air Telegraph," *North American Review* 142 (March 1886): 285–91. On Preece, see W. H. Preece, "Aetheric Telegraphy," *Journal of the Society of the Arts* 47 (5 May 1899): 519–25, and "Wireless Telephony," *The Independent* 52 (4 October 1900): 2368–69.

2. John Trowbridge, "Telegraphing Through the Air Without Wires," *The Chautauquan* 15 (April 1892): 54, 57. For a similarly pessimistic view, see Thompson, "Telegraphy Across Space."

3. The standard work on the development of early wireless technology is now Hugh G. J. Aitken, *Syntony and Spark: The Origins of Radio* (New York: John Wiley and Sons, 1976), a book which came to my attention only after this chapter had been completed. Aitken's careful, closely reasoned study focuses on the contributions of Hertz, Lodge, and Marconi, and the concept of "syntony" as it related to their efforts. Good summaries of the contributions of Maxwell and Hertz can also be found in William Maver, "Wireless Telegraphy: Its Past and Present Status and Its Prospects," *Annual Report of the Smithsonian Institution* (1902), pp. 261–74; Oliver Lodge, *The Work of Hertz and Some of His Successors* (London: Electrician Printing and Publishing Co., 1894); W. Rupert MacLaurin, *Invention and Innovation in the Radio Industry* (New York: Macmillan Co., 1949), pp. 12–20; Blake, *History of Radio Telegraphy*, pp. 49–56; Fahie, *History of Wireless Telegraphy*, pp. 177–89.

4. On the work of Branly, Lodge, and Popov, see Oliver Lodge, *Past Years: An Autobiography* (London: Hodder and Stoughton, 1931), pp. 225–36; Lodge, *The Work of Hertz and Some of His Successors*, pp. 22–26; Maver, "Wireless Telegraphy" pp. 261–74; MacLaurin, *Invention and Innovation*, pp. 19–21; Blake, *History of Radio Telegraphy*, pp. 62–64.

5. William Crookes, "Some Possibilities of Electricity," *Fortnightly Review* 51 (February 1892): 174–75.

6. On the early work of Marconi, see Orrin E. Dunlap, *Marconi: The Man and His Wireless* (New York: Macmillan Co., 1937), pp. 33–59; Richard Kerr, *Wireless Telegraphy* (London: Seeley and Co., 1898), pp. 61–80; Gleason L. Archer, *History of Radio to 1926* (New York: American Historical Society, 1938), pp. 55–59; MacLaurin,

Invention and Innovation, pp. 31–55; Guglielmo Marconi, "Origin and Development of Wireless and Telegraphy," *North American Review* 168 (May 1899): 625–29, and "The Practicability of Wireless Telegraphy," *Fortnightly Review* 77 (June 1902): 931–41; Cleveland Moffett, "Marconi's Wireless Telegraph," *McClure's* 13 (June 1899): 99–112; Ernesto Mancini, "Telegraphy Without Wires," *The Chautauquan* 26 (February 1898): 511–15.

7. J. Ambrose Fleming, "Scientific History and Future Uses of Wireless Telegraphy," *North American Review* 168 (May 1899): 640; Agnes M. Clerke, "Ethereal Telegraphy," *Living Age* 219 (3 December 1898): 619–28; W. A. Shenstone, "Some Recent Theories of the Ether," *Living Age* 246 (9 September 1905): 724–34. See also Kenneth F. Shaffner, *Nineteenth Century Aether Theories* (New York: Pergamon Press, 1972), especially pp. 3–19, 76–98; *Encyclopedia of Philosophy*, 1967 ed., s.v., "Ether," by Mary Hesse.

8. Oliver Lodge, *Modern Views of Electricity*, 3d ed., rev. (London: Macmillan and Co., 1907), pp. 370, 341.

9. William H. Preece quoted in Clerke, "Ethereal Telegraphy," p. 627; Lodge, *Modern Views of Electricity*, p. 461; Amos E. Dolbear, "The Ether and its Newly Discovered Properties," *Arena* 6 (June 1892): 1–7; William Ayrton quoted during a discussion after a paper given by Marconi at the Royal Society, in Guglielmo Marconi, "Syntonic Wireless Telegraphy," *Journal of the Society of the Arts* 49 (17 May 1901): 516–17. On the connections suggested between wireless and telepathy, see also John Trowbridge, "Wireless Telegraphy," *Popular Science Monthly* 56 (November 1899): pp. 59–73, and Crookes, "Some Possibilities of Electricity," pp. 173–81.

