CHAPTER VIII

GREAT AFFAIRS, CELESTIAL AND POLITICAL (1573-1583)

I. Dee's Diaries — the knowledge they give of him — financial straits — slanderers — attention to dreams and omens — journey to Lorraine — Letter to Burleigh for permission to examine records of Wigmore Castle and for licence to search for mines and buried treasure — frequently consulted by others on subject — methods of discovery and natural magic.

II. The New Star in Cassiopeia — its astronomical and philosophical significance — Dee's and Digge's books on it — purely mathematical in approach — Digges advocates Copernicanism, Dee is noncommittal towards both hypotheses — they demonstrate star is above moon and falsity of Aristotelian doctrines of solid orbs and unchanging heavens — their suggested use of optical instruments and contemporary optics (n.27) — Dee's theory of the stars retrogression — its probable basis — Tycho Brahe's interest in it — it would seem to involve acceptance of the rotation of earth.

III. The Comet of 1577 — Digges as prognosticator — Dee's reassurance to Elizabeth — his promise to her "of great importance" — granted a crest — services to Elizabeth in witchcraft case — marriage to Jane Fromond.

IV. The General and Rare Memorials — the proposed tetralogy — its grandiose design — Dee's introductory apology against his slanderers — his prediction of the divine destiny of Britain — the emblematic representation of the theme in the title page — Dee's imperialism — a spiritual as well as political scheme.

V. Dee's New Britain — a corporate state, commonwealth taking precedence over private interest — the first step, the building of a powerful navy — the beneficial collateral consequences — finance of the scheme — measures for building up the fishing trade.

VI. The M.S. continuation sent to Dyer twenty years later — a legalistic, antiquarian discussion of Elizabeth's titles and British sea limits — Dee's principle that the sea is divided midway between opposing foreign shores — the consequent British rights.

VII. Influence and contemporary parallels — Elizabethan concern with navy — Aubrey's complimentary letter to Dee — Hitchcock's scheme for refounding fishing industry — similarities with Dee's work — advocacy of it in Parliament — general recognition of gravity of problem — Camden echoes Dee — Raleigh, Gentlemen, Keymer make later similar proposals — adoption of Dee's suggestions for purifying Thames — other reactions to G.R.M. up to mid-seventeenth century.

VIII. Dee's Imperialism not a personal idiosyncracy — his antiquarian arguments from Anglo-Saxon records become standard in following century — Owen Madoc, from whom he derives titles for Elizabeth, generally accepted as foundation of British rights in America — Influence of Dee's legal arguments — Elizabeth's rejection of his principle — officially commissioned seventeenth century treatises on British sea limits — their importance and relations with Dee — Selden's even more sweeping claims.

IX. The M.S. of Famous and Rich Discoveries — its general character — Solomon's Voyage (n.142) — Dee's survey of Asia, Europe and British origins — his objects and scrupulous concern for truth.

X. Dee commissioned to reform calendar — general recognition of need for this — Dee's description of his method in his almanac of 1591 — his treatise on the reform — initial favourable reception — vetoed by the bishops — Dee continues propaganda for it — subsequent recognition of value of this unprinted work (n.186).

XI. Dee at the climax of his worldly career.

I. The primary source of our knowledge of the events of Dee's life from the middle of the period of his Mortlake residence onwards is his "diary" — or rather a collection of scribbled jottings and miscellaneous memoranda in the margins of almanacs (1). They record his constant succession of visitors eminent in diverse spheres, and their requests for advice and assistance; they reveal also his increasing financial difficulties from which, encumbered with a growing household and many other commitments, he was never thereafter to be free. (Notes of borrowings and pawnings are frequent: thus June 20 1577 he raised 27L on the security of a gold chain, Nov. 18 1577 he borrowed 30L from Ed. Hyle of Mortlake, etc.) His deep piety also emerges, as does his pervading sense of surrounding spiritual powers, which leads him to attribute the slightest turn for good or ill in his household affairs to almost direct supernatural intervention. Another feature of his character is displayed with growing clarity, which is perhaps to be attributed to the ignorant or malicious suspicions which he was keenly aware many felt towards him, this is his growing distrust of the behaviour of even assured friends and patrons — and his fearful doubts as to what their real attitude towards himself might be — later this seems to have become an almost paranoic obsession which Kelly unscrupulously exploited to isolate Dee from his former intimates and increase his dependence on himself. In some cases Dee's notes of his own fears in this respect had a basis in fact, as his entries respecting Vincent Murfyn and "his abominable misusing me behind my back" (May 2, 1577) (2), but forebodings of "betrayal" by friends and patrons at court find increasing expression here, as also in the later spiritual diaries, forming the True and Faithful Relation, and dream and omens are solemnly recorded, and indeed more fully, than graver matters. Thus Nov. 24, 1582: "Saturday night I dreamed that I was deade and afterwards my bowels were taken out (i.e., as in an execution for treason of which he was accused under Mary or even for the "conjuring" of which he was suspected), I walked and talked with diverse, and among others with the lord Thresorer (Burleigh) who was com to my house to burn my bokes when I was dead, and thought he loked sourely on me."

The first biographical entry does not occur however until 16th Jan. 1577, when a visit by Leicester, Sydney and Dyer is recorded, preceding notes are largely memoranda of dates and places of births for the casting of nativities, and our knowledge of Dee's life at Mortlake before this time is very slight. After the appearance of the English Euclid, he made, in 1571, a journey to the Duchy of Lorraine (3) in the course of which he visited the library of Ortelius at Antwerp; after his return, he fell seriously ill and Elizabeth despatched her own physicians, Doctors Apslow and Balthorp to attend him at Mortlake. A letter to Burleigh Oct. 3, 1574 (4) reveals his straitened circumstances at this period. He has passed his life, he declares, "in zeale to the best Lerning and knowledge, and incredible toyle of body and mynde, very many yeares, therefore onely endured: I know most assuredly that this Land never bred any man, whose account therin can evidently be proved greater than myne"; but now "the same zeale remayneth (yea rather greater is grown) but the hability, for charges, is far lesser." He speaks of the borrowing he is put to in order to live "which (as God knoweth) findeth not me, and my pore families necessary meat, drink and fewel; for a frugall and philosophical Diet," for "that little exhibition which I enjoye" — and even this he remarks he would have lost on various occasions when overseas unless Burleigh had then looked after his interests — has become miserably insufficient. Two or three hundred pounds a year would be ample for his needs, but "if no better or easier turn will fall to my lot from her Majesties' hands," he asks Burleigh to obtain him a licence which will permit him, legally, to "do the best I can at my own cost and charge to discover and deliver true proofe of a myne vayn, or ore of gold or silver, in some places of her Grace's kingdom." But it is not only prospecting for mines that he wishes to engage on but a search for treasure trove, promising Burleigh one half his findings and the queen her share, and this topic he claims to have given deep consideration to for many years; he submits a map on which ten places are marked where such treasures may probably be located, and urges "The value of a mine is matter for Kings Treasure, but a pott of two or three hundred hid in the ground, wall, or tree, is but the price of a good book, or instrument for perspective astronomy, or some feat of importance." Dee required the reassurance of a licence for this activity, not only because to search without it was an infringement of the royal prerogative but also, perhaps, because the statute against conjuring passed in 1563 had decreed a year's imprisonment with four appearances in the pillory — and death for a second offence, for any who presumed to discover hidden treasure or recover stolen property by magical means (5), and any attempts not having official sanction might well be suspected of employing these. There is no real evidence that Dee had already commenced those "spiritualistic" pursuits, that he was to attempt to apply to treasure seeking on the continent (6), but he may have intended to use such methods as the divining rod which Agricola describes, and the many records of contemporary treasure seeking suggests that very dubious means, smacking of conjuring, were very frequently employed (7). Dee here cites

the story to be found in English Chronicles of the Saracen who by art discovered a great treasure in the Welsh Marches in 1346; he quotes a work of Theseus Ambrosius which contains many curiosities "Et in edus praecipua quadem parte tractabur de Thesauris per totam fere orbem reconditis, atque Calentinuo quorum admodum clara, atque specificica notio haberi poterat" and also Pandulphus' de Meatibus terrae "a strange boke which in old tyme was in this land" which two he quotes in defence of the practicality of his proposals and "so that, by this, and the former boke, it may appeare what manner of Philosopher and Mathematiciens have bin in tymes past." Moreover he declares that during twenty years he has had various locations of treasures in various lands detected to him, and "of late, I have byn sued unto by diverse sorts of peoples, of which some by vehement, iterated dreames, some by vision (as they have thought) other by speche forced to their imagination by night, have byn informed of cartayn places where Threasor doth lye hid; which all, for feare of Kepars (as the phrase commonly nameth them) or for mistrust of truth in the places assigned and some for some other causes, have forborn to deale farder, unleast I shold corrage them or cownsaile them how to procede. Wherain I have allways byn contented to heare the histories, fantasies or illusions to me reported but never entermeddled according to the desire of much." Nevertheless, he now urges "But if (besides all bokes, dreames, visions, reports, and virgula divina by any other naturall meanes and likely demonstrations of Sympathia and Antipathia rerum; or by attraction and repulsion, the places may be descryed or discovered where gold, silver or better matter doth lye hid within a certayn distance: How great a commodity shold it be for the Quenes Majestie and the commonweale of this Kingdome." Dee did not apparently obtain his licence, but may have been more fortunate in the other request contained in the letter which is for a recommendation to Harley, Keeper of the Records at Wigmore castle, for permission to examine the documents stored there. "My fantasy is, I can get from them at my leisure, matter for chronicle or pedigree, by way of recreation."

II. Dee was compelled to write this letter at the zenith of his scientific fame, for the previous year he had published a book which perhaps did more to establish his reputation especially among continental scholars than any of his other works. This was his Paralecticae Commentationis, Praxeosq: Nucleus quidam 1573. It had been prompted by the appearance of the supernova in Cassiopeia in 1572 which was at first as bright as Venus at its maximum, and could be seen through cloud at night or in the middle of the day, and remained visible for seventeen months. The New Star not only caused much general amazement and bewilderment — Covell writing twenty years later records "Al the world marked it, for 3 yeares together: al the astronomers admyred it, and remaine yet astonished. The wise of the world who in a deepe irreligious policy thought al things to be eternal, now began to worship a Creator" (8) — it was an event of considerable philosophical importance. For if it could be shown to be above the moon it deal a severe blow to the Aristotelian teachings of the perfect and unchanging heavens (and also of course to the Averroist consequence from this that the mechanics of the universe would break up in chaos if a single new star were to disappear from, or appear in, the heavens) (9) and of the solid concentric orbs in which the stars and planets were set (10). Hitherto the only comparable precedent had been Hipparchus' (11) observation of a new star in 125 B.C. — which had been remote enough to be discounted as evidence by the dogmatists — and the privileged exception, since miraculous, of the star which had appeared at the birth of Christ (though certain Averroist astronomers following Arabic interpretation, did not hesitate to explain this last phenomenon as due to a conjunction of three major planets). While thinkers like Tycho were prepared to accept the star as a new creation (12), those who, like Cardan, attempted to maintain more orthodox cosmological doctrines, were put to desperate shifts if they were prepared to admit, as all the evidence seemed to demonstrate, the star's supra-lunar position; Cardan was driven to declare that the star had been present since the beginning of time in the heavens, essentially unaltered, was in fact that which had guided the Magi, but had merely remained invisible hitherto to men, from causes unconnected with its own quintessential nature (13), others of course declared flatly that it was a meteorological phenomenon — as comets were still generally looked upon as being — and below the moon; thus Bodin speaks of comets that are stationary — like that of November 1573, which, he declares, appear in order to signify God's wrath (14).

