

A Book Title

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2020

Do what you think is interesting, do something that you think is fun and worthwhile, because otherwise you won't do it well anyway.

—Brian W. Kernighan

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1. That sex ratio will be favored which maximizes the number of descendants an individual will have and hence the number of gene copies transmitted.
2. (This is)A desire to throw over reality a light that never was might give away abruptly to the desire on the part of what we might consider a novelist-scientist to record exactly and concretely the structure and texture of a flower.
3. Hardy's weakness derived from his apparent inability to control the comings and goings of these divergent impulses and from his unwillingness to cultivate and sustain the energetic and risky ones.
4. Virginia Woolf's provocative statement about her intentions in writing *Mrs. Dalloway* has regularly been ignored by the critics, since it highlights an aspect of her literary interests very different from the traditional picture of the 'poetic' novelist concerned with examining states of reverie and vision and with following the intricate pathways of individual consciousness.
5. As she put it in *The Common Reader*, 'It is safe to say that not a single law has been framed or one stone set upon another because of anything Chaucer said or wrote; and yet, as we read him, we are absorbing morality at every pore.'
6. With the conclusion of a burst activity, the lactic acid level is high in the body fluids, leaving the large animal vulnerable to attack until the acid is reconverted, via oxidative metabolism, by the liver into glucose, which is then sent (in part)back to the muscles for glycogen resynthesis.
7. Although Gutman admits that forced separation by sale was frequent, he shows that the slaves' preference, revealed most clearly on plantations where sale was infrequent, was very much for stable monogamy.
8. Gutman argues convincingly that the stability of the Black family encouraged the transmission of-and so was crucial in sustaining-the Black

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heritage of folklore, music, and religious expression from one generation to another, a heritage that slaves were continually fashioning out of their African and American experiences.

9. This preference for exogamy, Gutman suggests, may have derived from West African rules governing marriage, which, though they differed from one tribal group to another, all involved some kind of prohibition against unions with close kin.
10. His thesis works relatively well when applied to discrimination against Blacks in the United States, but his definition of racial prejudice as 'racially-based negative prejudgments against a group generally accepted as a race in any given region of ethnic competition,' can be interpreted as also including hostility toward such ethnic groups as the Chinese in California and the Jews in medieval Europe.
11. Such variations in size, shape, chemistry, conduction speed, excitation threshold, and the like as had been demonstrated in nerve cells remained negligible in significance for any possible correlation with the manifold dimensions of mental experience.
12. It was possible to demonstrate by other methods refined structural differences among neuron types; however, proof was lacking that the quality of the impulse or its condition was influenced by these differences, which seemed instead to influence the developmental patterning of the neural circuits.
13. Although qualitative variance among nerve energies was never rigidly disproved, the doctrine was generally abandoned in favor of the opposing view, namely, that nerve impulses are essentially homogeneous in quality and are transmitted as 'common currency' throughout the nervous system.
14. Other experiments revealed slight variations in the size, number, arrangement, and interconnection of the nerve cells, but as far as psycho neural correlations were concerned, the obvious similarities of these sensory fields to each other seemed much more remarkable than any of the minute differences.
15. Although some experiments show that, as an object becomes familiar, its internal representation becomes more holistic and the recognition process correspondingly more parallel, the weight of evidence seems to support

the serial hypothesis, at least for objects that are not notably simple and familiar.

16. In large part as a consequence of the feminist movement, historians have focused a great deal of attention in recent years on determining more accurately the status of women in various periods.
17. If one begins by examining why ancients refer to Amazons , it becomes clear that ancient Greek descriptions of such societies were meant not so much to represent observed historical fact -real Amazonian societies - but rather to offer 'moral lessons' on the supposed outcome of women's rule in their own society .
18. Thus, for instance, it may come as a shock to mathematicians to learn that the Schrodinger equation for the hydrogen atom is not a literally correct description of this atom, but only an approximation to a somewhat more correct equation taking account of spin, magnetic dipole, and relativistic effects; and that this corrected equation is itself only an imperfect approximation to an infinite set of quantum field-theoretical equations.
19. The physicist rightly dreads precise argument, since an argument that is convincing only if it is precise loses all its force if the assumptions on which it is based are slightly changed, whereas an argument that is convincing though imprecise may well be stable under small perturbations of its underlying assumptions.
20. However, as they gained cohesion, the Bluestockings came to regard themselves as a women's group and to possess a sense of female solidarity lacking in the salonnières, who remained isolated from one another by the primacy each held in her own salon.
21. As my own studies have advanced, I have been increasingly impressed with the functional similarities between insect and vertebrate societies and less so with the structural differences that seem, at first glance, to constitute such an immense gulf between them.
22. Although fiction assuredly springs from political circumstances, its authors react to those circumstances in ways other than ideological, and talking about novels and stories primarily as instruments of ideology circumvents much of the fictional enterprise.
23. Is this a defect, or are the authors working out of, or trying to forge, a different kind of aesthetic?

24. In addition, the style of some Black novels, like Jean Toomer's *Cane*, verges on expressionism or surrealism ; does this technique provide a counterpoint to the prevalent theme that portrays the fate against which Black heroes are pitted , a theme usually conveyed by more naturalistic modes of expression ?
25. Black Fiction surveys a wide variety of novels, bringing to our attention in the process some fascinating and little-known works like James Weldon Johnson's *Autobiography of an Ex-Colored Man*.
26. Although these molecules allow radiation at visible wavelengths, where most of the energy of sunlight is concentrated, to pass through, they absorb some of the longer-wavelength, infrared emissions radiated from the Earth's surface, radiation that would otherwise be transmitted back into space.
27. The role those anthropologists ascribe to evolution is not of dictating the details of human behavior but one of imposing constraints - ways of feeling, thinking, and acting that 'come naturally' in archetypal situations in any culture.
28. Which of the following most probably provides an appropriate analogy from human morphology for the 'details' versus 'constraints' distinction made in the passage in relation to human behavior?
29. A low number of algal cells in the presence of a high number of grazers suggested, but did not prove, that the grazers had removed most of the algae.
30. Perhaps the fact many of these first studies considered only algae of a size that could be collected in a net (net phytoplankton), a practice that overlooked the smaller phytoplankton (nannoplankton) that we now know grazers are most likely to feed on , led to a de-emphasis of the role of grazers in subsequent research.
31. Studies by Hargrave and Geen estimated natural community grazing rates by measuring feeding rates of individual zooplankton species in the laboratory and then computing community grazing rates for field conditions using the known population density of grazers.
32. In the periods of peak zooplankton abundance, that is, in the late spring and in the summer, Haney recorded maximum daily community grazing

rates, for nutrient-poor lakes and bog lakes, respectively, of 6.6 percent and 114 percent of daily phytoplankton production.

33. The hydrologic cycle, a major topic in this science, is the complete cycle of phenomena through which water passes, beginning as atmospheric water vapor, passing into liquid and solid form as precipitation, thence along and into the ground surface, and finally again returning to the form of atmospheric water vapor by means of evaporation and transpiration.
34. Only when a system possesses natural or artificial boundaries that associate the water within it the hydrologic cycle may the entire system properly be termed hydrogeologic.
35. The historian Frederick J. Turner wrote in the 1890's that the agrarian discontent that had been developing steadily in the United States since about 1870 had been precipitated by the closing of the internal frontier - - that is, the depletion of available new land needed for further expansion of the American farming system.
36. In the early 1950's, historians who studied preindustrial Europe (which we may define here as Europe in the period from roughly 1300 to 1800) began, for the first time in large numbers, to investigate more of the preindustrial European population than the 2 or 3 percent who comprised the political and social elite: the kings, generals, judges, nobles, bishops, and local magnates who had hitherto usually filled history books.
37. Historians such as Le Roy Ladurie have used the documents to extract case histories, which have illuminated the attitudes of different social groups (these attitudes include, but are not confined to, attitudes toward crime and the law) and have revealed how the authorities administered justice.
38. It can be inferred from the passage that a historian who wished to compare crime rates per thousand in a European city in one decade of the fifteenth century with crime rates in another decade of that century would probably be most aided by better information about which of the following?
39. My point is that its central consciousness - its profound understanding of class and gender as shaping influences on people's lives - owes much to that earlier literary heritage, a heritage that, in general, has not been sufficiently valued by most contemporary literary critics.