10. Lodge, *Modern Views of Electricity*, p. 462.

11. On Marconi's successful transatlantic signaling and its impact on both scientists and the general public, see Ray Stannard Baker, "Marconi's Achievement," *McClure's* 18 (February 1902): 291–99; Carl Snyder, "Wireless Telegraphy and Signor Marconi's Triumph," *Review of Reviews* 25 (February 1902): 173–6; "American Wireless Telegraphy," *Harper's Weekly* 47 (21 February 1903): 298. On the growth of the Marconi organization, see Aitken, *Syntony and Spark*, pp. 232–44. Also see Guglielmo Marconi, "Recent Advances in Wireless Telegraphy," *Annual Report of the Smithsonian Institution* (1906), pp. 131–45; "The American Marconi Organization," *The Marconigraph* 1 (December 1912): 109–19; Erik Barnouw, *A History of Broadcasting in the United States*, 3 vols. (New York: Oxford University Press, 1966–70), 1:15–18. On the principle of "selling communication," the Marconi organization maintained an adamant position, not unlike that of A T & T: "Wireless telegraphy owes its present commercial utility solely to one thing: the basic axiom laid down by Marconi, that apparatus should not be sold and the owner left to work out his own salvation" (*The Ownership of Wireless Equipment* [New York: Marconi Wireless Telegraph Co., 1914], p. 4).

12. On the establishment of the first American wireless companies, and the early work of Fessenden and De Forest, see Archer, *History of Radio*, pp. 60–76; R. A. Fessenden, "A Brief History of Wireless Telegraphy," *Scientific American* 67 (Supplement, 9 January 1909): 18–19, 44–45, 60–61; "A Decade of Wireless Telegraphy," *Scientific American* 94 (16 June 1906): 490–1; William Maver, "Progress in Wireless Telegraphy," *Annual Report of the Smithsonian Institution* (1904), pp. 275–80; Lawrence Perry, "Commercial Wireless Telegraphy," *The World's Work* 5 (March 1905): 3194–201; MacLaurin, *Invention and Innovation*, pp. 59–87.

13. On the problem of tuning, see "Commercial Value of Wireless," *Scientific American* 80 (17 June 1899): 388; Marconi, "Syntonic Wireless Telegraphy," pp. 506–17; Blake, *History of Radio Telegraphy*, pp. 99–106. Aitken, *Syntony and Spark*, pp. 31–47, offers the most comprehensive treatment of the concept of syntony.

For Marconi's views on military uses, see H. J. W. Dam, "Telegraphing Without Wires: A Possibility of Electrical Science," *McClure's* 8 (March 1897): 383–92; Marconi, "Origin and Development of Wireless Telegraphy." For other views on military

uses, see, for example, Kerr, *Wireless Telegraphy*, pp. 93–99; H. M. Hozier, "Wireless Telegraphy," *Nineteenth Century* 60 (July 1906): 49–56; "Wireless Telegraphy in the Next War," *Harper's Weekly* 47 (21 March 1903): 454; John Trowbridge, "The First Steps in Wireless Telegraphy," *The Chautauquan* 29 (July 1899): 375–78.

14. Ray Stannard Baker, "Marconi's Achievement," *McClure's* 18 (February 1902): 298; the remarks of Ayrton are in Marconi, "Syntonic Wireless Telegraphy," pp. 516–17. See also Perry, "Commercial Wireless Telegraphy" for similar projections.

15. Robert A. Morton, "The Amateur Wireless Operator," *Outlook* 94 (15 January 1910): 131–35; "The Good of Amateur Wireless," *Scientific American* 116 (17 March 1917): 276; John W. Purssell, "In Defense of the Amateur Wireless Operator," *Scientific American* 106 (8 June 1912): 515; Robert A. Morton, "Regulation of Radiotelegraphy," *Scientific American* 73 (Supplement, 23 May 1912): 180–81; Paul Schubert, *The Electric Word: The Rise of Radio* (New York: Macmillan Co., 1928), pp. 194–97; Archer, *History of Radio*, pp. 91–106; Barnouw, *History of Broadcasting*, 1:28–38.

16. L. S. Howeth, *History of Communications Electronics in the United States Navy* (Washington, D.C.: Government Printing Office, 1963), pp. 67–83; Barnouw, *History of Broadcasting*, 1:31–33, 291–99; Archer, *History of Radio*, pp. 104–6.