Dee's work was printed in March 1573 by John Day, almost at the same time as one of Digges, printed by Thomas Marsh at the end of February (15), to which it is closely related, indeed as they are often to be found bound into one volume they give the appearance, which seems almost certainly intentional from their contents, of forming two parts of a single work (15A). Digges' book is confidently entitled Alae seu Scalae Mathematicae, quibus visibilium remotissima Coelorum Theatra conscendi, & Planetarum omnium itinera nouis & inauditis Methodis explorari: tum huius portentiosi systeris in Mundi Boreali plaga insolito fulgore coruscantis, Distantia & Magnitudo immensa, Situso: protinus tremendus indagari, Dei; stupendum ostentum, Terricolis expositum, cognosci liqui dissime posset. Both works adopt a Euclidean form of exposition, commencing with definitions and proceeding to general theorems and through these to special problems; both are concerned with devising methods for the measurement of extremely small parallax, and both tend to show that the new star is above the moon and in the heavens proper. Digges applying the same methods as those used by Kepler's teacher the Copernican Maestlin, to his various observations, could detect no change in the position of the new star relative to the other fixed stars, and concluded that its parallax was extremely small (less than 2') or nonexistent, and he was also unable to detect any annual parallax. Dee's observations and conclusions from them were reserved for another book never published, the present is a more abstract, strictly mathematical work on the application of spherical trigonometry to astronomy, set out as a number of theorems deduced from axioms and with directions for their employment. Both Digges and Dee make courteous reference to their friendship and the help each has received from the other. Dee speaks of "charissimus mihi Iuuenis, Mathematicus meus dignissimus haeres Thomas Diggseus" (16) and he in turn refers to Dee as his "friend and other parent" (17) writing "Eruditissimo meo Amico D. Iohanni Dee comunicaui, qui protinus mihi etiam de Phoenomeni Parallaxibus Demonstrationem luculentam, facilem summaque laude dignissima a sese nuper inventam ostendit, retulito mihi preterea sese in animo propuisse Methodis aliis quo antea iniusitatia haius, rarissimi Phaenomini subtillissimas eruere Parallaxeis, at vt id ipsum versaime expediret, plurima parauit instrumenta nova et inusitata, nullis parcens, sumptibus nec labori, corporis, aut animi, mira industria, et incredibile solertia, a prima sua apparitione Noctes; varias, miris ingenijs subtilissimo artificio, obseruauit, quibus Parallaxium omnium varietates quae hactenus contigere exactissime dare poterit; Prout oculatus testis vere testificari potero."(18) The two works have a further similarity of tone in their general attitude to astronomy, for they both stress its dignity as a science

and its metaphysical importance in revealing the universal harmony (19).

The association and evident community of spirit and investigation is of particular interest in that Digges was an ardent Copernican. The Alae is written from this standpoint (he complains that although "pulcherrimam nobis Mundi Anatomiam ex partibus absolutissima proportione et Symmetria coniunctis exhibere debuissent," the Ptolemaic astronomers, by their complications of epicycles and eccentrics in fact show the universal frame "mutilum et mancum" — (20)) and he hopes that by the measurement of stellar parallax an experimental decision can be made between the two systems. He announced in his Stratioticus (21) that he would publish "commentaries upon the Revolutions of Copernicus by evidente Demonstrations ground upon Late Observations to ratifye and confirme his Theorikes and Hypothesis." Dee's work however presents an entirely mathematical approach to the problem he discusses, and whatever his personal convictions, they are here not allowed to intrude, he carefully, as though suspending judgment until the question of observable parallax has been settled, specifies as hypotheses whatever physical assumption the convenient expression of the geometrical theorems in his book may require (22).

These works and the important conclusions they indicated, received much credit at the time (23), and for long after (24). Camden records of the star "Thomas Diggs and John Dee two famous mathematicians amongst us have learnedly proved, by the doctrine of parallaxes, that it was in the celestial, not in the elementary retion, and were of opinion that it disappeared little and little by ascending. Tis certain that, after eight months, all men perceived it grow less and less."(25) Tycho Brahe devotes a considerable section of his work on the new star — some thirty pages — more than twice as many as he allows to the consideration of the various other opinions and investigations of it that he passed under review, to Digges's book, and is not sparing in his praise of Dee's astronomical merits (26). Digges' and Tycho's observations never in fact differed by more than four minutes of arc, Dee's were reserved for a second work, whose non-publication Tycho much deplored. Tycho made use of a huge and specially constructed sextant, Digges from his mention of Chancellor's "invention" in the Alae, probably of the ten foot cross staff with transversals devised by Dee and Chancellor many years before (27). Both Dee and Digges, because of their conclusions as to the star's position, were objects of a bitter denunciation of the Aristotelian Craig in his criticism of Tycho Brahe, who obstinately insisted that despite any evidence to the contrary, the star and the comet of 1577, must have been situated below the moon, and that all other conjectures were physically impossible (28).

In this same year, 1573, Dee wrote two further works now lost, concerned with the new Star. Hipparchus Redivivus, Tractatulus (29) and De stella admiranda in Cassiopeae Asterismo, coelitus demissa ad orbem usque Veneris: Iterumque in Caeli penetralia perpendicularitur retracta, post decimum sextum suae apparitionis mensem. This last opinion of Dee's gained some fame, as can be seen from Camden's mention of it already cited. It was connected perhaps with his unpublished observations on the star, and is, probably, the work referred to by Digges that embodied them. Thus Tycho Brahe, speaking of Digges, writes "Facit postea mentionem Scripti cuiusdem Nobilissimi viri et Clarissimi Philosophi atque Mathematici IOHANNIS DEE LONDINIENSIS quod de hac Stella plurimis et inusitatis Organis multoties Organis multoties observata, edere in procinta habuit, quod tamen nondum vidimus: nec etiam publici iuris hactenus factum esse, a quoquem cognovi" (30); and later, "Optandum foret, si quas obtinuit in hac Stella praestantissimus ille DEE accuratas animadversiones, eas publici, iuvis factas esse. Neque enim dubito, ipsum, ut est perspicaci ingenio praeditus, praecipuaque industria et subtilitate que sunt Philosophica tractat, solida quoque diligentia, huius Sieris Apparentijs, attendisse." He discusses and rejects Dee's theory of its recession, which he says Dee had expounded in conversation to Wilhelm Landgrave of Hassus, and Cornelius Gemma had thought not improbable: "Quae sane opinio, etai ab Illustrissimo praedicto Principe, tum etiam Cornelio Gemma non improbanda uisa est: pace tamen tam horum, tum ipsius DEE (dixerim) nullatenus huic Stellae consentanea fuit Praeterquam enim quod tales per rectam lineam accensus atque decensus, motoque imperfecta, coelestibus, circulari tantum modo gyrationi eidemque absolutae et regulari perpetuo assuetis, attribui merito nequest, accedit et hoc, quod, si aliquando humilior fuit haec Stalle, ait Parallaxima habuit aliquam, aut nullam"; an observed parallax might argue, indeed would be the only direct evidence producible, for the theory, but none has been observed, so remains unprovable "esset enim is extra omnes sensus et demonstrationes vias universas praecluderest." He goes on "Stellam haec per lineam rectam esse a Terris elongasse nequaquam probabile evadit; natura etiam Coelstiam idipsum, uti diximus, adversante" (31) and combats the theory on physical grounds. Tycho himself held the star to be a new creation in the eighth sphere, which, originally one hundred tiems as large as the earth, was gradually diminishing in size. The reasons Dee felt supported his theory are unknown, the only possible one would seem to be a mistaken detection of some parallax,

gradually decreasing (that he later discovered this supposition to be in error, would be an adequate motive for his refraining from publication). In this connection it is of interest that the same theory was advanced by Elias Camerarius of Frankfurt, apparently entirely independently of Dee, and also apparently the only other astronomer to put forward this hypothesis (32). Camerarius claimed to have originally observed a parallax of 12' which had diminished by January 1573 to 4 1/2', which indicated a recession in a straight line towards the sphere of the fixed stars. Whatever the reasons behind it, Dee's willingness to form such an hypothesis has several points of interest. It means that he did not postulate solid orbs carrying round the planets, since this star he believed penetrated to the sphere of Venus; it would seem that he must have accepted a rotation of the earth rather than a diurnal revolution of the eighth sphere, since if the star receded in a straight line in relation to the earth, at the same time maintaining its position in relation to other fixed stars, then if these revolved every twenty-four hours and not the earth, the new star's apparent rectilineal recession could only be the result of a real motion in an irregular spiral of extreme complexity (33). The admission of motion in a straight line into the supra lunar regions where only perfect circular motion was generally supposed to be evidenced, was a more revolutionary hypothesis in its day than might immediately appear — it even exceeds in this respect Copernicus' innovation, who clung from "metaphysical" motives to the doctrine of the perfectly circular paths of the heavenly bodies, which was still generally cited as the fatal objection against Kepler, when he attempted to revive Dee's theory fifty years later (33A). There is also here an interesting similarity to the theory Galileo was fascinated by, and whose invention he ascribes to Plato, that the stars and planets when first created were set moving by God in straight lines until they had accelerated to their predestined speeds when their motion was converted to a circular form, in which form by its nature, and in this alone, any velocity is maintained perpetually without any alteration (34).

III. Astronomers of advanced views were fortunate in this era for in 1577 appeared a comet, which could be shown, by applying such methods for the determination of parallax as Dee and Digges had evolved and which once more yielded negative results, to be a truly celestial and not merely a meteorological phenomenon (up to this date even Tycho had accepted the sublunar nature of comets), which conclusion dealt a further blow to the unchanging Aristotelian heavens. However such phenomena were baleful and terrifying to those who set much store by astrology, and it is interesting that though no concern at all for this science is discernible in Digges' printed works, yet he submitted when so requested his opinions on the "significance" of the new star to the Privy Council (35). On the occasion of the comet's appearance — which provided the basis for Kepler's famous predictions, which were later popularly regarded as foretelling the career of Gustavus Adolphus and on which Tycho also issued copious astrological prognostications, Dee records that "whereas the judgment of some had unduly bred great feare and doubt in many of the Court; being men of no small account," he spent some time closeted with the Queen to tender advice and reassurance; who "for three divers daies, did use me," and, on their parting, "promised unto me great security against any of her Kingdome, that would by reason of any my rare studies and philosophicall exercises, unduly seeke my overthrowe." At this time he writes he made to the Queen "a very faithfull and inviolable promise of great importance." Its nature is obscure but was possibly concerned with alchemy, he continues (the date of this account is 1592) "The first part whereof, God is my witnes, I have truly and sincerely performed; though it be not yet evident, how truly or of what incredible value: The second part by God his great mercyes and helpes may in due tyme be performed, if my plat for the meanes be not misused or defaced."(36) Dee's astronomical learning seems to have been held in high respect by Elizabeth, but this does not seem to have brought him any material remuneration. He was however granted by her a crest to his coat of arms in 1574, whereupon he wrote a study of it, which he variously (37) describes as "My Hieroglyphical and Philosophical blason of the crest or cognisance, lawfully confirmed to my antient armes," and "Ten sundry and very rare Heraldic Blasonings of one Crest or Cognisance, lawfully confirmed to certaine auncient Armes." The year after the comets appearance Dee's services were again required at Court when a wax image of the Queen stuck with pigs bristles was found in Lincoln's Inn Fields (38); the Privy Council called upon him "to prevent the mischiefe," "by divers messages sent unto me one after another in one morning"; he rapidly quieted their fears by precautions taken "in godly and artificiall manner," though he insisted onthe presence of Mr. Secretary Wilson throughout his proceedings as a witness that he was not engaging, in his countermeasures, in necromancy (39). This was a period when Dee was frequently at court. It is possible that it was during a visit there which extended according to his diary from Nov. 22 to Dec. 1 1577, at the time of the comet, that he met Jane Fromond, who was according to the Compendious Rehearsall, a lady in waiting to Lady Howard of Effingham, whom he married on Feb. 5 1578. She was his second wife, but we are ignorant even as to the name of his first, who died in 1575, and whom he may have married only the previous year (40). Dee's first child Arthur, to which Dyer stood godfather, was born July 13 1579, and his family thereafter increased at regular intervals.

