Source 1: Robbins Report (1963), p. 204-207: Can we afford this expansion of higher education?
[*The Robbins Report was chaired by economist Lord Lionel Robbins. Its main recommendation was a huge expansion of places in higher education funded by an equally large expansion in public funding*.]

"To devote resources to the training of young people may be, *au fond* [in essence], as much entitled to be considered a process of investment as devoting resources to directly productive capital goods. Judged solely by the test of future productivity, a community that neglects education is as imprudent as a community that neglects material accumulation. The classical economists, great supporters of education, had precisely this consideration in mind when they invented the phrase 'human capital'. And, provided we always remember that the goal is not productivity as such but the good life that productivity makes possible, this mode of approach is very helpful.

Unfortunately […] the increase in productivity arising from an increase in educational expenditure does not lend itself to easy measurement. It is comparatively easy to apply commercial measurements to private investments of this kind. [...] There can be little doubt that, before the war, the return on such investment tended to be thoroughly worthwhile for the people able to afford it.

When, however, one is considering the return on a substantial increase of investment of this kind, and particularly when considering it from the national point of view rather than from the point of view of the individual, […] The return on education, even if it be considered solely in terms of productivity, is not something that can be estimated completely in terms of the return to individuals and of differential earnings. There is a further return in the shape of general adaptability and increased capacity for technological advance which, in the last analysis, is probably more important than what is measured within the system of relative prices. Education, in short, furnishes perhaps the most conspicuous example of the importance in social analysis of the difference between what economists call the 'private' and the 'social' net product of investment. […] to confine the conception of the return on educational investment to that which can be measured by earnings differentials is bound to be incomplete and runs the danger of being seriously misleading. […] With education, the 'external' ['social'] return may well be of overriding importance. If investment in higher education were seriously contracted, there would be a danger of a loss to the economy far greater than the measurable loss of the sum of the individual investments concerned.

[…] Quite apart from the fact that education at the earlier stages depends essentially on the supply of teachers, which depends on the existence of higher education, it is probably just at the higher level that the external effects most relevant to growth are of the greatest consequence. […] The capacity for systematic invention, the capacity readily to perceive and apply the results of scientific progress, and the capacity for leadership both in the fields of organisation and in the transmission and the sifting of ideas […] It is not possible to demonstrate this exactly by recourse to detailed statistics of productivity and national income, since far too many things are going on at the same time over short periods […] But, on a broad view of history, which is surely more to the point in this connexion, the evidence is very strong. The communities that have paid most attention to higher studies have in general been the most obviously progressive in respect of income and wealth. […] a solution of the problem of allocating resources should not be sought on the basis of narrow notions of the nature of the economic return and of measurements which, if they are comparatively easy to make, omit elements of fundamental value.

The general purport of our argument, however, should be clear enough. The immeasurable element in the return on suitable investment in higher education is positive. Therefore, even if it could be shown that the return on the volume contemplated in our recommendations, as measured by earnings differentials, was likely to fall below the general return on commercial investment - which we are inclined to doubt - there would still be this important element [of externalities] to be added in."

Source 2: Kerr-Muir, UIJC, 'CBI/Vice Chancellors' Committee', (13 March 1967), pp. 2-5.
[*Kerr-Muir was an industrialist from Coventry, director of the textiles company Courtaulds Ltd, a member of the Confederation of British Industry and a member of its joint council with the Committee of Vice-Chancellors and Principals. He was the first honorary treasurer of the University of Warwick.*]

"Industry defined its requirements somewhat broadly - it wanted good all-round men of well-developed critical ability who would be fully equipped to take part in the decision-making which management implies. The men must be of good character, disciplined and with such presence that they can exert personal influence over their subordinates. The real objective of industry is to get more of the better people. It particularly wants trained intelligence so that the individual has learned how to go on educating himself and is capable, therefore, of being moved rapidly into broader areas. […] broad general knowledge is needed, but this must not be achieved at the expense of development of intellectual ability. That many courses were now offering a general first year course with specialization in the later years was most encouraging, as was the trend to couple, to name many examples, general science with economics or pure science with history, or applied science with social sciences.