40. Even the requirement that biomaterials processed from these materials be nontoxic to host tissue can be met by techniques derived from studying the reactions of tissue cultures to biomaterials or from short-term implants.
41. But achieving necessary matches in physical properties across interfaces between living and nonliving matter requires knowledge of which molecules control the bonding of cells to each other - an area that we have not yet explored thoroughly.
42. Islamic law is a phenomenon so different from all other forms of law - notwithstanding, of course, a considerable and inevitable number of coincidences with one or the other of them as far as subject matter and positive enactments are concerned - that its study is indispensable in order to appreciate adequately the full range of possible legal phenomena.
43. (Both Jewish law and canon law are more uniform than Islamic law.) Though historically there is a discernible break between Jewish law of the sovereign state of ancient Israel and of the Diaspora (the dispersion of Jewish people after the conquest of Israel), the spirit of the legal matter in later parts of the Old Testament is very close to that of the Talmud, one of the primary codifications of Jewish law in the Diaspora.
44. Islam, on the other hand, represented a radical breakaway from the Arab paganism that preceded it; Islamic law is the result of an examination, from a religious angle, (examination) of legal subject matter that was far from uniform, comprising as it did the various components of the laws of pre-Islamic Arabia and numerous legal elements taken over from the non-Arab peoples of the conquered territories.
45. One such novel idea is that (idea) of inserting into the chromosomes of plants discrete genes that are not a part of the plants' natural constitution: specifically, the idea of inserting into nonleguminous plants the genes, if they can be identified and isolated, that fit the leguminous plants to be hosts for nitrogen-fixing bacteria. Hence, (there is) the intensified research on legumes.
46. It is one of nature's great ironies that the availability of nitrogen in the soil frequently sets an upper limit on plant growth even though the plants' leaves are bathed in a sea of nitrogen gas.
47. Unless they succeed, the yield gains of the Green Revolution will be largely lost even if the genes in legumes that equip those plants to enter into a

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symbiosis with nitrogen fixers are identified and isolated, and even if the transfer of those gene complexes, once they are found, becomes possible.

48. Its subject(to use Maynard Mack's categories)is 'life-as-spectacle,' for readers, diverted by its various incidents, observe its hero Odysseus primarily from without;the tragic Iliad, however, presents 'life-as-experience': readers are asked to identify with the mind of Achilles, whose motivations render him a not particularly likable hero.
49. Most striking among the many asymmetries evident in an adult flatfish is eye placement: before maturity one eye migrates, so that in an adult flatfish both eyes are on the same side of the head.
50. A critique of Handlin's interpretation of why legal slavery did not appear until the 1660's suggests that assumptions about the relation between slavery and racial prejudice should be reexamined , and that explanations for the different treatment of Black slaves in North and South America should be expanded.
51. The best evidence for the layered-mantle thesis is the well-established fact that volcanic rocks found on oceanic islands, islands believed to result from mantle plumes arising from the lower mantle, are composed of material fundamentally different from that of the mid-ocean ridge system, whose source, most geologists contend, is the upper mantle.
52. Some geologists, however, on the basis of observations concerning mantle xenoliths, argue that the mantle is not layered, but that heterogeneity is created by fluids rich in 'incompatible elements' (elements tending toward liquid rather than solid state) percolating upward and transforming portions of the upper mantle irregularly, according to the vagaries of the fluids' pathways.
53. Fallois proposed that Proust had tried to begin a novel in 1908, abandoned it for what was to be a long demonstration of Saint-Beuve's blindness to the real nature of great writing, found the essay giving rise to personal memories and fictional developments, and allowed these to take over it a steadily developing novel.
54. The very richness and complexity of the meaningful relationships that kept presenting and rearranging themselves on all levels, from abstract intelligence to profound dreamy feelings, made it difficult for Proust to set them out coherently.

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55. But those of who hoped, with Kolb, that Kolb's newly published complete edition of Proust's correspondence for 1909 would document the process in greater detail are disappointed.
56. Now we must also examine the culture as we Mexican Americans have experienced it, passing from a sovereign people to compatriots with newly arriving settlers to, finally, a conquered people - a charter minority on our own land.
57. It is possible to make specific complementary DNA's (cDNA's) that can serve as molecular probes to seek out the messenger RNA's (mRNA's) of the peptide hormones. If brain cells are making the hormones, the cells will contain these mRNA's. If the products the brain cells make resemble the hormones but are not identical to them, then the cDNA's should still bind to these mRNA's, but should not bind as tightly as they would to mRNA's for the true hormones.
58. The molecular approach to detecting peptide hormones using cDNA probes should also be much faster than the immunological method because it can take years of tedious purifications to isolate peptide hormones and then develop antisera to them.
59. Nevertheless, researchers of the Pleistocene epoch have developed all sorts of more or less fanciful model schemes of how they would have arranged the Ice Age had they been in charge of events.
60. This succession was based primarily on a series of deposits and events not directly related to glacial and interglacial periods, rather than on the more usual modern method of studying biological remains found in interglacial beds themselves interstratified within glacial deposits.
61. There have been attempts to explain these taboos in terms of inappropriate social relationships either between those who are involved and those who are not simultaneously involved in the satisfaction of a bodily need, or between those already satiated and those who appear to be shamelessly gorging.
62. Many critics of Family Bronte's novel *Wuthering Heights* see its second part as a counterpoint that comments on, if it does not reverse, the first part, where a 'romantic' reading receives more confirmation.
63. Granted that the presence of these elements need not argue an authorial awareness of novelistic construction comparable to that of Henry James,

their presence does(15) encourage attempts to unify the novel's heterogeneous parts.

64. This is not because such an interpretation necessarily stiffens into a thesis(although rigidity in any interpretation of this or of any novel is always a danger), but because *Wuthering Heights* has recalcitrant elements of undeniable power that, ultimately, resist inclusion in an all-encompassing interpretation.
65. The isotopic composition of lead often varies from one source of common copper ore to another, with variations exceeding the measurement error; and preliminary studies indicate virtually uniform isotopic composition of the lead from a single copper-ore source.
66. More probable is bird transport, either externally, by accidental attachment of the seeds to feathers, or internally, by the swallowing of fruit and subsequent excretion of the seeds.
67. A long-held view of the history of English colonies that became the United States has been that England's policy toward these colonies before 1763 was dictated by commercial interests and that a change to a more imperial policy, dominated by expansionist militarist objectives, generated the tensions that ultimately led to the American Revolution.
68. It is not known how rare this resemblance is, or whether it is most often seen in inclusions of silicates such as garnet, whose crystallography is generally somewhat similar to that of diamond; but when present, the resemblance is regarded as compelling evidence that the diamonds and inclusions are truly cogenetic.
69. Even the 'radical' critiques of this mainstream research model, such as the critique developed in *Divided Society*, attach the issue of ethnic assimilation too mechanically to factors of economic and social mobility and are thus unable to illuminate the cultural subordination of Puerto Ricans as a colonial minority.
70. They are called virtual particles in order to distinguish them from real particles, whose lifetimes are not constrained in the same way, and which can be detected.
71. Open acknowledgement of the existence of women's oppression was too radical for the United States in the fifties, and Beauvoir's conclusion, that

change in women's economic condition , though insufficient by itself , 'remains the basic factor' in improving women's situation , was particularly unacceptable .

72. Other theorists propose that the Moon was ripped out of the Earth's rocky mantle by the Earth's collision with another large celestial body after much of the Earth's iron fell to its core.
73. However , recent scholarship has strongly suggested that those aspects of early New England culture that seem to have been most distinctly Puritan, such as the strong religious orientation and the communal impulse, were not even typical of New England as a whole, but were largely confined to the two colonies of Massachusetts and Connecticut.
74. Thus, what in contrast to the Puritan colonies appears to Davis to be peculiarly Southern - acquisitiveness, a strong interest in politics and the law, and a tendency to cultivate metropolitan cultural models - was not only more typically English than the cultural patterns exhibited by Puritan Massachusetts and Connecticut, but also almost certainly characteristic of most other early modern British colonies from Barbados north to Rhode Island and New Hampshire.
75. Portrayals of the folk of Mecklenburg County, North Carolina, whom he remembers from early childhood, of the jazz musicians and tenement roofs of his Harlem days, of Pittsburgh steelworkers, and his reconstruction of classical Greek myths in the guise of the ancient Black kingdom of Benin, attest to this.
76. A very specialized feeding adaptation in zooplankton is that of the tadpolelike appendicularian who lives in a walnut-sized (or smaller) balloon of mucus equipped with filters that capture and concentrate phytoplankton.
77. These historians, however, have analyzed less fully the development of specifically feminist ideas and activities during the same period.
78. Apparently most massive stars manage to lose sufficient material that their masses drop below the critical value of 1.4 M before they exhaust their nuclear fuel.
79. This is so even though armed forces operate in an ethos of institutional change oriented toward occupational equality and under the federal sanction of equal pay for equal work.