IV. In 1576 Dee published the first part of what was one of his most ambitious projects. It was issued in an edition of 100 folio copies by John Day Archbishop Parker's printer, who chiefly specialised in works of theology and ecclesiastical history but had also brought out the English Euclid. The thread of Dee's discourse frequently wanders, or is laid aside while collateral issues and matters of almost irrelevant detail are worked out with careful calculation, but the main tendency of the whole is abundantly clear, and amounts to nothing less than a scheme for the establishment of a worldwide British Suzerainty ruled by Elizabeth as Empress. The running title of the whole was to be General and Rare Memorials pertaining to the perfect art of Navigation. The first and only published volume is The Brytish Monarchy (otherwise called the Petty Navy Royall): for the politique security, abundant wealth, and the triumphant state of this Kingdome (with Gods favor) procuring. The remaining volumes he describes here in a "Necessary Advertisement."(41) The second was "The Brytish Complement, of the perfect Art of Navigation; a great volume: in which, are contained our Quene Elizabeth her Arithmeticall Tables Gubernauticke: for Navigation by the Paradoxall compasse (of me invented 1557) and Navigation by great Circles: and for longitudes, and latitudes: and the variation of the compasse finding most easilie and speedily: yea (if needs be) in one minute of time, and sometimes without sight of sunne, moone, or star; with many other, new and needefull inventions Gubernauticke." This, though written in four months only, he declares is greater in bulk than the English Bible, and "the contents therof, are above the most part of the best learned mens expectations (yea, or hope) of being brought to pas." But its size and large sections of tables mean that its printing would require several hundred pounds, and therefore it must be withheld "tyll a comfortable and sufficient opportunity of supply doth very well serve thereto." (A sentence he sets in capitals; and then proceeds to tell how the work contains a section "contrived and dedicated vnto the aeternall, royall and heroicall honor and renown" of Elizabeth, publication of which will ensure that all peoples, of every language, heathen or Christian, "that have to deale with hydrography" shall "most thankfully and for ever sing and extoll her marveilous princely benefit herin.") The third volume contained matter so secret that for the present it was to be "vtterly suppressed, or delivered to Vulcan his custody." The fourth volume was Of Famous and Rich Discoveries, "an earthly paradise...a booke for the BRYTISH HONOR and WEALTH...such an one as never King Ptolomaeus, or Prince Abilfada Ismael, or any geographicall or hydrographicall discouerer did write or collect." It contains "the generall survey hydrographicall of all the whole world" and also "the lawfull and very honorable entitling of our most gratious and soueraigne Lady, Quene Elizabeth, (and so this Brytish Sceptre Royall) to very large forrein dominions." None of these were to be published until the suggestions in this first volume, the necessary groundwork to the whole, had been implemented.

The work, dedicated to Hatton (42), opens with "a brief Note Scholastical" "whereby it may appere that they [the contents of his book] are not Scopae dissolutae or Du Coq a l'Asne: But by the Will and Grace of the Highest, thus recorded," and explaining why the work must be prefaced by "a mournfull and dolefull Supplication generall to all his Cuntrymen" recording his own past sufferings. Here Dee compares the three parts of man — Mens, Dianoia, and Sensus — to the three types of mankind who have contributed to the making of the book, the Philosophus or Instructor, the Mechanicus, and the Vulgariter Iustus (or Unknown Friend); for the work is set out under a transparent veil of anonymity, purporting to be written up by the third, from material supplied by the mechanician, who has gathered these in many private conferences with Dee, the philosopher. Dee then proceeds, in the person of "the Unknown Friend" to "A necessary advertisement...to the modest, and godly reader" (43). It explains the disguised authorship by observing that such slanders have been set on foot against the Philosopher that anything issued under his own name would initially be discredited by large numbers. Maintaining the third person, Dee recounts the wrongs and impediments he has suffered during his studious career. These reduce to the undue curiosity of others as to his researches, and ignorant suspicions as to their nature, the theft of his inventions, secret enemies whose machinations have deprived him of rewards or salary, those who have invented murders and treason, and "have fastened the same vpon the very innocent" (in the margin in Greek characters: "As Clerk who hang himself in the Tour Sir Jon Bourn knight Pridiox Maxel &c." (44)), those who for "private lucre only" have practised "the counterfeting of other honest and learned men their letters: as, written vnto them, in such their vngodly and unlawfull affrayes" (in the margin "Vincent Murphin"), and others "falsely reporting their conferences had with them [i.e., honest and learned men] to the behoof (say they) of such as are become their miserable and cosened clients" (in the margin "Filson"). He refers to the charge of "Conjuring," "unduly and unadvisedly, first admitted" into a work recording "those mens acts, who dyed in the cause of veritie," and which has "settled this intolerable sklander of the

vertuous, among the glorious renown of the righteous," (45) and was "even then recorded, when this courteous Ientleman was also a prisoner himself, (and bedfellow with one maister Barthelet Greene)"; a passage referring to Foxe's statements (46) which have been already examined. He notes the charge of plagiarism made against the Monas and Aphorisms, and Offusius' unacknowledged use of material Dee had supplied him with, and theft of Dee's own cosmological theories (47). Some particular injuries are set down; as the conduct of the Doctor (now reconciled after an apology) who had urged his banishment from the land for ever, since he claimed Dee never disclosed the results of his studies, and "the most Judas like pranke, of another Doctor," whom Dee had treated with "great friendship and humanity" in Paris, but who during Dee's arrest, attempted to persuade Bonner and the Lord Chancellor that Dee should be committed to perpetual prison (48). "And so hath the Feend Infernall, most craftily and unduly gotten the honest Name and Fame of one extraordinary Studious Ientleman, of the land, within his Clawes," that many hope he will never be able to redeem his reputation at all (49). As a consequence of this treatment Dee threatens that though from God he has "receyued a great Talent of knowledge and Sciences...and both by God being warned, and, of his own disposition, desirous not only to enlarge and multiply the same, but also to communicate to other," he now "partly demeth himself (in Gods Iudgement) excusable, not to bestow any more of his Talent & Carefull Trauailes, upon the Ingrateful and Thankles," for "The Brytish Philosopher is...discouraged to labor or pen any more Treatises or bookes himself in Artificial Method for his vnkinde, vnthankfull, disdainfull and sklanderous countrymen to vse (nay abuse)."(50) However once more, though anonymously, he will set forth a work, the promised sequels to which he then describes. His reasons for doing so introduce an apocalyptic note which is recurrent in his "Spiritual Diary" — a belief that his actions are making important contributions to God's larger purposes which are on the point of consummation (that perhaps he regarded the new star as an annunciation of such a new era is indicated by his dating of this "Advertisement" (51)) "Anno Stellae (Coelo Demissae, rectaque reversae) Quinto; Julij Vero Die 4. Et Anno Mundi 5540" — later Kelly's angels revealed to him — or perhaps confirmed his previous supposition, that the divine number, ruling Britain's destiny was 5536, i.e., the first year of the star (52). Thus after he has described his whole project, and Elizabeth's approaching recovery for England of "very large forrein dominions," he notes "The course of the Divine Providence generall, in this present age will bring to light and life, matter of great importance and consequency, both to the glory of God and the benefit of all Christendom and Heathens," which is connected in some way with his Famous and Rich Discoveries, "for, in the secret centre therof is more bestowed and stored up, than I may, or (in this place) will express." (The only surviving clue to this last is perhaps Dee's statement of 1583 that the Angel Annael is "the Chief Governor General of this Great Period, as I have noted in my booke of Famous and Rich Discoveries."(53))

The main theme of the text is allegorically represented in an elaborate frontispiece carefully engraved from Dee's own design (54). Elizabeth sits at the helm of the ship of state, which contains representatives of the three estates nobles, clergy and commons, her hand is stretched out to grasp the hair, blown towards her, of a naked "Occasio," who surmounts a fortified citadel on land, her foot resting on a tetrahedrom that crowns it (55); St. Michael with sword and shield protects the vessel; stars, sun and Moon appear together in the sky, favouring the enterprise, and a radiant sphere, bearing the Hebrew tetragammaton emits beneficent effluence from the top right corner (56). A female figure kneels on the shore addressing Elizabeth, a navy is placed on the left and in the foreground, on land, two figures, one of which comes from the fleet, are shown in various stages of what is apparently an amicable conclusion of a treaty. As the ships fly Dutch colours (57), this is probably a suggestion for an open alliance with the Netherlands (which had been receiving officially sanctioned though unrecognised, support in men and materials for some years from England) against Spain, such as Dyer and Gilbert urged. (Later Dee was to express regret that Elizabeth did not accept their proffered crown.) Dee refers to this title page in the text (58): "Why should not we HOPE that, RES PUBL. BRYTANICA, on her knees very humbly and earnestly Soliciting the most Excellent Royall Majesty of our ELIZABETH, (sitting at the HELM of the most Imperiall Monarchy: or, rather, at the Helm of the IMPERIAL SHIP, of the moste parte of Christendome, if so it be her Grace's Pleasure) Shall obteyn (or Perfect Policie may persuade her Highnes) that, which is the Pyth or Intent of RES PUBL. BRYTANICA Her Supplication? Which is, that may help us not only to But make us, also, Partakers of Public Commodities Innumerable, and (as yet) Incredible. Unto which the HEAVENLY KING, for these many yeres last past, hath by MANIFEST OCCASION, most Graciously not only invited us: but also, hath made Even Now the way and means most evident, easy and Compendious," for now "there is a little lock of LADY OCCASION, Flickring in the

Ayre by our hands, to catch hold on." Similar opportunities have been missed in the past when "The Brytish Monarchy hath byn Capable of the greatest Civile Felicity that ever was in any Particular Monarchy Els, in the whole world: Yea, so Incomparably that it might have Cotended for the Generall Monarchie, with any that have byn. If requisit Policy therto had byn used in Due time and Constantly Followed."