The real need was for undergraduates to appreciate very early on that their university training is a preparation for a possible career in industry. […] this appreciation should come at school [too] [...] If schoolmasters, whilst at university, had been introduce to this same concept of industry as a career, that in itself would go far towards influencing school-leavers [...]

Undergraduates should be provided from the outset with a general concept of industry, business and commerce, which might be broken down into -

1. The social purposes of Business and Commerce
2. The structure of industry
3. The financing of Industry
4. The need for Management, trained in all disciplines
5. The skills required in Management

And to be under the main heading of "The Role of the Graduate in Society". These topics cannot be dealt with in great depth during student years. The object must be to reveal to the student the dependence of society on manufacture, and the conduct of business as an ethical and essential human activity. The background might be spread over the first two years of the undergraduate course.

In his final year the student should learn something of this own potential usefulness in an industrial community. He should be shown how his particular disciplines bears upon business activities and the breadth of opportunities should be made clear, with industry broken down into its essential functions:

- Innovation: The need for new ideas and change
- Manufacture
- Selling and Marketing
- The making of business policies

By the time he graduates the student should be able to assess industry as a challenge to the whole man as much as to the chemist, physicist, economist, etc.

The course envisages in the above might be based on not more than two hours tuition per week [...]

Universities might, in the normal curricula, teach something of the techniques involved in making use of knowledge. For example the application of thermodynamic principles to specific industrial processes: the practical uses to which advanced mathematics can be put. The student might also be introduced to the idea that working in a multi-discipline team produces results faster than working alone, with respect both to the value of this work done and the furthering of his personal career."

Source 3: Tom L. Cottrell, 'The Education of Chemists,' Inaugural Lecture, No. 2, University of Edinburgh, (20 November 1959)

[*Tom Cottrell was the first Vice-Chancellor of the University of Stirling (from 1965; Stirling opened in 1967). Before this Cottrell had been a research chemist at Imperial Chemical Industries until 1958 when he was appointed Professor of Inorganic and Physical Chemistry at Edinburgh.*]

"My main personal impression is that the most striking characteristic of the chemist in industry is his lack of professional competence. People often complain about the lack of liberal interest of scientists, their difficulty in dealing with people, and some industrialists have said they lack leadership. I do not know whether these complaints are true, nor do I see what the universities could or should do about it. The act that it has been for some time fashionable to send the young of the English governing class to Oxford and Cambridge has given some industrialists the idea that all universities ought to be training groups for leadership, and they have criticised other universities because they are not. In fact, universities are places for the education of scholars and professional men, and the connection of Oxford and Cambridge with leadership is an accident of fashion. My complaint is a much more serious one: it is that a high proportion of honours university graduates in chemistry are not very good chemists and that their deficiency could be at least party reminded by improving their education.

Let me be more specific about the respects in which I believe the chemist is less competent that he might be. The first is that when faced with a problem of a type he has not met before, he resorts to the purest empiricism, untinged by chemical theory. […]

The next and perhaps even more important defect of which I must admit of having been guilty myself, is an insufficiently critical and enquiring attitude to the research problem. [...] Here certain ability to ask the right simple question is vastly more important than the ability to carry out the determination correct to say ±1 per cent.