80. An impact (on the Mars) capable of ejecting a fragment of the Martian surface into an Earth-intersecting orbit is even less probable than such an event on the Moon, in view of the Moon's smaller size and closer proximity to Earth.
81. Not only are liver transplants never rejected, but they even induce a state of donor-specific unresponsiveness in which subsequent transplants of other organs, such as skin, from that donor are accepted permanently.
82. As rock interface are crossed, the elastic characteristics encountered (by seismic waves)generally change abruptly, which causes part of the energy to be reflected back to the surface, where it is recorded by seismic instruments.
83. While the new doctrine seems almost certainly correct, the one papyrus fragment raises the specter that another may be unearthed, showing, for instance, that it was a posthumous production of the Danaid tetralogy which bested Sophocles, and throwing the date once more into utter confusion.
84. The methods that a community devises to perpetuate itself come into being to preserve aspects of the cultural legacy that that community perceives as essential.
85. Traditionally, pollination by wind has been viewed as a reproductive process marked by random events in which the vagaries of the wind are compensated for by the generation of vast quantities of pollen, so that the ultimate production of new seeds is assured at the expense of producing much more pollen than is actually used.
86. Because the potential hazards pollen grains are subject to as they are transported over long distances are enormous, wind pollinated plants have, in the view above, compensated for the ensuing loss of pollen through happenstance by virtue of producing an amount of pollen that is one to three orders of magnitude greater than the amount produced by species pollinated by insects.
87. For example, the spiral arrangement of scale-bract complexes on ovule-bearing pine cones, where the female reproductive organs of conifers are located, is important to the production of airflow patterns that spiral over the cone's surfaces, thereby passing airborne pollen from one scale to the next.

88. Friedrich Engels, however, predicted that women would be liberated from the 'social, legal, and economic subordination' of the family by technological developments that made possible the recruitment of 'the whole female sex into public industry'.
89. It was not the change in office technology, but rather the separation of secretarial work, previously seen as an apprenticeship for beginning managers, from administrative work that in the 1880's created a new class of 'dead-end' jobs, thenceforth considered 'women's work.'
90. The increase in the numbers of married women employed outside the home in the twentieth century had less to do with the mechanization of housework and an increase in leisure time for these women than it did with their own economic necessity and with high marriage rates that shrank the available pool of single women workers, previously, in many cases, the only women employers would hire.
91. For one thing, no population can be driven entirely by density- independent factors all the time.
92. In order to understand the nature of the ecologist's investigation, we may think of the density-dependent effects on growth parameters as the 'signal' ecologists are trying to isolate and interpret, one that tends to make the population increase from relatively low values or decrease from relatively high ones, while the density-independent effects act to produce 'noise' in the population dynamics.
93. But the play's complex view of Black self-esteem and human solidarity as compatible is no more 'contradictory' than Du Bois' famous, well-considered ideal of ethnic self-awareness coexisting with human unity, or Fanon's emphasis on an ideal internationalism that also accommodates national identities and roles.
94. In which of the following does the author of the passage reinforce his criticism of responses such as Isaacs' to Raisin in the Sun?
95. Inheritors of some of the viewpoints of early twentieth-century Progressive historians such as Beard and Becker, these recent historians have put forward arguments that deserve evaluation.
96. Despite these vague categories, one should not claim unequivocally that hostility between recognizable classes cannot be legitimately observed.

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97. Yet those who stress the achievement of a general consensus among the colonists cannot fully understand that consensus without understanding the conflicts that had to be overcome or repressed in order to reach it.
98. It can be inferred from the passage that the author would be most likely to agree with which of the following statements regarding socioeconomic class and support for the rebel and Loyalist causes during the American Revolutionary War?
99. She wished to discard the traditional methods and established vocabularies of such dance forms as ballet and to explore the internal sources of human expressiveness.
100. Although it has been possible to infer from the goods and services actually produced what manufactures and servicing trades thought their customers wanted, only a study of relevant personal documents written by actual consumers will provide a precise picture of who wanted what.
101. With regard to this last question, we might note in passing that Thompson, while rightly restoring laboring people to the stage of eighteenth-century English history, has probably exaggerated the opposition of these people to the inroads of capitalist consumerism in general: for example, laboring people in eighteenth-century England readily shifted from home-brewed beer to standardized beer produced by huge, heavily capitalized urban breweries.
102. The correlation of carbon dioxide with temperature, of course, does not establish whether changes in atmospheric composition caused the warming and cooling trends or were caused by their.
103. Such philosophical concerns as the mind-body problem or, more generally, the nature of human knowledge they believe, are basic human questions whose tentative philosophical solutions have served as the necessary foundations on which all other intellectual speculation has rested.
104. The idea of an autonomous discipline called 'philosophy,' distinct from and sitting in judgment on such pursuits as theology and science turns out, on close examination, to be of quite recent origin.
105. They were fighting, albeit discreetly, to open the intellectual world to the new science and to liberate intellectual life from ecclesiastical philosophy and envisioned their work as contributing to the growth, not of philosophy, but of research in mathematics and physics.

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106. But the recent discovery of detailed similarities in the skeletal structure of the flippers in all three groups undermines the attempt to explain away superficial resemblance as due to convergent evolution - the independent development of similarities between unrelated groups in response to similar environmental pressures.
107. Human genes contain too little information even to specify which hemisphere of the brain each of a human's 10¹¹ neurons should occupy, let alone the hundreds of connections that each neuron makes.
108. For the woman who is a practitioner of feminist literary criticism, the subjectivity versus objectivity, or critic-as-artist-or-scientist, debate has special significance; for her, the question is not only academic, but political as well, and her definition will court special risks whichever side of the issue it favors.
109. If she defines feminist criticism as objective and scientific - a valid, verifiable, intellectual method that anyone, whether man or woman, can perform - the definition not only precludes the critic-as-artist approach, but may also impede accomplishment of the utilitarian political objectives of those who seek to change the academic establishment and its thinking, especially about sex roles.
110. These questions are political in the sense that the debate over them will inevitably be less an exploration of abstract matters in a spirit of disinterested inquiry than an academic power struggle in which the careers and professional fortunes of many women scholars-only now entering the academic profession in substantial numbers-will be at stake, and with them the chances for a distinctive contribution to humanistic understanding, a contribution that might be an important influence against sexism in our society.
111. Perhaps he believed that he could not criticize American foreign policy without endangering the support for civil rights that he had won from the federal government.
112. However, some broods possess a few snails of the opposing hand, and in predominantly sinistral broods, the incidence of dextrality is surprisingly high.
113. In experiments, an injection of cytoplasm from dextral eggs changes the pattern of sinistral eggs, but an injection from sinistral eggs does not influence dextral eggs.

114. Recently some scientists have concluded that meteorites found on Earth and long believed to have a Martian origin might actually have been blasted free of Mars's gravity by the impact on Mars of other meteorites.
115. Under the force of this view, it was perhaps inevitable that the art of rhetoric should pass from the status of being regarded as of questionable worth (because although it might be both a source of pleasure and a means to urge people to right action, it might also be a means to distort truth and a source of misguided action) to the status of being wholly condemned.
116. None of these translations to screen and stage, however, dramatize the anarchy at the conclusion of *A Connecticut Yankee*, which ends with the violent overthrow of Morgan's three-year-old progressive order and his return to the nineteenth century, where he apparently commits suicide after being labeled a lunatic for his incoherent babblings about drawbridges and battlements.
117. Calculations of the density of alloys based on Bernal-type models of the alloys metal component agreed fairly well with the experimentally determined values from measurements on alloys consisting of a noble metal together with a metalloid, such as alloys of palladium and silicon, or alloys consisting of iron, phosphorus, and carbon, although small discrepancies remained.
118. And Walzer advocates as the means of eliminating this tyranny and of restoring genuine equality 'the abolition of the power of money outside its sphere'.
119. It is now established that the Milky Way is far more extended and of much greater mass than was hitherto thought.
120. Is it not tyrannical, in Pascal's sense, to insist that those who excel in 'sensitivity' or 'the ability to express compassion' merit equal wealth with those who excel in qualities (such as 'the capacity for hard work') essential in producing wealth?
121. Yet Waizer's argument, however deficient, does point to one of the most serious weaknesses of capitalism—namely, that it brings to predominant positions in a society people who, no matter how legitimately they have earned their material rewards, often lack those other qualities that evoke affection or admiration.