Dee claims that his view of Britain's future is a result not of national partisanship but is based on a consideration of global politics and development; thus he writes of himself, referring to his travels and geographical studies, that it is "a purpose, somewhat answerable to a perfect Cosmographer, to fynde hymself COSMOPOLITES: A CITIZEN AND MEMBER OF THE WHOLE AND ONLY ONE MYSTICALL CITY UNIVERSALL: And so consequently to meditate of the Cosmopoliticall Government thereof, under the King Almighty: passing on, very swiftly, towards the most Dreadfull and most Comfortable Term prefixed."(59) The mystical and apocalyptic imperialism that appeared in Dee's address to Maximilian in the Monas, and is evident again in his relations with Rudolph II, and which he perhaps imbibed in some measure from his persistent studies of Roger Bacon (60), is here focussed on Britain whose monarchy he equates with the "Templum Pacis" which is Solomon's Temple, and declares "The Preeminence and Priviledge by GOD and NATURE appropriate to this BRYTISH MONARCHY is Incredible; and will be yet for a while."(61) Continual stress is laid on Elizabeth's rights titles and coming imperial status (62), but despite various rhetorical passages of passionate exhortation (as that on the necessity of seizing control of the sea beginning "O LABION, O BRYTAN, O ENGLAND, and (I say) O BRYTAIN agayn...."(63)) Dee's approach in general to the matters he discusses is severely practical in tone; he is more concerned with suggesting material details that can be at once enforced and will bear immediate fruit than in developing the deeper, and perhaps, religious, implications that he clearly looks forward to as involved in the completed scheme. Only occasionally does he indicate that what he here envisages will contribute to, and in turn be assisted by, "secret Philosophy." Thus, discussing the expenditures of moneys raised for his general purpose, he follows the suggested allocation of a fund for endowing engineers to encourage them to develop military mechanical inventions and improved fortifications with the further, apparently for him, equally important request "Moreover some Parte to be bestowed on Fowr Christian Philosophers, Skilful or to become Skilful, and also Excellent: both in Speculation, and also Practise, of the best Manner of the Ancient and Secret Philosophie: which is not Vulgar: but Vndowtedly, which may be most Comfortable and Profitable to Some, of Courteous KALID his Disposition"; and by the titles of matter on which these should be employed, Dee writes (of himself) "it may Evidently appere that my Instructor hath (as it were) but opened the Doore of his Philosophicall and Politicall Brytish Furniture," in the present volume (64).

V. The Britain Dee envisages as emerging from his policy is a closeknit corporate state, firmly based on Tudor "compromise democracy." The Commonwealth he divides into Commons, Lords Spiritual, Lords Temporal and Elizabeth (65); the three estates to be "cared for" with their own consents (organised in Parliaments, etc.) by the sovereign (66). Many of the measures he proposes are aimed at the centralised control, or state annexation, of activities which are liable to be positively harmful, or not developed in accordance with the greatest possible degree of public welfare, if left to unrestricted private enterprise. It is essential, he holds, to frame a policy "so, that Private Gayne, Delight, or wilfulness shall not so much either recklessly, craftily or violently devoure or bar the PROFIT PUBLIK."(67) He discusses however the dangers in administering through public boards and commissions the various activities necessary to the building up of sea power his plan involves, and the control of monys for the Petty Navy Royal. These he identifies as, chiefly, probable corruption, the diversion of funds from their proper purposes by the commons and waste and inefficiency. All these he admits as extensively operative in the past, but he hopes they will not affect his scheme, which is such as to evoke a new moral spirit of national honesty and pride which will eliminate them. "But, in this our Gift, and Publick Oblation, the whole Realm is privy: the whole Realm consenting: the whole Realm ayding: and the whole Realm, certainly feeling the Publick Commodity of Peace, Wealth, and Blessed Security thereby enioyed."(68) Dee is so certain of the unity of feeling and ideals that will permeate the citizens of the new Britain, that he goes so far as to suggest (69) when discussing methods of taxation to be imposed to meet expenses incurred in establishing and maintaining the Petty Navy Royal, that the discussion if not now of purely theoretical interest, at most will be of practical importance only in the initial stages of the experiment, after which the benefit of the scheme will be so apparent to all, and so directly affect them, that the spontaneous generosity of the people will provide all funds necessary for its continuance. And then at last will arrive — "O godly Intent, o long looked for Commonwealth," "Commonwealth, Invincible Strength, and Immortal triumphant Fame, three most lawfull Brytish Children, and long wished for, of the true Brytish and Christian Druids, they being also Politicall Philosophers, and not Sophisticate."(70)

This scheme seems to have been long meditated by Dee (71) and he now produces his whole armoury of arguments in favour of the establishment of the Petty Navy Royall, the first step, towards his more general aims, and principle instrument for this realisation, "the only Master Key wherewith to open all locks that keepe oute, or hinder, this Incomparable British Empire...from a great mass of Treasure" and which will usher in "the most joyfull and pleasant Brytish Histories...that ever to this or any other kingdom in the whole world els was known or perceived."(72) Advice to the same effect by Pericles ("quod Naves Divitias, Divitias vero aegestatem ducerant") is reported and analysed (73). Thucydides is drawn on for his account of the admirable Athenian "Sea Ordinances" — and a whole Latin treatise of Georgius Gemistus Pletho — de Rebus Pelopennesi — offering advice to Emanuel Emperor of Constantinople on the building up of a secure state by means of a powerful navy, is reprinted (74). (This Dee extracted from a book published little more than a year before his own (75), and is perhaps of interest as being the only direct reference to Pletho, the fountainhead of the great tradition of mystical neo-Platonism in the west, in any of Dee's extant writings though other works of Pletho appear in his library list.) Dee also holds up as a model the policy ("O wisdom Imperial, most diligently to be Imitated") that he attributes to Edgar "that Saxonicall Alexander" "one of the perfect Imperiall Monarches of the British Empire," for by his possession of a large navy and by his sailing in person once a year round the confines of Britain accompanied by four thousand sail "at least," he "made evident to the whole world, that, As he wisely knew the Ancient Bounds and Limits of the Brytish Empire: so that he could, and wold, Royally, Justly, and Triumphantly Enioy the same: Spite of the Divell and Maugre the Force of any Forreyn Potentate." For, writes Dee, "This peacable King Edgar had in his minde about six hundred yeares past, the representation of a great part of the self same Idaea which from Above only and by no man's devise hath streamed down into my imagination."(76)

The Petty Navy Royal Dee suggests should consist of sixty ships, each between 160 and 200 tons, as well as twenty smaller barks (77). 6660 men would man them, and "those men liberally waged."(78) The consequent advantages (79) would be that all foreign shipping in British waters could be easily controlled, fear of invasions would be eliminated, merchants would be protected on the seas, and the threat off such a navy would enforce their privileges abroad, all pirate vessels could be suppressed and their personnel could then be conscripted, foreign fishing in British waters could be checked, or regulated, the vagrancy problem would be solved, with the consequent increase of merchant shipping more skilled sailors would be available in time of war, there would be a standing force of some thousands of "Sea Soldiers" "to this Realme a Treasure

Incomparable," which could also be employed upon land in suppressing of rebels in Scotland and Ireland and in the speedy apprehension of all foreign offenders lurking within British Territories.

The total cost of the enterprise Dee estimates at 200,000L yearly, of which one half could be immediately covered if one tenth of all foreign fishing in British waters should be levied as a tax and allocated to the navy for ever. He suggests also "a perpetuall benevolence for sea security" in the form of a direct tax on income and property, and a poll tax on foreigners residing in Britain which if enforced on the scale he recommends would remove the need for any other form of subsidy (80). A mass of exactly calculated detail is presented to cover every aspect of the project. The amounts of provision, and armaments necessary are stipulated. The practise of exporting saltpetre, gunpowder, and other munitions or their ingredients to foreign and potentially enemy powers is deplored. Private building is to be severely restricted to conserve materials needed in the general plan for naval expansion, and ironworks are to be stopped to preserve England's woods which are the more necessary commodity in Dee's eyes, particularly as, he claims, English iron is of poorer quality and dearer to produce than foreign. The nation's food supplies are to be regulated by an enforced storage of grain in times of plenty, which procedure will lower the price and maintain it always at a consistent level; Dee works out the permanent prices for a variety of foodstuffs that are to be achieved by similar methods of control. He vehemently attacks the "Stinching, Souyling (or rather Beslavering)," of the Thames, which results in a severe loss to the national revenue by driving away the Western Smelt, as well as threatening the public health — and he goes so far as to put forward alternative proposals for the disposal of sewage to those generally used, in order to keep the Thames pure. He demands the prohibition of three — formerly illegal — "engines" from the Thames: Trinkers, Timbernets and Kyddels, the use of which causes a loss which he calculates at 90,000 bushels annually "of Myddle Marketable good Fish" by destruction of the fry, and he produces other economic as well as legal (e.g., citing Statute of Henry VI, anno 2 against them) arguments to urge this measure (81). Especially is he concerned to build up the English Herring fishery (in regard to which the question of "Sea limits," which he treats of in another work, becomes highly important) and to check foreign poaching in English waters, which, he calculates, results in a monstrous loss of revenue and national income annually, and to impose a heavy tax on all permitted foreign fishing.

Of his plan for this Petty Navy Royal and his exactly detailed programme for its foundation and upkeep, and the consequent reformation in the spirit of the country at home, and the inevitable effect on Britain's position in the world at large, Dee writes: "Yt seemeth to be (almost) a Mathematicall demonstration...for a feasable Policy to bring or praeserve Victorious Brytish Monarchy in a marveilous Security."(82)

VI. More than twenty years later, when it must have been only too apparent that no general contemporary realisation of his proposals was to be looked for, Dee apparently unable to abandon at least the contemplation and theoretical elaboration of his theme, wrote in 1597 a continuation of, or rather expansion of various points that had been raised in, General and Rare Memorials. This was entitled (83) which it will be more appropriate to summarise here than in its chronological place. This is once more written "To my very honorable frende Syr Edward Dyer Knight," and was composed under difficult circumstances when Dee was struggling with the confused and corrupt administration of Manchester Collegiate Church, he "Having wonne (by snatches) from my College Cumbers some few howres."(84) It represents perhaps Dee's last attempt to influence directly and personally the policy and political development of Britain, the glorious future of which he persisted in regarding as imminent, if only some slight material support for his suggestions were forthcoming. But the memory of past disappointments lingers noticeably in many passages of this later work. He makes many references to General and Rare Memorials, as the book on which he had chiefly relied to win the adoption of his programme, whose aims he declares as being then shared by many others, for "At the time of which booke printing great hoap was conceyved (of some no simple politicians) That her Matie might then have become the Chief Commander, and, in manner Imperiall Governour of all Christian kings, princes and estates: and chiefly of those parts of whose Dominions and territories, did in any place admitt good landing from the Sea, or whose Subjects with Ship or goods did or must pass and use any of her Majesties appropriat and peculiar Seas."(83) Towards the end, he returns to this theme; speaking of his earlier treatise on Elizabeth's title to many foreign territories (1578) he adds "Yet, for all that my grief is not small; for that I can not, as yet understand: what Just and sufficient Occasion hath byn, or could be given or founde (for these 21 yeres last, past) wherefore neither the said Lands, neither yet the Sea jurisdiction duely and dutifully declared and manifested) have byn or ought to have byn made so little account of. And so, my Labours (after a sort,) vaynly Employed."(86)

Nevertheless Dee once more is prepared to assume the role of "the carefull, expert and faithfull politician subiect," (87) and takes up his earlier theme again, this time considering the legal basis of his design rather than the practical methods of enforcing it. He refers to his earlier work for "the consideration of her Maties Royall Sea limits, and her peculiar Jurisdiction, in all the Seas next unto her Maties Kingdomes, dominions and territories," but adds that now "it were good that some expert Mathematician or Mechanician (somewhat skillfull in Jure gentium et Civile and in the true Idea of Justice and Aequum and Bonum) would, viva voce, explain unto you and also practically demonstrate some of those Laws and Lawyers intents which are but briefly here touched" (88) and draw maps to illustrate this.