17. On the principles of wireless telephony, see R. A. Fessenden, "Wireless Telephony," *Scientific American* 67 (Supplement, 13 March 1909): 172–74, 180–82, 196–98; William C. Ballard, *Elements of Radio Telephony* (New York: McGraw-Hill Book Co., 1922), pp. 1–5; Alfred N. Goldsmith, "Radio Telephony," *Wireless Age* 4 (January 1917): 248–55. On the contributions of Fessenden and De Forest, see also Lee De Forest, "The Audion—A New Receiver for Wireless Telegraphy," *Scientific American* 64 (Supplement, 30 November 1907): 348–50, 354–56; Herbert T. Wade, "Wireless Telephony by the De Forest System," *Review of Reviews* 35 (June 1907): 681–85; "Communicating Over Great Distances: The Invention of the Telegraph, Telephone, and Wireless Telegraphy," *Scientific American* 112 (5 June 1915): p. 351; MacLaurin, *Invention and Innovation*, pp. 59–87; Archer, *History of Radio*, pp. 69–94.

18. Frank Jewett, 1932, quoted in N. R. Danielian, *A T & T: The Story of Industrial Conquest* (New York: Vanguard Press, 1939), p. 196. On how A T & T and General Electric aggressively pursued patents in wireless research to protect their investments, both through their own research labs and by buying out independent inventors, see David F. Noble, *America By Design: Science, Technology, and the Rise of Corporate Capitalism* (New York: Alfred A. Knopf, 1977), pp. 91–101.

19. On the position of A T & T, GE, and American Marconi: Horace Coon, *American Telephone and Telegraph* (New York and Toronto: Longmans, Green, and Co., 1939), pp. 197–98; Danielian, *A T & T*, pp. 107–19; MacLaurin, *Invention and Innovation*, pp. 88–99; Archer, *History of Radio*, pp. 106–21. On the A T & T-Navy long distance tests: Howeth, *History of Communications Electronics*, pp. 221–35; "The Wireless Telephone Tests," *Wireless Age* 3 (November 1915): 111–16. On wireless and the U.S. government during the war: U.S. Federal Trade Commission Report, *Radio Industry* (Washington, D.C.: Government Printing Office, 1923), pp. 9–18; N. H. Slaughter, "Wireless Telephony," *Annual Report of the Smithsonian Institution* (1919), pp. 177–92; Howeth, *History of Communications Electronics*, pp. 215–312; Archer, *History of Radio*, pp. 122–55.

20. On the Wilson administration and the wireless: Howeth, *History of Communications Electronics*, pp. 313–18, 353–55; Archer, *History of Radio*, pp. 148–50, 164–65; Statement of Josephus Daniels, U.S. House, Committee on the Merchant Marine and Fisheries, *Government Control of Radio Communication*, 65th Cong., 3d sess., 13–14 December 1918, pt. 1. On the consensus, see, for example, Frank B. Jewett, "Wireless Telephony," *Review of Reviews* 59 (May 1919): 500–503; W. C. White (GE Research Laboratory), "Radiotelephony," *Scientific American* 80 (Supplement, 4 September 1915): 146–47; E. H. Colpitts (Western Electric research engineer), "The Future of Radio Telephony," *Scientific American* 113 (4 December 1915): p. 485.

The great exception to the consensus on postwar radio was David Sarnoff, future head of RCA. In the fall of 1916 he composed the famous "music box" memo for his superiors at American Marconi; in it he proposed "a plan of development which would make radio a 'household utility' in the same sense as the piano or the phonograph. The idea is to bring music into the home by wireless." Sarnoff projected sales of one million sets at $75 each, for a gross of $75 million. But the cold reception given his plan showed just how out of touch he was with the conventional wisdom of his day. See Carl Dreher, *Sarnoff: An American Success* (New York: Quadrangle Books, 1977), pp. 39–42, and Eugene Lyons, *David Sarnoff* (New York: Harper and Row, 1966), pp. 70–73. Dreher debunks some of the still persisting legends that have grown up around Sarnoff, but there is still a need for a comprehensive, scholarly biography.