122. The appreciation of traditional oral American Indian literature has been limited, hampered by poor translations and by the difficulty, even in the rare culturally sensitive and aesthetically satisfying translation, of completely conveying the original's verse structure, tone, and syntax.
123. Mores, which embodied each culture's ideal principles for governing every citizen, were developed in the belief that the foundation of a community lies in the cultivation of individual powers to be placed in service to the community.
124. Only in the case of the February Revolution do we lack a useful description of participants that might characterize it in the light of what social history has taught us about the process of revolutionary mobilization.
125. As a consequence, it may prove difficult or impossible to establish for a successful revolution a comprehensive and trustworthy picture of those who participated, or to answer even the most basic questions one might pose concerning the social origins of the insurgents.
126. Anthropologists and others are on much firmer ground when they attempt to describe the cultural norms for a small homogeneous tribe or village than when they undertake the formidable task of discovering the norms that exist in a complex modern nation state composed of many disparate groups.
127. The Italian influence is likely, whatever Valdez immediate source: the Mexican carpas themselves are said to have originated from the theater pieces of a sixteenth-century Spanish writer inspired by encounters with Italian commedia dell'arte troupes on tour in Spain.
128. It has thus generally been by way of the emphasis on oral literary creativity that these Chicano writers, whose English language works are sometimes uninspired, developed the powerful and arresting language that characterized their Spanish-language works.
129. To measure them properly, monitoring equipment would have to be laid out on a grid at intervals of at most 50 kilometers, with sensors at each grid point lowered deep in the ocean and kept there for many months.
130. This declaration, which was echoed in the text of the Fourteenth Amendment, was designed primarily to counter the Supreme Court's ruling in *Dred Scott v. Sandford* that Black people in the United States could be denied citizenship.

131. The broad language of the amendment strongly suggests that its framers were proposing to write into the Constitution not a laundry list of specific civil rights but a principle of equal citizenship that forbids organized society from treating any individual as a member of an inferior class.
132. This doctrine has broadened the application of the Fourteenth Amendment to other, nonracial forms of discrimination, for while some justices have refused to find, any legislative classification other than race to be constitutionally disfavored, most have been receptive to arguments that at least some nonracial discriminations. sexual Discrimination in particular, are 'suspect' and deserve this heightened scrutiny by the courts.
133. Civil rights activists have long argued that one of the principal reasons why Blacks, Hispanics, and other minority groups have difficulty establishing themselves in business is that they lack access to the sizable orders and subcontracts that are generated by large companies.
134. Fascination with this idea has made Americans defy the 'Old World' categories of settled possessiveness versus unsettling deprivation, the cupidity of retention versus the cupidity of seizure, a 'status quo' defended or attacked.
135. The nonstarters were considered the ones who wanted stability, a strong referee to give them some position in the race, a regulative hand to calm manic speculation; an authority that can call things to a halt, begin things again from compensatorily staggered 'starting lines'.
136. 'Reform' in America has been sterile because it can imagine no change except through the extension of this metaphor of a race, wider inclusion of competitors, 'a piece of the action,' as it were, for the disenfranchised.
137. We have no pride in our growing interdependence, in the fact that our system can serve others, that we are able to help those in need; empty boasts from the past make us ashamed of our present achievements, make us try to forget or deny them, move away from them.
138. The traditional view supposes that the upper mantle of the earth behaves as a liquid when it is subjected to small forces for long periods and that differences in temperature under oceans and continents are sufficient to produce convection in the mantle of the earth with rising convection currents under the mid-ocean ridges and sinking currents under the continents.

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139. This view may be correct; it has the advantage that the currents are driven by temperature differences that themselves depend on the position of the continents.
140. The enclosed seas are an important feature of the earth's surface and seriously require explanation because, in addition to the enclosed seas that are developing at present behind island arcs, there are a number of older ones of possibly similar origin, such as the Gulf of Mexico, the Black Sea, and perhaps the North Sea.
141. Furthermore, neutrinos carry with them information about the site and circumstances of their production; therefore, the detection of cosmic neutrinos could provide new information about a wide variety of cosmic phenomena and about the history of the universe.
142. Consequently, nothing seems good or normal that does not accord with the requirements of the free market.
143. Accordingly, it requires a major act of will to think of price-fixing (The determination of prices by the seller) as both 'normal' and having a valuable economic function.
144. In fact, price-fixing is normal in all industrialized societies because the industrial system itself provides, as an effortless consequence of its own development, the price-fixing that it requires.
145. That each large firm will act with consideration of its own needs and thus avoid selling its products for more than its competitors charge' is commonly recognized by advocates of free-market economic theories.
146. Moreover, those economists who argue that allowing the free market to operate without interference is the most efficient method of establishing prices have not considered the economics of nonsocialist countries other than the United States.
147. Synder, Daly, and Bruns have recently proposed that caffeine affects behavior by countering the activity in the hum brain of a naturally occurring chemical called adenosine.

2 New Concept English

- The boy put on his goggles, fitted them tight, tested the vacuum. His hands were shaking. Then he chose the biggest stone he could carry and slipped over the edge of the rock until half of him was in the cool, enclosing water and half in the hot sun. He looked up once at the empty sky, filled his lungs once, twice, and then sank fast to the bottom with the stone. He let it go and began to count. He took the edges of the hole in his hands and drew himself into it, wriggling his shoulders in sideways as he remembered he must, kicking himself along with his feet. Soon he was clear inside. He was in a small rock-bound hole filled with yellowish-grey water. The water was pushing him up against the roof. The roof was sharp and pained his back. He pulled himself along with his hands - fast, fast - and used his legs as levers. His head knocked against something; a sharp pain dizzied him. Fifty, fifty-one, fifty-two ... He was without light, and the water seemed to press upon him with the weight of rock. Seventy-one, seventy-two ... There was no strain on his lungs. He felt like an inflated balloon, his lungs were so light and easy, but his head was pulsing. He was being continually pressed against the sharp roof, which felt slimy as well as sharp. Again he thought of octopuses, and wondered if the tunnel might be filled with weed that could tangle him. He gave himself a panicky, convulsive kick forward, ducked his head, and swam. His feet and hands moved freely, as if in open water. The hole must have widened out. He thought he must be swimming fast, and he was frightened of banging his head if the tunnel narrowed. A hundred, a hundred and one ... The water paled. Victory filled him. His lungs were beginning to hurt. A few more strokes and he would be out. He was counting wildly; he said a hundred and fifteen, and then, a long time later, a hundred and fifteen again. The water was a clear jewel-green all around him. Then he saw, above his head, a crack running up through the rock. Sunlight was falling through it, showing the clean dark rock of the tunnel, a single mussel shell and darkness ahead. He was at the end of what he could do. He looked up at the crack as if it were filled with air and not water, as if he could up his mouth to it to draw in air. A hundred and fifteen, he heard himself say inside his head - but he had said that long ago. He must go on into the blackness ahead, or he would drown. His head was swelling, his lungs cracking. A hundred and fifteen, a hundred and fifteen

pounded through his head, and he feebly clutched at rocks in the dark, pulling himself forward, leaving the brief space of sunlit water behind. He felt he was dying. He was no longer quite conscious. He struggled on in the darkness cracked with an explosion of green light. His hands, groping forward, met nothing, and his feet, kicking back, propelled him out into the open sea.