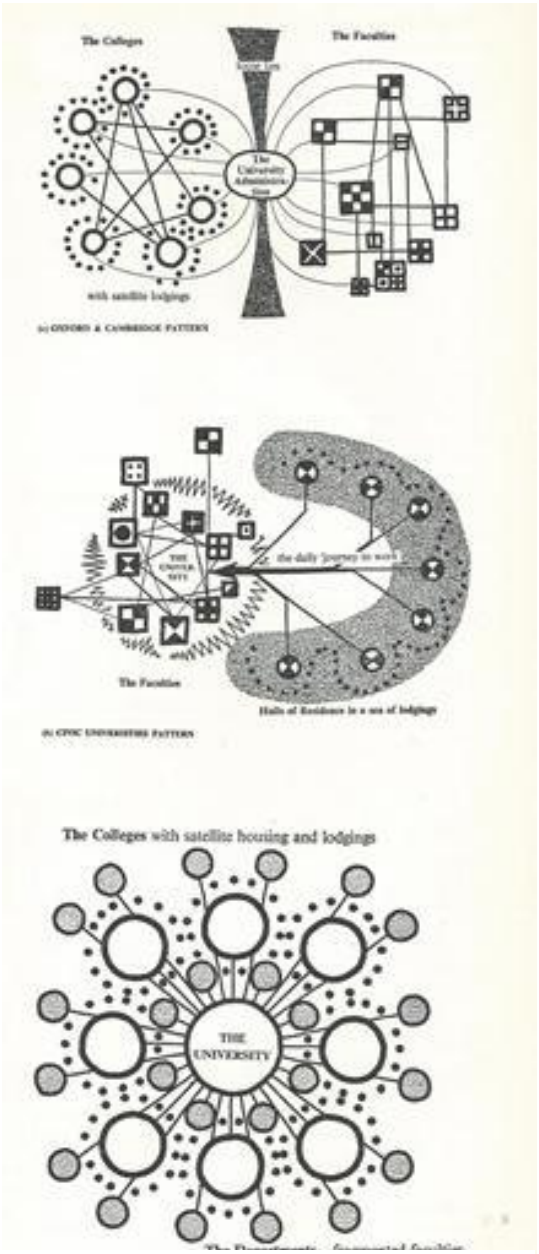
Related to this there is an even more depressing failing: a tendency to do experimental work rather than look up the literature. […]

The third defect is so frequently discussed that it is almost a platitude to mention it: most chemists can't write. [...]

The three common defects: the lack of power to apply theory, the lack of a critical approach to the problem in hand and the inability to communicate clearly, are all aspects of the same thing: the lack of an academic approach. The academic approach to knowledge is critical and theoretical, and essentially concerned with its communication, and these are qualities in which I suggest chemists are deficient. This deficiency has adverse practical consequences. If I am right, we arrive at the apparently paradoxical conclusion that the greatest practical defect of the professional chemist is a lack of academic intellectual qualities."

Source 4: University of York Development Plan 1962-1972, (York University Promotion Committee, 1962)

[*The University of York opened in 1963. The promoters of the university decided to organise their university around 'colleges' to encourage the mixing of different disciplines and people.*]



Since the resolution isn't great (sorry, I wanted to get higher quality copies but this hasn't been possible!) from top to bottom, left to right, text reads:

The Colleges; The Faculties; ?; The Universtiy Adminstration; with satgellite lodgings; (a) Oxford & Cambridge Pattern

The University; the daily journey to work; The Faculties; Halls of Residence [?] of lodgings; (b) Civic Universities Pattern

The collges with satellite housing and lodgings; The University; The Departments – fragmented faculties; (c) York Pattern

"It is hoped that while avoiding the dispersion and lack of co-ordinated teaching of the completely general degree, the courses in most schools will provide for a due spread of integrated subsidiary subjects grouped round a major subject, thus avoiding both the narrowing effect of extreme specialisation and the lack of purpose of extreme generality. […]

It is proposed that the University should aim at the outset to provide a substantial degree of residential accommodation for undergraduates, postgraduates and staff divided up in a regular way among groups of accommodation called *colleges* which will also contain space for leisure activities, student and staff groups of various kinds, and communal meals. […] Particular importance is attached to the intimate association of staff and students in this context. […]

Every college will also contain its own share of generalised teaching accommodation designed for maximum flexibility and suitable for use by a large number of difference disciplines […] This will include rooms for tutorials, seminars and lectures, and a working and recreational library. Care will be taken to avoid the association of a particular college with a particular subject. This might produce an excessive concentration of specialists within a social group, and would in turn work against the mixing of different interests and sills which is one of the chief purposes of university education. […]

The overlapping of main and subsidiary subjects between different specialisations which is planned at York will be a corrective […] The colleges may be seen therefore not as groupings intended to encourage isolation and a parochial attitude, but as an extension of the opportunities for meeting new people and making contact with fresh ideas and experiences which are a *raison d'être* of the University itself […]

it should ideally be impossible to go from one unit of accommodation to a similar one without coming into contact with at least one of completely different academic or social character on the way."