21. Harry P. Davis, "The Early History of Broadcasting in the United States," in Anton De Haas, ed., *The Radio Industry: The Story of its Development* (Chicago: A. W. Shaw, 1928), pp. 194–96. On KDKA and Westinghouse, see Harry P. Davis, "American Beginnings," in Martin Codel, ed., *Radio and its Future* (New York: Harper and Brothers, 1930), pp. 3–11; Barnouw, *History of Broadcasting*, 1:64–74; Archer, *History of Radio*, pp. 200–210. Westinghouse also obtained the valuable Armstrong-Pupin patents (including the "feed-back device" that greatly improved the effectiveness of De Forest's audion) from the International Radio Telegraph Co., a successor to Fessenden's original National Electric Signalling Co.

22. On early "radio mania" and the first broadcasters: Hugo Gernsback, *Radio For All* (Philadelphia: J. B. Lippincott Co., 1922), pp. 165–70; Alfred N. Goldsmith and Austin C. Lescarboura, *This Thing Called Broadcasting* (New York: Henry Holt and Co., 1930), pp. 22–56; Schubert, *The Electric Word*, pp. 212–49; "Who Will Ultimately Do the Broadcasting?" *Radio Broadcast* 2 (1 April 1923): 524–25; Barnouw, *History of Broadcasting*, 1: 91–105; Dudley Siddall, "Who Owns Our Broadcasting Stations?" *Radio Broadcast* 4 (February 1925): 726–30. On the Washington radio conferences, see Edward F. Sarno, "The National Radio Conferences," *Journal of Broadcasting* 13 (Spring 1969): 189–202.

23. On the nature of early programming: WHA Program Logs, 1922–26, in John S. Penn Papers; Wendell Hall Papers; William H. Easton, "What the Radio Audience Tells Us," and S. M. Kintner, "Radio Communication," in the M. C. Batsel Papers; all in the Mass Communication Research Center, State Historical Society of Wisconsin, Madison, Wis. See also L. H. Rosenberg, "A New Era in Wireless," *Scientific American* 124 (4 June 1921): 449; "The Long Arm of the Radio is Reaching Everywhere," *Current Opinion* 72 (May 1922): 684–87; Ben Gross, *I Looked and I Listened: Informal Recollections of Radio and TV* (New York: Random House, 1954), pp. 82–98.

24. Pierre Boucheron, "News and Music from the Air," *Scientific American* 125A (December 1921): 104. On the attitudes of amateurs toward the new radio fans and broadcasting see, for example, Hugo Gernsback, "The Broadcast Listener," *Radio News* 4 (June 1923): 1, and other issues of the magazine. Good examples of those who forecasted a minor role for broadcasting in radio's future: Raymond F. Yates, "The Long Arm of Radio," *Current History* 15 (March 1922): 980–85; Hugo Gernsback, "Radio Achievements in Recent Years," *Current History* 18 (April 1923): 113–20; "The Long Arm of Radio is Reaching Everywhere," pp. 684–87. The original and most famous wireless amateur, Marconi, remained relatively unimpressed with broadcasting's possibilities. He doubted that it would ever be as important as wire communication, the press, or the stage. He continued to focus on the problem of communication over long distance, the initial inspiration of his work. See Stanley Frost, "Marconi and His Views of Wireless Progress," *Review of Reviews* 66 (August 1922): 166–70.

25. Robert S. Lynd and Helen M. Lynd, *Middletown: A Study in Modern American Culture* (New York: Harcourt, Brace, and Co., 1929), p. 269; Howard V. O'Brien, "It's Great to Be a Radio Maniac," *Collier's Weekly* 74 (13 September 1924): 15–16. For other descriptions of early radio listening and "DXing," see Orange E. McMeans, "The Great Audience Invisible," *Scribner's Magazine* 73 (March 1923): 410–16; Bruce Bli-

ven, "The Legion Family and the Radio," *Century* 108 (October 1924): 811–18; Alida Chanler, "Unexplored Harmonies," *Atlantic* 127 (March 1921): 363–66; Goldsmith and Lescarboura, *This Thing Called Broadcasting*, pp. 309–11; Schubert, *Electric Word*, pp. 212–30.

26. J. Hannaford Elton, "Tomorrow in Radio," *Illustrated World* 37 (June 1922): 502; Edwin E. Slosson, "Voices in the Air," *New York Independent* 108 (18 April 1922): 386. See also Waldemar Kaempffert, "Radio Broadcasting," *Review of Reviews* 65 (April 1922): 395–401; Stanley Frost, "Radio: Our Next Great Step Forward," *Collier's Weekly* 69 (18 April 1922): 3; French Strother, "The Unfolding Marvels of Wireless," *World's Work* 43 (April 1922): 647–61.