As an aid to this object the present treatise is written; and invoking a host of legal and historical authorities (Strabo, Ptolemy, "Caius, Calistratus, Paulus, Pomponius, Celsus filius, Alphenus Florentinus, Proculus, Labeo") Dee expounds "that Idea off perfect Equitie whereuppon, the philosophicall Judgment of Sea Limits determinings" (89) is founded, by laws "de acquirendo rerum Dominio." This is, briefly, that the limits to a Monarch's absolute dominion on the sea are to be drawn exactly halfway between the coasts of his territories and those of adjacent foreign powers. Once this is recognised Dee declares "if they [foreign powers] do or will mislike hereof: [his present claims] Then (seeing our Right is grounded upon Christian Aequitie and warranted by Law) we may by the Vigor of the same our Right use Might sufficient to guarde and enjoye the same: as Occasion shall require."(90)

This simple, equitable, proposition has far more formidable consequences than is at first a parent. In the General and Rare Memorials he had bitterly attacked the Portuguese-Spanish division of the world (91), and demanded, if "That Petty Marchantlyke King of Portingall" can do this, "shall now we, have the Courage and skill rightfully to enjoy the very precinct of our own Naturall Islandish Walls and Royallty of our Sea Limits here, at home,and before our doors"? Now, settling the rightful limits on the sea due to various countries, Dee manages to engross considerably more than half the ocean surfaces of the world for Britain. This he performs by taking her furthest outlying possessions as the starting point from which to make the halfway division between British and foreign coasts. Thus after dividing the sea between France and England southwards to Alderney, he continues "And here you must take another consideration most needfull for There, and in that Sea, Westerly (for no little tract) her Matie undowtedly, hath absolute, peculiar and appropriate Sea Soveraigntie and Jurisdiction Royall. As being the Seas betweene onely her owne England and her owne Ile of Guernsey."(92) He also revives, as a basis for this division, claims for Elizabeth to various foreign states. He insists on her title to France (93), which thus ensures English control of the entire channel; and since Scotland owes fealty to England, recognised by James' hommage to Henry VI in 1423 (94) one half of the Atlantic —

"The same lying betweene the Next Opposite Seashore of that famous and very Ancient Platonicall or Solonicall Atlantis and the Kingdom of Scotland" (95) — becomes British sea territory. Other rights are discovered by the evidence of ancient British histories (96); Dee's study of these is indicated by a lost work written in 1583: The Originals, and chiefe Points, of our auncient Brytish Histories, discoursed upon, and examined (97), other titles are based on nothing more than some anciently employed customary name (98). The whole, stuffed with miscellaneous learning supporting entirely legalistic arguments, has an air of fantasy about it of which it is hard to believe Dee himself to have been quite unaware, since here his grandiose imaginings range entirely unchecked by practical considerations of immediate measures that may possibly be taken to effect his designs to which the earlier work was devoted.

VII. However personally peculiar or remote from actuality these writings of Dee appear at first, they can be paralleled in almost every point by activities, or active controversial discussion, connected with important exploits or contained in other writings of the day, and in some respects Dee's suggestions do not seem to have been devoid of practical fruit. In general one can remark that his extreme patriotism, and confidence in an imperial future for Britain based on sea dominion, is and long remained a common theme — it is as pervasively apparent in Purchas' writings for instance as in Dee's, reflected in the frequent literary identifications of Britain as in the Fortunate Isles, as Insula Deata (99). The intense Elizabethan pride in the navy is another general characteristic of the age, given expression by Dee, for though Elizabeth only increased the complement of ships from twenty-seven to twenty-nine. She maintained them at a standard of efficiency which later lapsed under James, and Fuller declares that "the Navy Royall was erected by Queen Elizabeth"; again, Dee's advocacy of direct national support for important ventures is by no means an isolated demand, and became a crucial issue in respect to many of them, Fuller was regretfully to comment on the Newfoundland project "Had this discovery been as fortunate in public encouragement as private industry, probably before this time we had enjoyed the Kernel of those countries whose shell only we now possess."(100)

One testimony to the seriousness with which Dee's work was regarded is a letter written to him by Dr. Aubrey one of the Masters of Requests, dated 20 July 1577 after a reading of Generall and Rare Memorials (101). After some preliminary courtesies and personal matters (he compares Dee's scheme with the child his wife was then carrying, and says he is "trusting in God that shortly bothe in theire severall kindes shall come to lighte and live long and yours having genium for ever"), he proceeds "the matter doth so shine with the manner of the handlying that I am in doubt whether I shall preferre the matter for the substance weight and pythiness of the multitude of the arguments and reasons: or the manner for the method: order, perspicuity and elocution in that height and loftiness that I did not believe our tongue (I meane the English) to be capable of. Marry our British for the riches of the tong in my affectionate opinion is more copious and more advantageable to utter anything by a skilful artificer...You argue or rather thoundre so thicke and so stronglie for the necessitie and comoditie of yor Navye that you leade or rather drawe me obtorto cello to be of opinion with you." He repeats at length some of Dee's arguments on the advantages of a strong fleet, and on Elizabeth's sovereign rights over various seas, and adds "As her Matie of right is given in the rest of the world by Labre in our Learning to Antoninius the Emperour, so she should have the execution and effect thereof in our world if your navie were as well settled as you have plotted it...I would God all men would as willinglye bear the light burdens that you lay upon them; for the supportation of the charges as you have wisely and reasonablie devised the same." He ventures only two criticisms, firstly as to the employment of the navy's personnel in times of peace, which Dee had neglected, "assure yourself those whelpes of yours neither can nor will be Idle, and except it may please you to prescribe unto the same some good occupations and exercises, they will occupie themselves in occupations of their own choices, whereof few shall be to your liking or meaning," and secondly — and this indicates how outspoken Dee had been in his discussion of practical affairs of high policy — Aubry writes of Dee's suggested prohibition of the export of munitions etc. "Lette me be also bolde to offere to yor consideration whether it be expedient for you so freely to deale with the carrying of ordinancies oute of the realme" since a late order had expressly permitted this to be done.

Among the subjects treated by Dee, that were burning issues in the day, was the problem of foreign herring fishing in English waters — carried on to such an extent Dee had commented bitterly, that though the channel bears the name Mare Brytanicum, "yet the Herring therein taken are called Halec Flandrorum" (102) — and the encouragement of the English fishing trade, which long remained a question of pressing importance and engaged the attentions of Keymer, Tobias Gentleman, Sir William Monson, Sir John Burroughs, and Ralph Hitchcock (103). This last, the brother of the Hitchcock to whom Dee presented a copy of his work, who wrote on problems of victualling and armament of ships such as Dee there touched on, is mentioned in it (104) as an "honest Ientleman of the middle Temple" studying problems of Herring Fisheries "who very discretely and faithfully hath dealt therein and still travaileth, (and by divers other wayes also) to farder the Weale-Publick of England so much as in him lyeth" (the marginal initials R.H. have been expanded to his full name by his brother in the B.M. copy). Dee does not seem however to have known him personally at this time and perhaps they were brought together by the publication of Dee's work, for the Diary entry July 5, 1578 reads "Mr. Hitchcock, who had travayled in the plot for fishing made acquaintance with me, and offered me great curtesy." Hitchcock's scheme indeed offers many close parallels with Dee's own, and although it was not published until some years after Dee's, in manuscript it had been in circulation since 1574, and had excited apparently

considerable public attention at the time Dee was composing General and Rare Memorials. Hitchcock published it on Jan. 1 1580 under the title: A Pollitique Platt for the honour of the Prince, the greate profite of the publique state, relief of the poore, preservation of the riche, reformation of Roges and Idle persones, and the wealth of thousands that knowe not howe to live. Written for a New yeres gifte to Englande, and the inhabitants thereof. Like Dee he complains bitterly of the decline of English fishing under foreign competition; on a chart showing the chief ports of the Netherlandes (105), he remarks that from twelve of these only "there went out yerely of these twelve tounes...above fower hundred Busses or great Shippes to Fishe for Herrynges upon the Easte Coaste of England," but like Dee he looks to a general revival of English power and prosperity as resulting from the implementation of his scheme for improving the English ports and building a fleet of larger warships for their defence, a project he anticipates can be completed in three years and "without coste or charges to any man."(106) Like Dee, he enters upon minute calculations regarding every aspect of his proposal. 80,000L is to be raised by a forced loan for three years at 10%, and the precise contributions of the various shires and parts, proportioned to the amount of benefit they will immediately receive, and the numbers of vessels to be assigned each port, are laid down. The ships are to be of 70 tons on the pattern of Flemish Busses, to cost to build and equip 200L each, and to be manned by one skilful master, twelve regular mariners, "and XII of the strong lustie Beggers, or poore men: taken up through this lande." The conscription of these is an important factor of his plan, and by this he promises there will be "Nyne thousande Marriners more then now presently there is 10 serve her Maiesties shippes at all tymes neede bee."(107) The fish procured, by the expeditions of this fleet (he prescribes they shall be barrelled after the Flemish manner, as soon as caught with other details regarding their packing and disposal), Hitchcock works out, will not only supply the whole realm sufficiently, thus eliminating the present import of fish, but will leave up to 32000 "lasts," over, to be sold in France. Not only does Dee betray awareness of this "platt" in the General and Rare Memorials, but he may well have felt encouraged in urging his more extensive though similar proposals, by the active support that Hitchcock's evidently had secured. For Hitchcock records (109) "In the eighteenth yeare of the Queene's Maiesties raigne, five or sixe daies before the Parliament house broke up, I hadde the Burgesses (almoste) of all the stately Porte tounes of Englande and Wales, at a Dynner with me at Westminster, amongest whom the substaunce of my Platte was red, and of every man well lyked," many volunteered then and there he says, to advance from their own pockets the money to build all the ships allocated to their particular ports, and professed themselves ready to embark on the scheme as soon as possibly might be. In 1574 a copy had been sent to Leicester, and now in 1576 further copies were sent to the Queen, some members of the Privy Council, and twelve others to "Councellors of the lawe and other men of greate credite hopyng that God would stirre uppe some good man to set out this worke, which the author (beyng a Soldiour, trained up in the warres and not in scholles, with greate charges, and travaile of mynde for his countries sake) hath devised and laied as a foundacion, for them that hath iudgement to buylde uppon" (109) (a sentence which suggests a further possible connection with Dee's work, if Dee saw himself in such a role). The matter was raised in Parliament, for Hitchcock continues, "Amongest whom, Maister Leonerd Digges (110), (a proper Gentilman and a Wise) had one Copie, who (being a Burgesse of the house) tooke occasion there uppon, to desire licence to speake his mynd, concerning this Plat saieying he spake for the common wealthe of all England, and for no private cause." Digges, Hitchcock declares, "hath gained thereby, bothe fame and greate good likying of all the hearers," but the matter was deferred until the next session, when the "platt" might be read out in full, but nothing further seems to have been done.

The problem to which Dee and Hitchcock propounded solutions, though abortively as far as any immediate consequences were concerned (111) was however quite generally recognised at the time as one of considerable gravity (112). A large proportion of Henry VIII's navy had been provided by the fishing fleets, but they had declined after the Reformation, partly it was supposed, since it was no longer obligatory to substitute fish for meat on the Friday; the Navigation Act introduced by Cecil for the encouragement of lawful trade, which earned the title "Cecil's Fast," had been in part aimed at rectifying this situation by making the eating of meat on either the Friday or Saturday a misdemeanor, and a series of bills from the time of Ed. VI aimed at the same purpose (113). Fulke Greville praises Elizabeth for her concern with this matter for "she cherished the fisherboats with priviledges along her Coasts, as nurseries of Seamen; brought Groniland and Newfoundland fishing in reputation to encrease her stock of Mariners, both by taking, and transporting what they took far off" (114) and, under james I (in 1609) a proclamation was made, much in accordance with Dee's demands, in this work, that required all foreign fishing vessels to obtain a license, at London or Edinburgh before they could ply in English waters (115), the extent

of these being left undetermined: (in practise it was completely ignored by the Dutch). Again in 1623 a scheme was urged, which seemed to have same hopes of success, based on Dee and Hitchcock's suggestions: A Fleet Royall of twenty ships was to be built to protect a host of new fishing vessels, and the expenses of the scheme were to be defrayed by a tribute of every tenth fish (116).