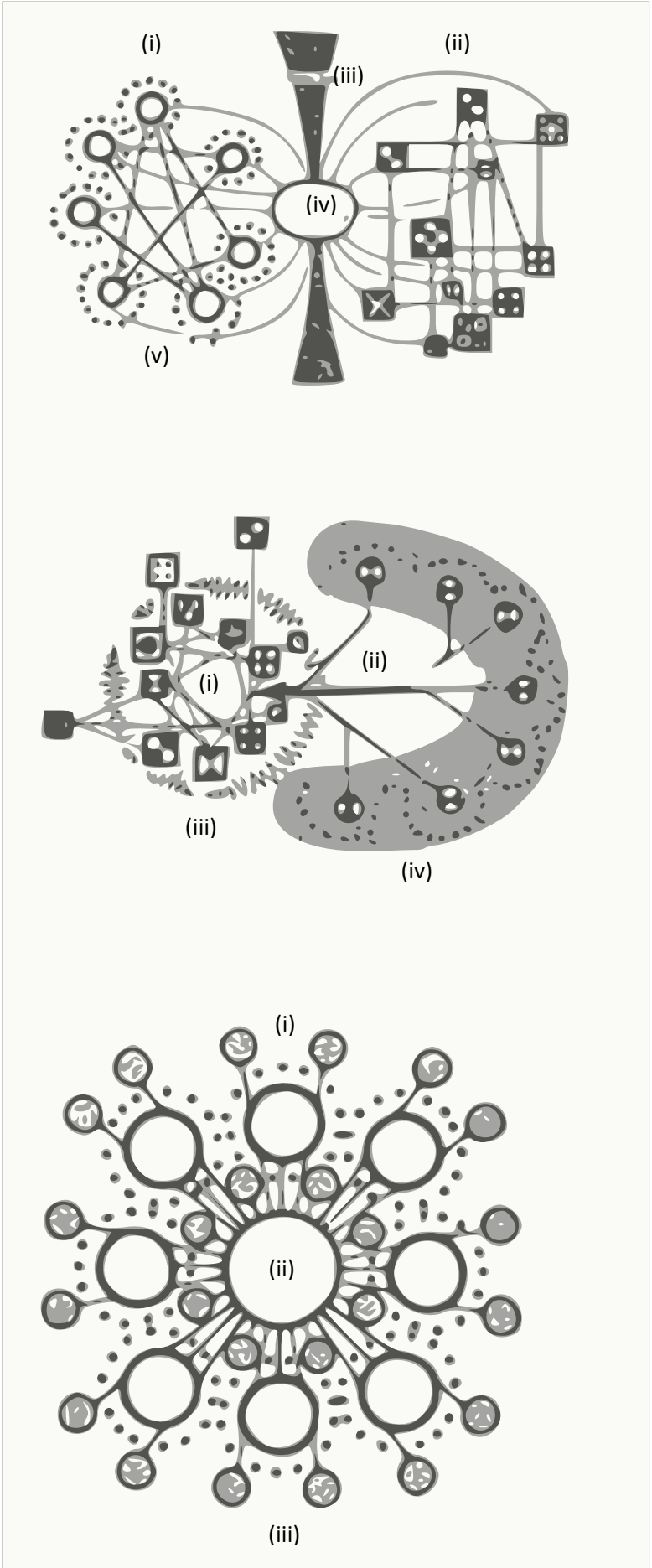


Figure 2.2 University social and academic patterns comapred.

(a) Oxford & Cambridge Pattern

(i) The Colleges;
(ii) The Faculties;
(iii) ?;
(iv) The Universtiy Adminstration;
(v) with satgellite lodgings;

(b) Civic Universities Pattern

(i) the University;
(ii) the daily journey to work;
(iii) The Faculties;
(iv) Halls of Residence [?] of lodgings;

(c) York Pattern

(i) The collges with satellite housing and lodgings;
(ii) The University;
(iii) The Departments – fragmented faculties;