27. David Sarnoff, Speech to the Chicago Chamber of Commerce, April 1924, quoted in Samuel L. Rothafel and Raymond F. Yates, *Broadcasting: Its New Day* (New York: Century, 1925), p. 181; A. H. Griswold, Speech at Bell System Radio Conference, February 1923, quoted in Danielian, *A T & T*, pp. 123–24. On varieties of government control: Raymond F. Yates, "What Will Happen to Broadcasting," *Outlook* 136 (19 April 1924): 604–6; Grover A. Whalen, "Radio Control," *Nation* 119 (23 July 1924): 90–91 (Whalen helped launch WNYC, New York's municipal station); Bruce Bliven, "How Radio is Remaking Our World," *Century* 108 (June 1924): 147–54. On limited federal involvement: Hudson Maxim, "Radio—The Fulcrum," *Nation* 119 (23 July 1924): 91. On a common industry fund: "About the Radio Round Table" (results of a panel discussion among top industry leaders), *Scientific American* 127 (December 1922): 378–79; "Radio Currents: An Editorial Interpretation," *Radio Broadcast* 1 (May 1922): 1–4. Griswold's position reflected a strong view held for years at A T & T to the effect that "so far nothing in the way of actual public communication has been done in wireless telephony except through the instrumentalities of the Company." This was historically false, but the arrogant tone is noteworthy. See Theodore N. Vail, *The A T & T Co. and Its Relations with and Obligations toward Wireless Communication* (New York: n.p., 1915), p. 3.

28. See William P. Banning, *Commercial Broadcasting Pioneer: The WEAF Experiment, 1922–1926* (Cambridge: Harvard University Press, 1946); Coon, *American Telephone and Telegraph*, pp. 205–13.

29. Herbert Hoover, Speech to First Washington Radio Conference, 27 February 1922, in Herbert Hoover, "Reminiscences," Radio Unit of the Oral History Project, 1950, Columbia University, New York, NY; Herbert Hoover, 1924 interview with the *New York World*, quoted in Rothafel and Yates, *Broadcasting*, p. 60. See also Hoover's statement before the House Committee on Merchant Marine and Fisheries (1924), which was considering a radio bill; his address to the National Electric Light Association, Atlantic City, (21 May 1924); "Report of the Department of Commerce Conference on Radio Telephony" (April 1922); all in Herbert C. Hoover Papers, 1921–32 (Pertaining to Early Radio Development), Mass Communication Research Center, State Historical Society of Wisconsin, Madison, Wis. Hoover's *Memoirs*, vol. 2, *The Cabinet and the Presidency* (New York: Macmillan Co., 1952), is a less reliable source here because several of his original speeches and pronouncements are altered in the book. See also Barnouw, *History of Broadcasting*, 1:177–79. For examples of early antiadvertising views, see Joseph H. Jackson, "Should Radio Be Used for Advertising?" *Radio Broadcast* 2 (November 1922): 72–76; Austin C. Lescarboura, "Radio For Everybody," *Scientific American* 126 (March 1922): 166; Bliven, "How Radio is Remaking Our World"; Kaempffert, "Radio Broadcasting."

30. Edgar H. Felix, *Using Radio In Sales Promotion* (New York: McGraw-Hill Book Co., 1927), pp. 1, 6; Harry P. Davis, Foreword to Frank P. Arnold, *Broadcast Advertising: The Fourth Dimension* (New York: John Wiley and Sons, 1931), p. xv; Arnold, *Broadcast Advertising*, pp. 41–42; Frank Presbrey, *The History and Development of Advertising* (New York: Doubleday and Co., 1929), p. 581. See also Kenneth Goode, *Manual of Modern Advertising* (New York: Greenberg Publishers, 1932), pp. 307–23; Earl Reeves, "The New Business of Broadcasting," *Review of Reviews* 72 (November 1925): 529–32.

For a provocative discussion of the "political ideology of consumption" as it developed in the 1920s among business interests, see Stuart Ewen, *Captains of Consciousness: Advertising and the Social Roots of the Consumer Culture* (New York: McGraw-Hill Book Co., 1976), pp. 51–109. Ewen, it should be noted, does not deal at all with radio advertising.