With the exception of Hitchcock's Platt which, however, was not published until three years after Dee's work had appeared, the General and Rare Memorials is perhaps the first extensive study of the problem to become at all well known, or to receive serious attention. Though its arguments on this topic were still remembered well into the following century by a few (117), its importance is less reflected by its individual survival, than by the way in which it seems to have set the tone for many other treatments that were produced after it throughout the reigns of Elizabeth and James. Camden, a close acquaintance of Dee's complains in much the same vein of how the Dutch have seized opportunities that the English should have exploited. Visiting the coasts of the North Riding of Yorkshire, he comments bitterly (and incidentally providing an isolated, but perhaps not very weighty, piece of evidence that foreigners were officially expected, or in fact ever troubled, to obtain licences for fishing in English waters), "those of Holland and Zealand carry on a very great and gainful trade of fishing in the sea here for herrings, after they have, according to ancient custom, obtained licence for it from this castle [Scarborough]; for the English, always granted leave for fishing, reserving the honour to themselves, but out of a lazy humour, resigning the gains to others, it being almost incredible, what vast gains the Hollanders make by the fishery on our coast."(118) A tract on the fisheries — Observations on Trade and Commerce — is also concerned, like Dee's work, to stimulate English efforts by alarming accounts of the Dutch fisheries in English waters — the value of their annual exports is estimated to be two million pounds — and the same line is adopted by Tobias Gentleman in England's Way to win Wealth of 1614, who declares that "the British seas" are "the treasury" which has enabled the Dutch to conquer Spain (119). A tract on the same lines as Dee's, it is indeed a detailed working out of many points raised in the General and Rare Memorials, accompanied by a wealth of similar calculations, but at first sight even more fantastic in many of its claims, was that written by Keymer — Raleigh's most trusted and devoted lieutenant — about 1603, "Demonstrating that there is more Wealth rais'd out of Herrings and other Fish in his Majesty's Sea's, by the Neighbouring Nations in one year, than the King of Spain hath from the Indies in four."(120) Fishing in English waters he claims is "one of the greatest Sea-businesses of the World," 20,000 sail are engaged on it; 400,000 persons supported by it; but statistics prove that England itself has only a comparatively negligible share in it, less than many single continental cities. "Embden...hath 1400 [fishing ships], almost as many as belong to all England," while Holland puts us to shame by contriving to build 1000 new ships a year, "yet having in their Soil neither Matter to build them, nor Merchandizes to set them forth."(121) His picture of the benefits that will necessarily follow if England encourages its fishing — the home industries that will be developed by the increased shipping, the social reformation that will accompany full employment — is very similar to that previously drawn by Dee. He ends with an account of the virtuous industry of the Dutch which brings individual prosperity and commonwealth and national security, which is intended to inspire England to imitation: "And not a beggar there, everyone getting his own Living, is admirable to behold; there the Poor man, tho' he be Blind, and have but one Hand, will get his own Living by turning the Wheel for making Cables and Cordage; and another that has not one Leg, will get his own Living, sitting on a seat, with Knitting, and making of Nets and Hooks; every Boy and Wench from 10 to 12 years, and upwards, will get their own Living by winding Hemp, Spinning Yarn, making Twine and thread for Nets. So Idleness, Beggary and Penury will be driven out of this Land," (122) if the fishing industry is developed in imitation of the Dutch.

Dee's general advocacy of large scale measures relating to the English fishing and naval power were not therefore entirely without influence, at least on the climate of opinion in the immediately succeeding period. At the same time, it would appear from an account in the enlarged edition of 1618 of Stowe's Survey, that some of Dee's more detailed suggestions for the preservation of fish in the Thames, were adopted, and found in practice to be successful and beneficial. Stowe finds this problem still acute, exclaiming "Oh that this worthy River might be spared, but even one yeare from nets etc. but alas, then should many a pore man be undone. In the meane time it is lamentable to see how it is and hath been choacked of late, with sand and shelves, through the penning and arresting of the course of the water, for commodities sake." But later, he adds: "And whereas there are a certain company of Fishermen called Trinckermen, frequenting the River of Thames Eastward, who (in times past) not onely have been reported, but also manifestly approved and found out, to make an infinite destruction of the young broode and Frie of Fish, by

use of unlawfull nets, and unpermittable engines, feeding and glutting their hogges with them, as M. Doctor Dee reporteth: By the diligent and extraordinary cost and care of the Lord Maior, his Brethren and the rest of the Citizens of London, as also the vigilant respect of his worthy Officer the Water Bayliffe, day and night attending to cut off such an horrible abuse; those unlawfull nets and engines are now quite suppressed and a true and orderly forme of fishing brought into use that such waste and havocke may no more be made. Through which restraint of robberies and application of continuall providence our River of Thames (the Honor and Beauty of this Whole Island) is become again most rich and plentifull, yielding dayly out of her bountiful bosome great store of fish of all kinds, and at much more reasonable rate, then in many yeeres past hath beene seene, as our Weekely markets in this honourable cittie, can better testifie than I report, a matter highly to be commended and (no doubt) but will be as heedfully continued."(123)

Further evidence of the way General and Rare Memorials was regarded is provided by a presentation copy in the British Museum; inscribed on the flyleaf "Saylor Hichcocke book the gift of Dockter Dee '77." Hitchcock himself has underlined much of the text and remarks "Doctor Dee intencioned one of the best plats for England: yf it had been then performed, honourable and profytable for prynce and subiectes." A second hand has added numerous notes, mainly of the heads of Dee's discourses (chiefly on the foundation of the new navy, the taxes necessary to finance it, on the herring fisheries and proposals for cleansing the Thames). This unknown comments "Out of this Humorist (i.e., Dee) many good noats may be gathered and grounds layd for petitions wch touch many necessary redresses as in perusing him may be observed for the publicke good of the Realm. Wth the reviving execution of sundry necessary Statutes which are now neglected to the wrong of the whole Kingdom." Lastly a document only partially preserved has been appended, of one hundred proposals "for Englands Improvement Temporall" — styled by the writer "this century of Cooks and Bulls (for when are all worldly thoughts other)," many taken directly from Dee, while others are concerned with such diverse matters as cutting canals through various areas of England, methods for subduing the Saquintiarias in America, or paying the expenses of the Irish War. This document Professor Taylor has suggested (124) was perhaps written by Sir Harry Vane, who was instrumental in putting into force a number of similar measures to some of these here proposed, under the commonwealth.

VIII. The imperialism that informs the whole, and indications of which are frequently encountered elsewhere in Dee's writings, never perhaps in its full scope attains unequivocal expression in General and Rare Memorials, though the general trend of Dee's aims here is fairly apparent. While the ideal of a single, secular, world government, or at least of the recognition of one great power dominating a federation of other states, is not unconnected with, and may owe much to, in tradition of such a doctrine, apparent in earlier thinkers such as Ockham, or Marsilius of Padu (Dante argued at length that a world empire was the only and necessary way to achieve the abolition of war and the enforcement of universal law (125)) — the form in which it appears in the sixteenth century as in Dee, is, in a novel sense, determinedly nationalistic. Dee's version of this ideal, particularly the apocalyptic and visionary religiosity that for him was closely involved in it (the Emperor was to be not merely Dominus Mundi of Roman Law, but also by being the means of restoring Justice to the world and effecting a general moral regeneration a sort of spiritual Redeemer) may be compared, as may various other features of his thought, with the similar views of Postel, who also advocated the establishment of an empire unifying the world, though for Postel its head was to be the King of France; proclamations of the imminence of this French Empire indeed recur constantly in his work, no matter how apparently foreign to this theme their ostensible subjects may be. Thus he concludes a work on the "True" significance of the constellations and their symbols by a defence of the possibility of such an Empire, coming into being and its consonancy with the laws of Fate in all three worlds, which concludes "Sic enim Ratione humana duce (etiamsi nec sacrum, nec coeleste, nec humanum pro suae primogeniturae iure decretum haberent) videntur Gallicae res esse constitutae, vt sit impossible alterius populi consensu & votis formari, fundar & defendi Imperium verum & Monarchicum, quam Gallici...Nam Lusitania Anglia, Polonia Moschavia atque si quid est inter christianos Romano aut Germanica imperio nondum subiectum ne ad momentum quide duraret si imperator Rex Galliae esset, aut si, quod est vt facilius ita expedentius & magis praedestinatum, Rex Galliae esse Imperator."(126) In England also, frequent echoes of Dee's aims in this way are to be found, particularly when fervent protestantism joined hands with an ardour for discovery, colonisation and commercial expansion. Thus it is a constant theme in Parchus' writing that England will achieve imperial status by acquiring dominions in the New World ousting Spain from her overseas possessions, and will rise to World Power by means of a mighty navy; the importance he placed upon this last leads him even to declare "Yea without a Navy Salomon had not been so meet a type of Christ" or nearly so glorious in other respects (127).

Nor should one dismiss too lightly, as purely idiosyncratic or negligible features, in his treatment of this question, even the slightly fantastic legal and antiquarian investigations of Dee into Elizabeth's "rightful" titles and dominions. That he was consulted in all seriousness on similar matters, the Diaries show (as Peckham's enquiries on the Hispano-Portuguese division of the World). Hackluyt reprinted in Principle Navigations the whole of Dee's discourse from this work on King Edgar which dealt to some extent with these topics and includes an exhortation that England "discreetly and valiantly recover," some or all "our ancient and due appurtenances to this Imperiall British Monarchie."(128) Dee's emphasis on Edgar's exploits indeed would seem to have been fully justified, and it is echoed by every later treatment of the subject, for as a modern authority declares: "There appears to be only one instance before the Norman Conquest in regard to which prima facie evidence was produced that an English King expressly claimed the Sovereignity of the Seas" (129) which is Edgar (959-975); the chronicles agree on his naval power, and the charter which he granted to the Cathedral Church of Worcester was still extant in which he explicitly advanced this claim, and was quoted by Dee (though the preamble in which it occurs has been suspected of being a twelfth century forgery). Thus Charles I put Edgar's effigy on the beak of his great ship Sovereign of the Sea, and inscribed his name on a motto on his guns, and Cromwell quoted Edgar at the Dutch Ambassador during the negotiations after his first war with Holland (130). Thus Selden in the second book of his influential Mare Clausum, setting out to prove from Anglo-Saxon records that the dominion of the seas had always been claimed by Britain, has to rely very largely on accounts of Edgar. He cites Florentius and "the Monk of Malmsburie" to show that Edgar sailed right round his possessions once a year to maintain his sovereignty, he quotes Florentius again and Hoveden on Edgar's three fleets of 1200 ships each and those "very stout ones" — though he would prefer to believe John Brampton's figure of 4000, or Florilegus' of 4800 ships. He describes Edgar rowed by eight Kings up the river Dee, himself at the tiller, followed by his princes and peers, and, echoing Dee, declares Edgar's policy to have been such "as if hee intended to set forth the splendor, magnificence and as it were an Epitome of his whole Empire in Sea affairs and shipping." Selden's final piece of evidence is of course still the Charter of 904 to Worcester Cathedral, which he holds to be conclusive "if so bee the copie

were rightly rendred by those who many years since printed so much of it as concerns the title." These were Dee and, after him Purchas, and Selden proceeds to quote it, adding "So John DEE, a man well seen in most parts of learning did read it a good while since," (though he notes that while Dee reads that Edgar claimed "Regum insularum, Oceanique Brittaiani circumjacentis," others subsequently — Edward Coke, and James Ussher — have translated the key phrase, not so conveniently for his present purpose as "Insularum Oceani quae Brittaniam circumjacent."(231)