- Television is a method of communication. It is about as revolutionary as the invention of printing. Neither printing nor television is in itself an idea, or power, or good or bad. They are simply methods by which ideas and experiences can be communicated faster to more people. It is perhaps because the characteristics of television, which determine what it can best communicate, are so different from those of printing, that professional educationists were reluctant for so long to interest themselves in the newer method. Printing and television are certainly alike in that both are costly to the producers of the communication and relatively cheap to the receiver. They are both, therefore, mass media which depend upon reaching great numbers. But whereas the printed word, being relatively permanent, can communicate to numbers of like minds over centuries, television is relatively ephemeral and communicates, using both pictures and words, to millions of unlike minds at the same moment in time. Moreover television appeals not only to those who can read but to those who can't. Professional educationists, accustomed to communication through words, and highly valuing reading and the quality of the like minds reachable through books, saw television, in its early years, not only as a rival for attention but as an enemy of the good. Some ten years ago a friend said to me: 'We in Oxford may be old fashioned and fuddy-duddy, but most of us think that television is actively detrimental.' Even that great pioneer of teaching by radio, the late Mary Somerville, had no faith in television. 'It won't last,' she said to me. 'It's a flash in the pan.' And many in the world of education no doubt hoped that this was true. The situation has now altered. It is clear that television is no flash in the pan. So educationists all over the world are trying to get access to its 'power', often by attempting to use traditional methods of academic teaching to inculcate, through television, the ideas and attitudes in which they devoutly believe. But one of the characteristics of television is that it has no power other than that created by the wish of people to watch it. If nobody watches it, then television has no power.

1. Finding fossil man

Why are legends handed down by storytellers useful? We can read of

things that happened years ago in the Near East where people first learned to write. But there are some parts of the world where even now people cannot write. The only way that they can preserve their history is to recount it as sagas - legends handed down from one generation of another. These legends are useful because they can tell us something about migrations of people who lived long ago but none could write down what they did. Anthropologists wondered where the remote ancestors of the Polynesian peoples now living in the Pacific Islands came from. The sagas of these people explain that some of them came from Indonesia about years ago. But the first people who were like ourselves lived so long ago that even their sagas if they had any are forgotten. So archaeologists have neither history nor legends to help them to find out where the first modern men came from. Fortunately however ancient men made tools of stone especially flint because this is easier to shape than other kinds. They may also have used wood and skins but these have rotted away. Stone does not decay and so the tools of long ago have remained when even the bones of the men who made them have disappeared without trace.

2. Spare that spider

How much of each year do spiders spend killing insects? Why you may wonder should spiders be our friends? Because they destroy so many insects and insects include some of the greatest enemies of the human race. Insects would make it impossible for us to live in the world they would devour all our crops and kill our flocks and herds if it were not for the protection we get from insect-eating animals. We owe a lot to the birds and beasts who eat insects but all of them put together kill only a fraction of the number destroyed by spiders. Moreover unlike some of the other insect eaters spiders never do the harm to us or our belongings. Spiders are not insects as many people think nor even nearly related to them. One can tell the difference almost at a glance for a spider always has eight legs and insect never more than six. How many spiders are engaged in this work on our behalf? One authority on spiders made a census of the spiders in grass field in the south of England and he estimated that there were more than 2,225,000 in one acre that is something like 6,000,000 spiders of different kinds on a football pitch. Spiders are busy for at least half the year in killing insects. It is impossible to make more than the wildest guess at how many they kill but they are hungry creatures not content with only three meals a day. It has been estimated that the weight of all the insects destroyed by spiders in Britain in one year would be greater than the total weight of all the human beings in the country.

3. Matterhorn man

What was the main objective of early mountain climbers? Modern alpinists try to climb mountains by a route which will give them good sport and the more difficult it is the more highly it is regarded. In the pioneering days however this was not the case at all. The early climbers were looking for the easiest way to the top because the summit was the prize they sought, especially if it had never been attained before. It is true that during their explorations they often faced difficulties and dangers of the most perilous nature equipped in a manner which would make a modern climber shudder at the thought but they did not go out of their way to court such excitement. They had a single aim a solitary goal the top. It is hard for us to realize nowadays how difficult it was for the pioneers. Except for one or two places such as Zermatt and Chamonix which had rapidly become popular, Alpine villages tended to be impoverished settlements cut off from civilization by the high mountains. Such inns as there were generally dirty and flea-ridden the food simply local cheese accompanied by bread often twelve months old all washed down with coarse wine. Often a valley boasted no inn at all and climbers found shelter wherever they could - sometimes with the local priest (who was usually as poor as his parishioners) sometimes with shepherds or cheesemakers. Invariably the background was the same dirt and poverty and very uncomfortable. For men accustomed to eating seven-course dinners and sleeping between fine linen sheets at home, the change to the Alps must have been very hard indeed.

4. Seeing hands

How did Vera discover she had this gift of second sight? Several cases have been reported in Russia recently of people who can detect colors with their fingers and even see through solid walls. One case concerns an eleven-year-old schoolgirl Vera Petrova who has normal vision but who can also perceive things with different parts of her skin and through solid walls. This ability was first noticed by her father. One day she came into his office and happened to put her hands on the door of a locked safe. Suddenly she asked her father why he kept so many old newspapers locked away there and even described the way they were done up in bundles. Vera's curious talent was brought to the notice of a scientific research institute in the town of Ulyanovsk near where she lives, and in April she was given a series of tests by a special commission of the Ministry of Health of the Russian Federal Republic. During these tests she was able to read a newspaper through an opaque screen, and stranger, still

by moving her elbow over a child's game of Lotto she was able to describe the figures and colors printed on it and in another instance wearing stockings and slippers to make out with her foot the outlines and colors of a picture hidden under a carpet. Other experiments showed that her knees and shoulders had a similar sensitivity. During all these tests Vera was blindfold and indeed except when blindfold she lacked the ability to perceive things with her skin. It was also found that although she could perceive things with her fingers this ability ceased the moment her hands were wet.

5. Youth

How does the writer like to treat young people? People are always talking about the problem of youth. If there is one - which I take leave to doubt then it is older people who create it not the young themselves. Let us get down to fundamentals and agree that the young are after all human beings - people just like their elders. There is only one difference between an old man and a young one: the young man has a glorious future before him and the old one has a splendid future behind him and maybe that is where the rub is. When I was a teenager I felt that I was just young and uncertain - that I was a new boy in a huge school and I would have been very pleased to be regarded as something so interesting as a problem. For one thing being a problem gives you a certain identity and that is one of the things the young are busily engaged in seeking. I find young people exciting. They have an air of freedom and they not a dreary commitment to mean ambitions or love of comfort. They are not anxious social climbers and they have no devotion to material things. All this seems to me to link them with life and the origins of things. Its as if they were in some sense cosmic beings in violent and lovely contrast with us suburban creatures. All that is in my mind when I meet a young person. He may be conceited ill-mannered presumptuous or fatuous but I do not turn for protection to dreary cliches about respect of elders - as if mere age were a reason for respect. I accept that we are equals and I will argue with him as an equal if I think he is wrong.

6. The sporting spirit

How does the writer describe sport at the international level? I am always amazed when I hear people saying that sport creates goodwill between the nations and that if only the common peoples of the world could meet one another at football or cricket they would have no inclination to meet on the battlefield. Even if one didn't know from concrete examples (the

1936 Olympic Games for instance) that international sporting contests lead to orgies of hatred, one could deduce if from general principles. Nearly all the sports practiced nowadays are competitive. You play to win and the game has little meaning unless you do your utmost to win. On the village green, where you pick up sides and no feeling of local patriotism is involved, it is possible to play simply for the fun and exercise: but as soon as a the question of prestige arises, as soon as you feel that you and some larger unit will be disgraced if you lose, the most savage combative instincts are aroused. Anyone who has played even in a school football match knows this. At the international level, sport is frankly mimic warfare. But the significant thing is not the behaviour of the players but the attitude of the spectators: and, behind the spectators, of the nations who work themselves into furies over these absurd contests and seriously believe - at any rate for short periods - that running, jumping and kicking a ball are tests of national virtue.

7. Bats

In what way does echolocation in bats play an utilitarian role? Not all sounds made by animals serve as language and we have only to turn to that extraordinary discovery of echo-location in bats to see a case in which the voice plays a strictly utilitarian role. To get a full appreciation of what this means we must turn first to some recent human inventions. Everyone knows that if he shouts in the vicinity of a wall or a mountainside an echo will come back. The further off this solid obstruction the longer time will elapse for the return of the echo. A sound made by tapping on the hull of a ship will be reflected from the sea bottom, and by measuring the time interval between the taps and the receipt of the echoes the depth of the sea at that point can be calculated. So was born the echo-sounding apparatus now in general use in ships. Every solid object will reflect a sound varying according to the size and nature of the object. A shoal of fish will do this. So it is a comparatively simple step from locating the sea bottom to locating a shoal of fish. With experience and with improved apparatus it is now possible not only to locate a shoal but to tell if it is herring cod or other well-known fish by the pattern of its echo. It has been found that certain bats emit squeaks and by receiving the echoes they can locate and steer clear of obstacles - or locate flying insects on which they feed. This echolocation in bats is often compared with radar the principle of which is similar.