31. For the full story of the various internal disputes, arbitrations, and final agreements among the patent allies, see Gleason L. Archer, *Big Business and Radio* (New York: American Historical Co., 1939), and Barnouw, *History of Broadcasting*, 1:180–88. See also Kurt Borchardt, *Structure and Performance of the U.S. Communications Industry* (Boston: Graduate School of Administration, Harvard University, 1970), chap. 3.

32. On the events leading to the 1927 radio act and the early work of the FRC, see Marvin R. Bensman, "The Zenith-WJAZ Case and the Chaos of 1926–27," *Journal of Broadcasting* 14 (Fall 1970): 423–40; "The Problem of Radio Reallocation," *Congressional Digest* 7 (October 1928): 255–86; Sarno, "The National Radio Conferences"; Barnouw, *History of Broadcasting*, 1:195–201, 209–19.

33. Leslie J. Page, Jr., "The Nature of the Broadcast Receiver and its Market in the United States from 1922 to 1927," *Journal of Broadcasting* 4 (Spring 1960): 174–82; John W. Spalding, "1928: Radio Becomes a Mass Advertising Medium," *Journal of Broadcasting* 8 (Winter 1963–64): 31–44.

34. Figures compiled from: *Broadcasting Yearbook*, February 1940, pp. 11–14; U.S. Bureau of the Census, *Fifteenth Census of the United States, 1930, Population*, vol. 6, *Families* (Washington, D.C.: Department of Commerce, 1933), p. 33; Herman S. Hettinger, *A Decade of Radio Advertising* (Chicago: University of Chicago Press, 1933), pp. 107–12; Siddall, "Who Owns Our Radio Broadcasting Stations?".

35. On the early history of CBS, see Robert Metz, *CBS: Reflections in a Bloodshot Eye* (New York: Playboy Press, 1975), pp. 1–36; Erik Barnouw, *History of Broadcasting*, 2:57–58.

36. Figures on advertising from *Broadcasting Yearbook*, pp. 11–14; figures on network wattage from Ruth Brindze, "Who Owns the Air?" *Nation* 144 (17 April 1937): 430–32. On the rise of the ad agencies, see Arnold, *Broadcast Advertising*, pp. 120–26; Barnouw, *History of Broadcasting*, 2:8–18. On the weakness of the FRC, an astute contemporary analysis is E. Pendleton Herring, "Politics and Radio Regulation," *Harvard Business Review* 13 (January 1935): 167–78.

37. Roy S. Durstine, "We're On the Air," *Scribner's Magazine* 83 (May 1928): 630–31; Arnold, *Broadcast Advertising*, p. 50.

38. Merrill Denison, "Why Isn't Radio Better?" *Harper's* 168 (April 1934): 580; Mitchell Dawson, "Censorship on the Air," *American Mercury* 31 (March 1934): 262; James Rorty, "The Impending Radio War," *Harper's* 163 (November 1931): 714.

39. H. V. Kaltenborn, "On the Air," *Century* 112 (October 1926): 673, 675–6; William Green, Report of the Chairman, Committee on Labor, *NBC Advisory Council Reports* 7 (1931): 49. For extended discussions of censorship, with scores of examples, see Harrison B. Summers, ed., *Radio Censorship* (New York: H. W. Wilson, 1939); Ruth Brindze, *Not to Be Broadcast: The Truth About Radio* (New York: Vanguard Press, 1933), pp. 172–95; Deems Taylor, "Radio: A Brief for the Defense," *Harper's* 166 (April 1933): 554–63.

40. See Tracy F. Tyler, ed., *Radio as a Cultural Agency* (Washington, D.C.: National Committee on Education by Radio, 1934); Rorty, "The Impending Radio War," pp. 714–26.

41. Table 4 is based on two tables prepared by Lawrence L. Lichty and C. H. Sterling from Harrison B. Summers, *A Thirty Year History of Programs on National Radio Networks in the United States, 1926–1956* (Columbus: Ohio State University, 1958). For the discussion that follows, sources include the tape recordings of the following shows in the Radio Laboratory, Department of Communication Arts, University of Wisconsin, and in other libraries, as well as Frank Buxton and Bill Owen, *The Big Broadcast, 1920–1950* (New York: Viking Press, 1972). VARIETY AND COMEDY: Fred

Allen Show (1940), Ed Wynn Show (1935), Arthur Godfrey Show (1939), Amos n' Andy (1932), Charlie McCarthy Show (1936), Breakfast Club (1939), The Aldrich Family (1939); SERIALS: Ma Perkins (1933), Clara Lou and Em (1932); THRILLER: Inner Sanctum (1940), Suspense (1943); ADVENTURE: Lone Ranger (1933), Smilin' Jack (1939), Hop Harrigan (1942), Tom Mix (1933); NEWS: March of Time (1931, including first show), Edward R. Murrow, from London (1940).