A similar instance of the contemporary importance of such antiquarianism applied to the establishment of Royal titles is the history of Owen Madoc. It was on the evidence of his previous discovery of Florida and the country northwards that Adrian Gilbert was granted his patent for the colonisation of America — a scheme in which Dee and Davis were co-partners with him. It was probably also from Dee that Peckham, who consulted him on the legality of the Spanish-Portuguese division of the world, obtained the substance of the argument for his anonymously printed tract of 1583, A True Report of the late Discovery and Possession, taken in the Right of the Crowne of Englande, of the Newfound Landes: By that valiaunt, and worthye Gentleman Sir Humfrey Gilbert Knight. (It was dedicated to Walsingham, and has prefatory verses from Hawkins, Drake and other seafarers and also from Raleigh's mathematician Mathew Roydon.) The third chapter sets out to "shewe the lawfull tytle, which the Queenes most excellent Maiestie hath unto these Countries, which through the ayde of almightie God are mente to be inhabited." This right he bases on the history of Madoc; for to plant a colony here is only to "restore her to her Highnesse auncient right and interest in those Countries, into the which a noble and worthy personage, lyneally descended from the blood royall, borne in Wales, named Madocke ap Owen Gwyneth, departing from the coast of England about the year of our Lord God 1170, arrived and there planted himselfe, and his Colonies, and afterwards returned himselfe into England, leaving certain of his people there as appeareth in an auncient Welch Chronicle," (from there, Peckham believes the "Axteco" are descended, since many of their names for islands and birds clearly derive from Welsh words) (132). In the next century Fuller still seriously employs this report to justify the prior rights of the English in America, and Robert Alleyn in his History of Henry VII of 1638 takes it as proved, since "Welsh" words and monuments can be shown to have been present there before the arrival of the first modern discoverers (133). The somewhat mystical ideas of England's imperial destiny that Dee mingled with such researches is again reflected in the increasingly frequent claim, associated with protestant religious teachings, upon commercial expansion, of England's "Manifest Destiny" — i.e., a divine and particular reservation of territory in the New World (134). Moreover it was at Elizabeth's own request that Dee, in 1578, wrote out Her Majesties title Royall to many forraine countreys, Kingdomes and provinces: in 12 velum skins of parchment, faire written for her Majesties use, and by her Majesties Commandment, and which she received with much favour (135). Possibly also officially commissioned was the work that immediately followed this in 1579, the loss of which is not the least deplorable of the many cases in which his compositions seem to have irrecoverably disappeared or perished; this is Dee's De Imperatoris nomme, authoritate, et potentia; dedicated to her Majestie, in English.

Even Dee's superficially fantastic or "quaint" juristic sequel to the published part of General and Rare Memorials previously described, did not lack either parallels for its views in its own day or important successors in the next century. His investigation of the exact applications of certain geographical names in ancient writers are reflected in heated contemporary diplomatic disputes, supposedly of weighty political consequence on the same subject (136). His old claim that natural jurisdiction over the sea extended to a point midway between the opposing native and foreign coasts, had been maintained by Plowden, an eminent lawyer of Dee's day, in his consideration of the "bounds of England" in 1575 (137). Though it became increasingly desirable to reach some agreed verdict as this matter, it may be noted that Dee's position, whatever its abstract merits was finally rejected by official Elizabethan policy, when it was found inexpedient to maintain it, since the King of Denmark, in 1602 taking his stand on this principle laid claim to all the sea between Iceland and Norway since he was the recognised sovereign of the coasts of both, and attempted, on these grounds, to suppress English fishing there! Elizabeth protested, instructing her ambassadors that if it were supposed "that for the property of a whole sea it is sufficient to have the banks on both sides as in rivers," they were to reply "that though property of seas in some small distance from the coast may yield some oversight and jurisdiction, yet use not princes to forbid passages in fishing...neither is it to be allowed that property of sea in whatsoever distance is consequent to the banks as it happeneth in small rivers," as it would then follow "that no sea were common," which could not be admitted (138). Nevertheless apropos of Dee's legalistic discussions a modern authority has pointed out that "It is the philosopher of Mortlake indeed who must be recognised as the literay pioneer to the claims to the sovereignty of the sea which were put

forward by England in the seventeenth century."(139) Throughout the reigns of James and Charles I works were officially commissioned on this topic — such as The Sovereignty of the British seas proved by Records, History and the Municipall lawes of this Kingdome written by Sir John Borough, keeper of records in the Tower in 1635, and several very closely follow Dee in their principles and detailed evidence (140). These culminated in the, commissioned, treatise of Selden in 1635, Mare Clausum which only rejected Dee's principle in favour of a much more extravagant assertion: according to this the sea of England was "that which flows between England and the opposite shores and ports," and yet throughout the seventeenth century, "Selden's authority was paramount on all questions relating to the Sovereignty of the Sea," and only declined with the emergence of the new principle — still in essence that which maintains today — during the naval wars of the eighteenth century, that it was only such waters within cannon shot of the coasts that were under the exclusive and permanent dominion of the bordering state — "terrae dominium finitur ubi finitur armorum vis."(141)

IX. Of the remaining three works designed to follow and accompany the Petty Navy Royall, which should together compose the completed General and Rare Memorials, only one, Of Famous and Rich Discoveries is still, partially, extant. The first section of this which dealt with Salomon's Ophirian voyage is wholly lacking. However Purchas had a copy, which he drew on freely for his Pilgrimes, and from his extracts and comments an adequate impression can perhaps be gained of this laborious achievement, which oddly mingles science and piety, a mystical end and a wholly practical method, a literal acceptance of scriptural text on the one hand, and onthe other a free expansion of its implications, made in the light of modern geographical and other discoveries (142). Dee regarded the extraction of numbers, and of such data as he arrives at here from the Bible as work of great importance; he asserted in the Preface that many passages in were not to be fully understood without the aid of mathematics, and his present treatment offers another aspect of his meaning there besides the conventional cabalistic claim that is immediately suggested. His approach, it may be noted, was much urged by Roger Bacon, who counted such occupations as not least among the benefits arising from skill in scientific and mathematical studies, and speaks of the application of Euclid's teachings to discover the "literal sense" of "artificial works" briefly mentioned in the Scriptures, such as the Ark and the Temple, exclaiming "Oh how the ineffable beauty of the divine wisdom would shine and infinite benefit would overflow, if these matters relating to geometry which are contained in Scripture, should be placed by this form of research before our eyes in their physical forms."(143)

The considerable portion that survives in MS (144) is a fragment, partly covering Asia, Europe and British Origins, of what was once a vast survey of every country in the world (145). It rests heavily on Ptolemy and on matter found in Pliny, but Dee does not scruple to correct what he considered were their errors, and incorporates all the data he could collect from contemporary discoverers, and seems to have been engaged, even while writing, in a busy correspondence with other authorities upon the points he was dealing with (146). He exhibits premature and misleading accounts that have been made in the past by discoverers "for it may be an instruction to other how to be circumspect in such cases before reale report be given out of so weighty an enterprise," and adds as a warning "an advice to all discoverers upon such a purpose to be very circumspect, patient and constant till the uttermost search be made, and that perfectly and not imperfectly."(147) He resolves: "I will evidently, by good authority kepe me within the bounds of honest reason: unpartially labouring for the preferment of that noble Empress LADY VERITY."(148) The resultant work is much superior to the geography of the old T.O. maps, or such popularly circulating contemporary geographical writings, as, for instance, that translated by Dee's friend Twyne (149). Dee's method is to assemble all available evidence about little known regions and then to argue from these as to the probable nature of the country, the possibilities of trade, exploitation, and the wealth of natural resources probably to be encountered there; a method he terms "discovery after my manner of large conjecture and General Enquiry."(150) The country of the Amazons and of the Cynocephali (151) are of course dealt with; Gog and Magog are located in China and their relations to the prophecies of the Apocalypse are discussed (152). The figure of Prester John seems to have had an especial fascination for Dee and much time is spent in attempting to determine the position of his capital (153). There are some odd general reflections such as the suggestion that "natural" boundaries of continents and countries are so placed by God as to have clear distinguishing features, to assist geographers (154), but there is also a large factual mass of useful information — tables of distances from various places in Europe and Africa, descriptions of customary trade routes, etc.; and such injunctions (155) as: "Note. a good Advise for perfect geographicall Descriptions making, by onely the differences of Longitudes, as we ourselves goe fro place to place, not to depende onely upon uncertayn or untrue bokes..." Most of his practical navigational advice however was apparently contained in another of Dee's four works which made up his general plan, and to which he sometimes here refers for further information of a technical sort, as when the reader is directed (156) to "the rule given in the Brytish Complement of Perfect Navigation,"(explained in a marginal note as "The Longitude and Latitude of two places being given to find their distance").

What survives of the section on Britain is an expansion of the historical basis for his general opinions previously noted. Marginal exclamations are frequent to the tenour that "Note Brytain is the Incoparable Iland of the whole world" (157). He is at pains to prove the original name was Brutannia, and so establish that its first conqueror was not as many have thought "Some valiant Captayn named Britus or Bries or Britannicus," but Brutus the "Italien Troian" (158) who was "the first sea discoverer" (159). The long sections on "The most renowned and Tryumphant Britane, King Arthur" (160) have unfortunately largely perished, but Dee plainly employed Arthur's history as a ground for claims to further titles for Elizabeth, and many of his previous

ones are here repeated, as "That all the Northern Isles and Regions Septentrionall...to be lawfully apertinent to the crown of this British Empire."(161)

Taken all in all, though a storehouse of extensive deposits of miscellaneous information, the work would seem rather over-cumbrous to form a usefull handbook for any one purpose. There seems nothing about it, however, apart from its bulkiness that could have restrained its printing, and it is possible that only the lack of politically effective response to the initial volume Dee put forth discouraged him from giving this concluding part of his tetralogy to the world.

X. Before it became apparent that the ambitious schemes urged in these works were to have no immediate effect on national policies, while there still seemed much influential support, and while he was still immersed in active navigational and colonisation schemes with Gilbert (162) and others and in detailed geographical researches (163), Dee received a commission from Elizabeth which may perhaps have suggested to him that at last the Queen and her council were prepared to utilise his talents for great ends in the service of the common good which he had long hoped and pleaded for. He was requested to draw up a scheme for the reformation of the calendar, and certainly no work of Dee's is more confidently optimistic, so free from all personal complaint, as the brief but elaborately prepared tractate he produced in 1582 entitled An advice and discourse for her Majestie about the Reformation of the vulgar Julian year, by her Majesties and the right honourable Council their commandment. lib 2 (164). That such a reform was scientifically desirable was a matter on which no mathematician was in doubt; that its introduction now would be attended by great civil convenience was apparent to all whose dealings were not wholly confined to within the coasts of Britain; the great stumbling block was that it was a measure which had elsewhere been brought about by the Catholic Church — Gregory XIII had entrusted Clavius, a pupil of Pedro Nunez, and who was known as "the Euclid of his age" — with the reform in 1581; it was thus religiously suspect.