8. Trading standards

What makes trading between rich countries difficult? Chickens slaughtered in the United States, claim officials in Brussels, are not fit to grace European tables. No, say the American, our fowl are fine we simply clean them in a different way. These days, it is differences in national regulations, far more than tariffs, that put sand in the wheels of trade between rich countries. It is not just farmers who are complaining. An electric razor that meets the European Unions safety standards must be approved by American testers before it can be sold in the United States, and an American-made dialysis machine needs the EU's okay before it hits the market in Europe. As it happens, a razor that is safe in Europe is unlikely to electrocute Americans. So, ask businesses on both sides of the Atlantic, why have two lots of tests where one would do? Politicians agree, in principle, so America and the EU have been trying to reach a deal which would eliminate the need to double-test many products. They hope to finish in time for a trade summit between America and the EU on May 28th. Although negotiators are optimistic the details are complex enough that they may be hard-pressed to get a deal at all. Why? One difficulty is to construct the agreements. The Americans would happily reach one accord on standards for medical devices and then hammer out different pacts covering, say, electronic goods and drug manufacturing. The EU - following fine continental traditions - wants agreement on general principles which could be applied to many types of products and perhaps extended to other countries.

9. Royal espionage

What important thing did King Alfred learn when he penetrated the Danish camp of Guthrum? Alfred the Great acted his own spy visiting Danish camps disguised as a minstrel. In those days wandering minstrels were welcome everywhere. They were not fighting men and their harp was their passport. Alfred had learned many of their ballads in his youth and could vary his program with acrobatic tricks and simple conjuring. While Alfred's little army slowly began to gather at Athelney, the king himself set out to penetrate the camp of Guthrum, the commander of the Danish invaders. There had settled down for the winter at Chippenham: thither Alfred went. He noticed at once that discipline was slack: the Danes had the self-confidence of conquerors and their security precautions were casual. They lived well on the proceeds of raids on neighboring regions. There they collected women as well as food and drink and a life of ease had made them soft. Alfred stayed in the camp a week before he returned to Athelney. The force there assembled was trivial compared with the Danish horde. But Alfred had deduced that the Danes were no longer

fit for prolonged battle: and that their commissariat had no organization but depended on irregular raids. So, faced with the Danish advance Alfred did not risk open battle but harried the enemy. He was constantly on the move, drawing the Danes after him. His patrols halted the raiding parties: hunger assailed the Danish army. Now Alfred began a long series of skirmishes - and within a month the Danes had surrendered.

10. Silicon valley What does the computer industry thrive on apart from anarchy? Technology trends may push Silicon Valley back to the future. Carver Mead, a pioneer in integrated circuits and a professor of computer science at the California Institute of Technology, notes there are now workstations that enable engineers to design test and produce chips right on their desks, much the way an editor creates a newsletter on a Macintosh. As the time and cost of making a chip drop to a few days and a few hundred dollars, engineers may soon be free to let their imaginations soar without being penalized by expensive failures. Mead predicts that inventors will be able to perfect powerful customized chips over a weekend at the office - spawning a new generation of garage startups and giving the U.S. a jump on its foreign rivals in getting new products to market fast. 'We've got more garages with smart people', Mead observes. 'We really thrive on anarchy'. And on Asians. Already, orientals and Asian Americans constitute the majority of the engineering staffs at many Valley firms. And Chinese Korean Filipino and Indian engineers are graduating in droves from Californias colleges. As the heads of next-generation startups, these Asian innovators can draw on customs and languages to forge righter links with crucial Pacific Rim markets. For instance, Alex Au, a Stanford Ph.D. from Hong Kong has set up a Taiwan factory to challenge Japans near lock on the memory-chip market. India-born N.Damodar Reddy's tiny California company reopened an AT &T chip plant in Kansas City last spring with financing from the state of Missouri. Before it becomes a retirement village Silicon Valley may prove a classroom for building a global business.

11. How to grow old

What according to the author is the best way to overcome the fear of death as you get older? Some old people are oppressed by the fear of death. In the young there is a justification for this feeling. Young men who have reason to fear that they will be killed in battle may justifiably feel bitter in the thought that they have been cheated of the best things that life has to offer. But in an old man who has known human joys and sorrows, and has achieved whatever work it was in him to do, the fear

of death is somewhat abject and ignoble. The best way to overcome it - so at least it seems to me - is to make your interests gradually wider and more impersonal, until bit by bit the walls of the ego recede and your life becomes increasingly merged in the universal life. An individual human existence should be like a river - small at first narrowly contained within its banks and rushing passionately past boulders and over waterfalls. Gradually the river grows wider the banks recede the waters flow more quietly, and in the end, without any visible break they become merged in the sea and painlessly lose their individual being. The man who, in old age, can see his life in this way will not suffer from the fear of death, since the things he cares for will continue. And if with the decay of vitality, weariness increases, the thought of rest will be not unwelcome. I should wish to die while still at work, knowing that others will carry on what I can no longer do, and content in the thought that what was possible has been done.

12. Banks and their customers

Why is there no risk to the customer when a bank prints the customers name on his cheques? When anyone opens a current account at a bank, he is lending the bank money, repayment of which he may demand at any time, either in cash or by drawing a cheque in favor of another person. Primarily the banker-customer relationship is that of debtor and creditor - who is which depending on whether the customers account is in credit or is overdrawn. But in addition to that basically simple concept, the bank and its customer owe a large number of obligations to one another. Many of these obligations can give in to problems and complications but a bank customer, unlike, say, a buyer of goods, cannot complain that the law is loaded against him. The bank must obey its customer's instructions, and not those of anyone else. When, for example a customer, first opens an account, he instructs the bank to debit his account only in respect of cheques draw by himself. He gives the bank specimens of his signature, and there is a very firm rule that the bank has no right or authority to pay out a customer's money on a cheques on which its customer's signature has been forged. It makes no difference that the forgery may have been a very skillful one, the bank must recognize its customer's signature. For this reason there is no risk to the customer in the practice, adopted by banks of printing the customer's name on his cheques. If this facilitates forgery, it is the bank which will lose, not the customer.

13. The search for oil

What do oilmen want to achieve as soon as they strike oil? The deepest holes of all made for oil and they go down to as much as 25,000 feet. But we not need to send men down to get the oil out, as we must with other mineral deposits. The holes are only borings, less than a foot in diameter. My particular experience is largely in oil, and the search for oil has done more to improve deep drilling than any other mining activity. When is has been decided where we are going to drill, we put up at the surface an oil derrick. It has to be tall because it is like a giant block and tackle, and we have to lower into the ground and haul out of the ground great lengths of drill pipe which are rotated by an engine at the top and are fitted with a cutting bit at the bottom. The geologist needs to know what rocks the drill has reached, so every so often a sample is obtained with a coring bit. It cuts a clean cylinder of rock, from which can be seen the strata the drill has been cutting through. Once we get down to the oil, it usually flows to the surface because great pressure, either from gas or water, is pushing it. This pressure must be under control, and we control it by means of the mud which we circulate down the drill pipe. We endeavor to avoid the old, romantic idea of a gusher, which wastes oil and gas. We want it to stay down the hole until we can lead it off in a controlled manner.

14. The Butterfly Effect

Why do small errors make it impossible to predict the weather system with a high degree of accuracy? Beyond two or three days the worlds best weather forecasts are speculative, and beyond six or seven they are worthless. The Butterfly Effect is the reason. For small pieces of weather - and to a global forecaster small can mean thunderstorms and blizzards - any prediction deteriorates rapidly. Errors and uncertainties multiply, cascading upward through a chain of turbulent features, from dust devils and squalls up to continent-size eddies that only satellites can see. The modern weather models work with a grid of points of the order of sixty miles apart, and even so some starting data has to guessed, since ground stations and satellites cannot see everywhere. But suppose the earth could be covered with sensors spaced one foot apart, rising at one-foot intervals all the way to the top of the atmosphere. Suppose every sensor gives perfectly accurate readings of temperature, pressure, humidity, and any other quantity a meteorologist would want. Precisely at noon an infinitely powerful computer takes all the data and calculates what will happen at each point at 12.01 then 12.02 then 12.03 ... The computer will still be unable to predict whether Princeton, New Jersey, will have sun or rain on a day one month away. At noon the spaces between the sensors will hide fluctuations that the computer will not know about, tiny deviations from

the average. By 12.01 those fluctuations will already have created small errors one foot away. Soon the errors will have multiplied to the ten-foot scale, and so on up to the size of the globe.