42. See Charles J. Correll and Freeman F. Gosden, *All About Amos & Andy* (New York: Rand McNally, 1929). For more on the minstrel show tradition in American entertainment, see Robert C. Toll, *Blacking Up: The Minstrel Show in Nineteenth Century America* (New York: Oxford University Press, 1974), especially pp. 51–56.

43. Herta Herzog, "On Borrowed Experience: An Analysis of Listening to Daytime Sketches," *Studies in Philosophy and Social Science* 9 (1941): 91. On the historical context of the soap opera, see Raymond W. Stedman, *The Serials: Suspense and Drama by Installment* (Norman: University of Oklahoma Press, 1971), pp. 225–81.

44. Archibald MacLeish, Foreword to *The Fall of the City* (New York: Farrar and Rinehart, 1937), p. x. Several good collections of the radio drama representative of this period are: Norman Corwin, *Thirteen by Corwin* (New York: Henry Holt, 1942); Douglas Coulter, ed., *Columbia Workshop Plays: Fourteen Radio Dramas* (New York: McGraw-Hill Book Co., 1939); Arch Oboler, *Fourteen Radio Plays* (New York: Random House, 1940), including Oboler's perceptive essay "The Art of Radio Writing," pp. xv–xxix. On the short-lived flowering of radio drama, see also Barnouw, *History of Broadcasting*, 2:65–76, 88–90.

45. In Llewellyn White, *The American Radio: A Report on the Broadcasting Industry in the U.S. from the Commission on Freedom of the Press* (Chicago: University of Chicago Press, 1947), p. 47.

46. This account based on: Karl Bickel, *New Empires: The Newspaper and the Radio* (Philadelphia: J. B. Lippincott Co., 1930); Clippings Scrapbooks, 1926–35, in the Martin Codel Collection, Mass Communication Research Center, State Historical Society of Wisconsin, Madison, Wis.; Alfred M. Lee, *The Daily Newspaper in America* (New York: Macmillan Co., 1947), pp. 559–64; George E. Lott, Jr., "The Press Radio War of the 1930's," *Journal of Broadcasting* 14 (Summer 1970): 275–86; an unpublished paper by Daniel Czitrom, "Press-Radio Conflict in America, 1920–1940: The Rise of Audible Journalism."

47. These examples in Dowling Leatherwood, *Journalism On The Air* (Minneapolis: Burgess Publishing Co., 1939), pp. 52–53.

48. H. V. Kaltenborn, *I Broadcast the Crisis* (New York: Random House, 1938); and Kaltenborn, "Reminiscences," Radio Unit of the Oral History Project, 1950, Columbia University, New York, NY; Robert R. Smith, "The Origin of Radio Network News Commentary," *Journal of Broadcasting* 9 (Spring 1965): 113–22.

CHAPTER 4

1. Charles H. Cooley, Journal, vol. 15, 1902, Charles Horton Cooley Papers, Michigan Historical Collections, Bentley Historical Library, Ann Arbor, Michigan (hereafter cited as CHC Papers).

2. Cooley, Journal, vol. 10, 21 July 1895; vol. 22, 15 June 1923; vol. 12, 2 May 1897, CHC Papers.

3. Cooley, Journal, vol. 6, 24 May 1890 and 9 July 1890, CHC Papers. See also the standard biography, Edward C. Jandy, *Charles Horton Cooley: His Life and His Social Thought* (New York: Dryden Press, 1942), especially pp. 1–80.

4. Charles H. Cooley, "Reflections Upon the Sociology of Herbert Spencer," *American Journal of Sociology* 26 (September 1920): 129; Herbert Spencer, *The Principles of Sociology* (1876), in J. D. Y. Peel, ed., *Herbert Spencer on Social Evolution: Selected Writings* (Chicago: University of Chicago Press, 1972), pp. 136, 124; Cooley, "Reflec-

tions," p. 138. For a more comprehensive treatment of Cooley's critique of Spencer, see Marshall J. Cohen, "Self and Society: Charles Horton Cooley and the Idea of Social Self in American Thought" (Ph.D. dissertation, Harvard University, 1967), especially pp. 17–95.