Difficulty had always been occasioned by the incommensurability of the natural day, the lunar month and the solar year. Reform was necessitated since the Julian calendar had fixed the year at 365 1/4 days, which was 11 min. 8 secs. too long, and had considered the lunar and solar cycles as coinciding every 19 year period, which was in error by 1 hr. 28 min. 11 secs. Easter was fixed according to the first full moon of the vernal equinox, but the "equinoxes" and "full moons" were determined from the above computations and hence became increasingly discordant with the natural phenomena. Need for reform had long been recognised, and successive attempts at rectification made from the earliest times (165). Roger Bacon's treatise on the subject Dee here drew on heavily. He may also have known Cusa's De Reparatione Calendarii, presented to the council of Basle in 1437, which had then suggested the omission of seven days merely. Earlier in this century in 1514 Leo X had attempted to effect the reform and had invited Copernicus to assist, whose later observations tending to this end Dee also now utilised. In England Ascham had concluded his Lytel Treatise of Astromancye in 1552, dedicated to his former master and Dee's early patron, Cheke, with a plea for this reformation, declaring that in time, if nothing were done, December would fall in the middle of the summer; and Recorde in the Castle of Knowledge (166), expressing his perturbation about the present wrongful observation of Easter had prophecied that astronomy would be able to reform the calendar. Roger Bacon's expressed motives for advocating reform it may be remarked, were largely religious: he had complained disgustedly in the Opus Majus that owing to calendar defects Christians fasted a week after the true Easter, and ate flesh, instead of fasting, for a week at Quadragesima (167). Dee also lays stress on the observance of feast days at the correct natural times. He summarises his view and the procedure he adopted in preparing his suggested reform in the dedication "To his very friend P.L." in A triple Almanack, which he issued in the year 1591 (168). He observes here that Christ was conceived at the sun's entrance into Aries, and was born on the shortest day of the year, when the Sun enters Capricorn, "Wherefore to set Christmas upon the shortest day and draw the Kalendar back in proportion thereunto, methought was very expedient"; moreover, he continues, moveable feasts depending onthe moon, although Constantine corrected their times, have since then by ignorance of proper calculation become so falsified that "they misse their due tymes a moneth at least," "and therefore friend P.L.," he concludes, "I have not attempted this as a new fangled, and louer of nouelties (the which I have always hated) but as a furtherer of the trueth, which I always haue loved."

The Playne Discourse and Humble Advice is written on parchment in Dee's fairest hand. It contains a number of skilfully executed, delicately coloured diagrams, and is addressed to Burleigh. It is prefaced by some doggerel lines, such as Dee was in the habit of appending to his English works:

" and
I shew the thing and reason Why:
At large, in brief, in midell wise,
I humbly give a playne Advise
For want of tyme, The Tyme Untrew
If I have myst, command anew
Your Honour may: So shall you see
That Love of Truth, doth governe mee."

The title page is embellished with a plan of the universe, triangular in form. The earth is set

in the middle, the north pole forming the central part of the whole. The landmasses are in green, their coastlines drawn so as to exhibit clearly an arctic ocean which allows of free passage by N.E. and N.W. channels. Around the earth are the spheres of sun, moon, planets and fixed stars. From each corner of the triangular frame of the whole (169) the divine Tetragrammaton sends rays converging on the centre (perhaps the primal secret seminal influences which control all things, both directly and by the subordinate intermediary influence of celestial motions). Dee also adds to his text a circular table of time, on which are noted important religious and astronomical dates; it begins with Adam and concludes with "Regina Elizabeth Reformatrix anni circlis iuxta Epochati Christi 1583" (170). The preceding and only other relatively modern entry refers to Copernicus. (The whole is drawn on a scale which allows to the world an existence of something over 6000 years.)

The work is largely an exposition of Dee's astronomical calculations. But as soon as the necessary mathematics to establish the accuracy of his proposed alteration are completed, Dee draws Roger Bacon into his argument, to show that such a reformation as is now in question ought to be regarded as an original British invention and no foreign importation. Of all who have pleaded for this reformation, he writes, "None hath done yet more earnestly neither with better reason and skill (all manner of waies) than hath a Subiect of this Brythish Scepter Royall: Named (as some thynke) David Dee of Radik: But otherwise, and most commonly, (upon his name altered at the alteration of his state into Fryerly Profession) called Roger Bachon. Who at large wrote thereof diverse treatises and discourses to Pope Clement the fifth: about the yere of Christ 1267. To whome he wrott and sent also great volumes, exquisitely compiled of all Sciences and Singularities Philosophicall, and Mathematicall, as they might be avaylable to the State of Christ his Catholike Church: And of this our matter in hand I thinke goode to bring to consideration present some parcells extracted by me out of his boke called Opus Minus, sent by John his boy to the foresaid Pope Clement."(171) After quoting largely from this and observing that Paulus Middleburgiensis' work on the Calendar was appropriated without acknowledgement from Bacon, Dee concludes his book: "Hence it maie very well be noted (to the cumfort of all English Students and others of thys Kingdome, lovers of good Learning and veritie Philosophicall, how a prima ad ultimam (I meane from the yeare of Christ 1267 tyll this present yere) Roger Bachon directly and indirectly hath byn the greatest means and fartherance of this present Reformation of all men who have lived since his daies."(172)

If the rhetorical persuasion was Bacon's, his data and calculation Dee takes from Copernicus, whom he had placed in the circular table of time as "the sixth and most notable lyne of our Astronomicall Dyall" — declaring that his own mathematical reasonings "depend chiefly upon the said Copernicus his Calculations and Phenomenis, excepting his Hypothesis Theoricall; not here to brought in question."(173) But Dee reveals in passing that his own contribution is not confined to the exposition of other men's data, for "Diverse other observations I could sett downe of my owne experience made by very great and apt Instruments carefully and circumspectly used, A degree 1553, A degree 1554, A degree 1555, in the presence and with the Judgement of expert and famous Mathematiciens, Mechaniciens and others."(174)

Dee clearly felt he had presented an irrefragable case for the omission of eleven days from the calendar, and that the matter was now all but settled; he observes, triumphantly, of the logical argument he has set forth, "So can reason infallibly surpasse Most Sharp Strife: A thing greatly to be noted as an example for many manuductions and Anagogies Philosophical, Magicall, and Theologicall."(175) So confidant does he seem to have been of the adoption of his proposals that he appended to the tractate (176) an almanac for the following year based on his revised system of dating, to be issued as soon as the necessary proclamation authorising the alterations had been made. Verses tell the story of the reform, as of a thing already accomplished:

"As Caesar and Sosigenes
The Vulgar Kalendar did make,
So Caesar's Pere our true Empres
To Dee the work she did betake."

and form a somewhat rude but joyful paean to

"Elizabeth our Empres hight,
Who in the yere of eighty three,
Thus made the truth to come to light
And Civile yere with heaven agree."

There follows the usual type almanac for the ensuing year, with some concluding verses which explain to the people why England has added eleven days to the Calendar instead of only ten as was done on the continent.

Initially Dee's proposals had a favourable reception. Walsingham wrote him encouraging letters, directed "To my verie loving friende Mr. Doctor Dee" (177); Burleigh, though somewhat bemused by the mathematics, recommended the scheme in a memorandum (178): "I am not skilful in the Theoricks to discern the Points and Minutes, but yet I am inclined to think him in the right here. For I find he maketh his Root the very Point of the Nativity of Christ in the Meridian of Bethlehem. And the Romans have made their root from the Time of the Council of Nice." The committee of mathematicians set up to consider Dee's work (Thomas Digges, Henry Saville, John Chancellor) reported favourably and the same effect (179). They agreed that it was better to omit eleven days instead of ten, but in order to conform with the rest of the world, thing the Gregorian calendar "may be assented unto without any manifest errors"; they add that Dee has prepared a calendar for this scheme extending from May to August, in which each month is shortened by a few days (May to 28, June to 29, July to 28, August to 28) so that the ten may be discarded "without changing of any feast or holiday moveable or fixed, or without altering the courses of Trinity Term," (Dee nevertheless appended some irritated verses to his revised almanac, complaining of this enforced compromise (180)) and they recommend the preparation of an Ephemeris to show the moveable feasts depending on Easter for 100 or 200 years to come (when an orderly cycle will become apparent), "and so easily renewed as we see yearly almanacks are if the sinnes of the world do not hasten a dissolution." But though the scheme was never formally rejected, nothing further was done to implement it. This final indecision seems to have resulted from the opposition of the Bishops who persisted in regarding the proposed change as smacking of papistry. They declared (181) it might breed a new schism, and offend the reformed churches abroad which had not yet accepted the Gregorian calendar, and these would say the alteration was made for "feare of the Popes Curse and Excommunication," and indeed as a general rule "Mutations and alterations in Commonwealthes are not to bee allowed (as diverse learned and wise authors doo write) unlesse Necessitee inforce thereunto." As for Dee, he continued to use his new system, sometimes "double-dating" his private letters noting the true date in his diary at important festivals (182) and combined a last attempt to draw public attention to the gross errors of the old Calendar with what was perhaps an effort to raise a little money, in the popular almanac he issued in 1591. Though never published (183), Dee's tract may have circulated privately (184), and the scheme became fairly widely known. Blundeville describes its appearance on two great globes set forth by Mr. Sanderson and then by Mr. Molineux, which in the thirteen spaces of their "Horizons" contained various information; they reproduced both the old and the new Roman Calendars and "in the 10 and 11 are set down the numbers of the daies and names of the monethes according to the true Kalendar lately calculated by a most excellent Mathematicien and mine old acquaintance M. Dee of Mortlake, as I conclude by the letters J.D. set downe upon the said Horizon" (185); and in later times Dee's proposals attracted favourable attention (186), so that their reputation seems to have survived even that of the Preface and the Paralacticae Commentationes — the two "scientific" works of his by which he was still remembered in the succeeding century.

XI. Dee's general fortunes and career had perhaps never appeared more full of promise than in the period of life from about 1570 to 1583. He had promulgated the "ground-platts" for some Grand Designs, which had, at least, aroused considerable interest and sometimes enthusiasm. He was busily engaged in writing scientifica and mathematical works of a more practical cast than perhaps more usually occupied him (187) and his various recent publications of this kind had won widespread recognition, so that he enjoyed the reputation of being the leading British astronomer of the day (188). He was frequently at court, and had received signal marks of favour and reassurance from the Queen, and had been employed directly in her affairs on various occasions (189), to such an extent that as has been noted, Richard Harvey declared in 1583, that Elizabeth "vouchsafed" Dee the title of her philosopher! Dee had intimate contacts with many contemporary scholars, such as Holmshed and Camden, who freely used the resources of his library for their researches (190). Mortlake was now his own full possession (191) and a frequent resort of Leicester, Sydney, Dyer, Ralegh, the Gilberts and other learned and influential nobles as well as navigators and technicians. It was becoming a brilliant centre for intellectual, political and commercial enterprises of various kinds. Nevertheless, already towards the end of this period, Dee was embarked upon those same courses that not only gradually absorbed all his own attentions, but which were to obscure for so long in the memory of future generations all other of his activities, and damn him for centuries as "extremely credulous, extravagently vain, and a most deluded enthusiast."(192)