15. Secrecy in industry

Why is secrecy particularly important in the chemical industries? Two factors weigh heavily against the effectiveness of scientific research in industry. One is the general atmosphere of secrecy in which it is carried out, the other the lack of freedom of the individual research worker. In so far as any inquiry is a secret one, it naturally limits all those engaged in carrying it out from effective contact with their fellow scientists either in other countries or in universities, or even, often enough, in other departments of the same firm. The degree of secrecy naturally varies considerably. Some of the bigger firms are engaged in researches which are of such general and fundamental nature that it is a positive advantage to them not to keep them secret. Yet a great many processes depending on such research are sought for with complete secrecy until the stage at which patents can be taken out. Even more processes are never patented at all but kept as secret processes. This applies particularly to chemical industries, where chance discoveries play a much larger part than they do in physical and mechanical industries. Sometimes the secrecy goes to such an extent that the whole nature of the research cannot be mentioned. Many firms for instance have great difficulty in obtaining technical or scientific books from libraries because they are unwilling to have names entered as having taken out such and such a book for fear the agents of other firms should be able to trace the kind of research they are likely to be undertaking.

16. The modern city

What is the authors main argument about the modern city? In the organization of industrial life the influence of the factory upon the physiological and mental state of the workers has been completely neglected. Modern industry is based on the conception of the maximum production at lowest cost, in order that an individual or a group of individuals may earn as much money as possible. It has expanded without any idea of the true nature of the human beings who run the machines, and without giving any consideration to the effects produced on the individuals and on their descendants by the artificial mode of existence imposed by the factory. The great cities have been built with no regard for us. The shape and dimensions of the skyscrapers depend entirely on the necessity of obtaining the maximum income per square foot of ground, and of offering to

the tenants offices and apartments that please them. This caused the construction of gigantic buildings where too large masses of human beings are crowded together. Civilized men like such a way of living. While they enjoy the comfort and banal luxury of their dwelling, they do not realize that they are deprived of the necessities of life. The modern city consists of monstrous edifices and of dark, narrow streets full of petrol fumes and toxic gases, torn by the noise of the taxicabs, lorries and buses, and thronged ceaselessly by great crowds. Obviously it has not been planned for the good of its inhabitants.

17. A manmade disease

What factor helped to spread the disease of myxomatosis? In the early days of the settlement of Australia enterprising settlers unwisely introduced the European rabbit. This rabbit had no natural enemies in the Antipodes, so that it multiplied with that promiscuous abandon characteristic of rabbits. It overran a whole continent. It caused devastation by burrowing and by devouring the herbage which might have maintained millions of sheep and cattle. Scientists discovered that this particular variety of rabbit (and apparently no other animal) was susceptible to a fatal virus disease myxomatosis. By infecting animals and letting them loose in the burrows, local epidemics of this disease could be created. Later it was found that there was a type of mosquito which acted as the carrier of this disease and passed it on to the rabbits. So while the rest of the world was trying to get rid of mosquitoes Australia was encouraging this one. It effectively spread the disease all over the continent and drastically reduced the rabbit population. It later became apparent that rabbits were developing a degree of resistance to this disease, so that the rabbit population was unlikely to be completely exterminated. There were hopes however that the problem of the rabbit would become manageable. Ironically Europe which had bequeathed the rabbit as a pest to Australia acquired this manmade disease as a pestilence. A French physician decided to get rid of the wild rabbits on his own estate and introduced myxomatosis. It did not, however remain within the confines of his estate. It spread through France Where wild rabbits are not generally regarded as a pest but as sport and a useful food supply, and it spread to Britain where wild rabbits are regarded as a pest but where domesticated rabbits, equally susceptible to the disease, are the basis of a profitable fur industry. The question became one of whether Man could control the disease he had invented.

18. Porpoises

What would you say is the main characteristic of porpoises? There has long been a superstition among mariners that porpoises will save drowning men by pushing them to the surface, or protect them from sharks by surrounding them in defensive formation. Marine Studio biologists have pointed out that, however intelligent they may be it is probably a mistake to credit dolphins with any motive of lifesaving. On the occasions when they have pushed to shore an unconscious human being they have much more likely done it out of curiosity or for sport, as in riding the bow waves of a ship. In some porpoises were photographer working like beavers to push ashore a waterlogged mattress. If as has been reported they have protected humans from sharks, it may have been because curiosity attracted them and because the scent of a possible meal attracted the sharks. Porpoises and sharks are natural enemies. It is possible that upon such an occasion a battle ensued, with the sharks being driven away or killed. Whether it be bird, fish, or beast, the porpoise is intrigued with anything that is alive. They are constantly after the turtles, who peacefully submit to all sorts of indignities. One young calf especially enjoyed raising a turtle to the surface with his snout and then shoving him across the tank like an aquaplane. Almost any day a young porpoise may be seen trying to turn a 300-pound sea turtle over by sticking his snout under the edge of his shell and pushing up for dear life. This is not easy, and may require two porpoises working together. In another game, as the turtle swims across the oceanarium, the first porpoise swoops down from above and butts his shell with his belly. This knocks the turtle down several feet. He no sooner recovers his equilibrium than the next porpoise comes along and hits him another crack. Eventually the turtle has been butted all the way down to the floor of the tank. He is now satisfied merely to try to stand up but as soon as he does so a porpoise knocks him flat. The turtle at last gives up by pulling his feet under his shell and the game is over.

19. The stuff of dreams

What is going on when a person experiences rapid eyemovements during sleep? It is fairly clear that sleeping period must have some function, and because there is so much of it the function would seem to be important. Speculations about its nature have been going on for literally thousands of years, and one odd finding that makes the problem puzzling is that it looks very much as if sleeping is not simply a matter of giving the body a rest. 'Rest', in terms of muscle relaxation and so on, can be achieved by a brief period lying, or even sitting down. The body's tissues are self-repairing and self-restoring to a degree, and function best when more or less continuously active. In fact a basic amount of movement occurs

during sleep which is specifically concerned with preventing muscle inactivity. If it is not a question of resting the body then perhaps it is the brain that needs resting? This might be a plausible hypothesis were it not for two factors. First the electroencephalograph (which is simply a device for recording the electrical activity of the brain by attaching electrodes to the scalp) shows that while there is a change in the pattern of activity during sleep, there is no evidence that the total amount of activity is any less. The second factor is more interesting and more fundamental. Some years ago an American psychiatrist named William Dement published experiments dealing with the recording of eye-movements during sleep. He showed that the average individual's sleep cycle is punctuated with peculiar bursts of eye-movements, some drifting and slow others jerky and rapid. People woken during these periods of eye-movements generally reported that they had been dreaming. When woken at other times they reported no dreams. If one group of people were disturbed from their eye-movement sleep for several nights on end, and another group were disturbed for an equal period of time but when they were not exhibiting eye-movements, the first group began to show some personality disorders while the others seemed more or less unaffected. The implications of all this were that it was not the disturbance of sleep that mattered, but the disturbance of dreaming.