5. Concerning Dewey's influence on Cooley, see Cooley, Journal, vol. 11, 28 February 1897, CHC Papers; Charles H. Cooley, "The Development of Sociology at Michigan" (1928), in Robert C. Angell, ed., *Charles H. Cooley, Sociological Theory and Social Research* (New York: Henry Holt and Co., 1930), pp. 5–6. The CHC Papers contain Cooley's set of notes for Dewey's course in "Anthropological Ethics" (1894). John Dewey, *Outlines of a Critical Theory of Ethics* (1891), in John Dewey, *The Early Works, 1882–1898*, 5 vols. (Carbondale: Southern Illinois University Press, 1971), 3:239–388 (hereafter cited as *Early Works*). See also George Dykhuizen, "John Dewey and the University of Michigan," *Journal of the History of Ideas* 23 (October–December 1962): 513–44.

6. Charles H. Cooley, "The Theory of Transportation" (1894), in Angell, *Sociological Theory and Social Research*, pp. 40–41; Cooley, "Development of Sociology, " p. 7. Cooley goes on to describe his teaching on communication and transportation, noting that "communication was thus my first real conquest and the thesis a forecast of the organic view of society I have been working out ever since."

7. Charles H. Cooley, "The Process of Social Change," *Political Science Quarterly* 12 (March 1897): 73–74, 77, 81.

8. Cooley, Journal, vol. 11, 18 July 1896, CHC Papers. Charles H. Cooley, *Social Process* (New York: Charles Scribner's Sons, 1918), p. 28.

9. The works he refers to are William James, *The Principles of Psychology*, 2 vols. (New York: Henry Holt and Co., 1890), especially vol. 1, chap 10, "The Consciousness of Self"; and James Mark Baldwin, *Social and Ethical Interpretations in Mental Development* (New York: Macmillan Co., 1897). See Charles H. Cooley, *Human Nature and the Social Order*, rev. ed. (New York: Charles Scribner's Sons, 1922), p. 125, for Cooley's acknowledgment.

10. Cooley, *Human Nature*, pp. 119–21, 183–84. Compare these remarks with those of James: "A man's social self is the recognition which he gets from his mates. . . . Properly speaking, a man has as many social selves as there are individuals who recognize him and carry an image of him in their mind" (James, *Principles of Psychology*, 1:293–94).

11. Charles H. Cooley, *Social Organization: A Study of the Larger Mind* (New York: Charles Scribner's Sons, 1909), p. 23; see especially pp. 32–50.

12. Cooley, *Social Organization*, pp. 61, 80–81. See also Cooley, *Human Nature*, pp. 75, 145–47. For another treatment of Cooley on modern communication, see Jean B. Quandt, *From the Small Town to the Great Community: The Social Thought of Progressive Intellectuals* (New Brunswick: Rutgers University Press, 1970), chap. 4, "Charles Horton Cooley and the Communications Revolution."

13. Cooley, *Social Organization*, pp. 54, 97.

14. Cooley, Journal, vol. 12, 7 May, 16 July, 24 July, and 31 July 1898; vol. 11, 28 February 1897; vol. 13, 2 August 1898; vol. 14, 13 September 1901, CHC Papers.

15. Cooley, *Human Nature*, p. 145. See also Cooley, *Social Organization*, pp. 98–103, and "Notes on Communication," Box 3, CHC Papers.

16. Quotations are from Charles H. Cooley, *Life and the Student* (New York: Alfred A. Knopf, 1927), p. 134; Cooley, *Social Organization*, pp. 170–71.

17. Cooley, *Social Process*, pp. 415, 412; Charles H. Cooley, "A Primary Culture for Democracy," *American Sociological Society Publications* 13 (1918): 4, 7; Cooley, Journal, vol. 23, 24 October 1926, CHC Papers.

18. Cooley, *Social Process*, pp. 406–7; Ralph Waldo Emerson, "The American Scholar," in Stephen E. Whicher, ed., *Selections from Ralph Waldo Emerson*, Riverside Edition (Boston: Houghton Mifflin Co., 1960), p. 70. For a good critique of Cooley's theory of society, written just after his death, see George H. Mead, "Cooley's Con-