20. Snake poison

What are the two different ways in which snake poison acts? How it came about that snakes manufacture poison is a mystery. Over the periods their saliva, a mild, digestive juice like our own, was converted into a poison that defies analysis even today. It was not forced upon them by the survival competition; they could have caught and lived on prey without using poison, just as the thousands of nonpoisonous snakes still do. Poison to a snake is merely a luxury; it enables it to get its food with very little effort, no more effort than one bite. And why only snakes? Cats, for instance, would be greatly helped; no running fights with large, fierce rats or tussles with grown rabbits - just a bite and no more effort needed. In fact, it would be an assistance to all carnivores though it would be a two-edged weapon when they fought each other. But, of the vertebrates, unpredictable Nature selected only snakes (and one lizard). One wonders also why Nature, with some snakes, concocted poison of such extreme potency. In the conversion of saliva into poison, one might suppose that a fixed process took place. It did not; some snakes manufacture a poison different in every respect from that of others, as different as arsenic is from strychnine, and having different effects. One poison acts on the ner-

ves, the other on the blood. The makers of the nerve poison include the mambas and the cobras and their venom is called neurotoxic. Vipers (adders) and rattlesnakes manufacture the blood poison, which is known as haemolytic. Both poisons are unpleasant, but by far the more unpleasant is the blood poison. It is said that the nerve poison is the more primitive of the two, that the blood poison is, so to speak, a newer product from an improved formula. Be that as it may, the nerve poison does its business with man far more quickly than the blood poison. This, however, means nothing. Snakes did not acquire their poison for use against man but for use against prey such as rats and mice, and the effects on these of viperine poison is almost immediate.

21. William S. Hart and

How did William Harts childhood prepare him for his acting role in Western films? William S. Hart was perhaps the greatest of all Western stars for unlike Gary Cooper and John Wayne he appeared in nothing but Westerns. From 1914 to 1924 he was supreme and unchallenged. It was Hart who created the basic formula of the Western film, and devised the protagonist he played in every film he made the good-bad man the accidental-noble outlaw or the honest-but-framed cowboy or the sheriff made suspect by vicious gossip; in short, the individual in conflict with himself and his frontier environment. Unlike most of his contemporaries in Hollywood, Hart actually knew something of the old West. He had lived in it as a child when it was already disappearing, and his hero was firmly rooted in his memories and experiences, and in both the history and the mythology of the vanished frontier. And although no period or place in American history has been more absurdly romanticized, myth and reality did join hands in at least one arena, the conflict between the individual and encroaching civilization. Men accustomed to struggling for survival against the elements and Indians were bewildered by politicians, bankers and businessmen, and unhorsed by fences, laws and alien taboos. Harts good-bad man was always an outsider, always one of the disinherited, and if he found it necessary to shoot a sheriff or rob a bank along the way, his early audiences found it easy to understand and forgive, especially when it was Hart who, in the end, overcame the attacking Indians. Audiences in the second decade of the twentieth century found it pleasant to escape to a time when life, though hard, was relatively simple. We still do; living in a world in which undeclared aggression, war, hypocrisy, chicanery, anarchy and impending immolation are part of our daily lives, we all want a code to live by.

22. Knowledge and progress In what two areas have people made no progress at all? Why does the idea of progress loom so large in the modern world? Surely progress of a particular kind is actually taking place around us and is becoming more and more manifest. Although mankind has undergone no general improvement in intelligence or morality, it has made extraordinary progress in the accumulation of knowledge. Knowledge began to increase as soon as the thoughts of one individual could be communicated to another by means of speech. With the invention of writing, a great advance was made, for knowledge could then be not only communicated but also stored. Libraries made education possible, and education in its turn added to libraries: the growth of knowledge followed a kind of compound interest law, which was greatly enhanced by the invention of printing. All this was comparatively slow until, with the coming of science, the tempo was suddenly raised. Then knowledge began to be accumulated according to a systematic plan. The trickle became a stream; the stream has now become a torrent. Moreover, as soon as new knowledge is acquired, it is now turned to practical account. What is called 'modern civilization' is not the result of a balanced development of all man's nature, but of accumulated knowledge applied to practical life. The problem now facing humanity is What is going to be done with all this knowledge? As is so often pointed out knowledge is a two-edged weapon which can be used equally for good or evil. It is now being used indifferently for both. Could any spectacle, for instance, be more grimly whimsical than that of gunners using science to shatter men's bodies, while, close at hand, surgeons use it to restore them? We have to ask ourselves very seriously what will happen if this twofold use of knowledge with its ever-increasing power, continues.

23. Bird flight

What are the two main types of bird flight described by the author? No two sorts of birds practise quite the same sort of flight; the varieties are infinite but two classes may be roughly seen. Any ship that crosses the Pacific is accompanied for many days by the smaller albatross, which may keep company with the vessel for an hour without visible or more than occasional movement of wing. The currents of air that the walls of the ship direct upwards, as well as in the line of its course, are enough to give the great bird with its immense wings sufficient sustenance and progress. The albatross is the king of the gliders, the class of fliers which harness the air to their purpose, but must yield to its opposition. In the contrary school, the duck is supreme. It comes nearer to the engines with which man has 'conquered' the air, as he boasts. Duck, and like them the

pigeons, are endowed with steel-like muscles, that are a good part of the weight of the bird, and these will ply the short wings with such irresistible power that they can bore for long distances through an opposing gale before exhaustion follows. Their humbler followers, such as partridges, have a like power of strong propulsion, but soon tire. You may pick them up in utter exhaustion, if wind over the sea has driven them to a long journey. The swallow shares the virtues of both schools in highest measure. It tires not, nor does it boast of its power; but belongs to the air, travelling it may be six thousand miles to and from its northern nesting home, feeding its flown young as it flies, and slipping through we no longer take omens from their flight on this side and that; and even the most superstitious villagers no longer take off their hats to the magpie and wish it good-morning.

24. Beauty

What do glimpses of beauty either in nature or art often suggest to the human mind? A young man sees a sunset and, unable to understand or to express the emotion that it rouses in him, concludes that it must be the gateway to world that lies beyond. It is difficult for any of us in moments of intense aesthetic experience to resist the suggestion that we are catching a glimpse of a light that shines down to us from a different realm of existence, different and, because the experience is intensely moving, in some way higher. And, though the gleams blind and dazzle, yet do they convey a hint of beauty and serenity greater than we have known or imagined. Greater too than we can describe; for language, which was invented to convey the meanings of this world, cannot readily be fitted to the uses of another. That all great has this power of suggesting a world beyond is undeniable. In some moods, Nature shares it. There is no sky in June so blue that it does not point forward to a bluer, no sunset so beautiful that it does not waken the vision of a greater beauty, a vision which passes before it is fully glimpsed, and in passing leaves and indefinable longing and regret. But, if this world is not merely a bad joke, life a vulgar flare amid the cool radiance of the stars, and existence an empty laugh braying across the mysteries; if these intimations of a something behind and beyond are not evil humour born of indigestion, or whimsies sent by the devil to mock and madden us, if, in a word, beauty means something, yet we must not seek to interpret the meaning. If we glimpse the unutterable, it is unwise to try to utter it, nor should we seek to invest with significance that which we cannot grasp. Beauty in terms of our human meanings is meaningless.

25. Non-auditory effects of noise

What conclusion does the author draw about noise and health in this piece? May people in industry and the Services, who have practical experience of noise, regard any investigation of this question as a waste of time; they are not prepared even to admit the possibility that noise affects people. On the other hand, those who dislike noise will sometimes use most inadequate evidence to support their pleas for a quieter society. This is a pity, because noise abatement really is a good cause, and it is likely to be discredited if it gets to be associated with bad science. One allegation often made is that noise produces mental illness. A recent article in a weekly newspaper, for instance, was headed with a striking illustration of a lady in a state of considerable distress, with the caption 'She was yet another victim, reduced to a screaming wreck'. On turning eagerly to the text, one learns that the lady was a typist who found the sound of office typewriters worried her more and more until eventually she had to go into a mental hospital. Now the snag in this sort of anecdote is of course that one cannot distinguish cause and effect. Was the noise a cause of the illness, or were the complaints about noise merely a symptom? Another patient might equally well complain that her neighbours were combining to slander her and persecute her, and yet one might be cautious about believing this statement. What is needed in case of noise is a study of large numbers of people living under noisy conditions, to discover whether they are mentally ill more often than other people are. Some time ago the United States Navy, for instance, examined a very large number of men working on aircraft carriers: the study was known as Project Anekin. It can be unpleasant to live even several miles from an aerodrome; if you think what it must be like to share the deck of a ship with several squadrons of jet aircraft, you will realize that a modern navy is a good place to study noise. But neither psychiatric interviews nor objective tests were able to show any effects upon these American sailors. This result merely confirms earlier American and British studies: if there is any effect of noise upon mental health, it must be so small that present methods of psychiatric diagnosis cannot find it. That does not prove that it does exist; but it does mean that noise is less dangerous than say being brought up in an orphanage - which really is a mental health hazard.