

Churchill Livingstone v. Williams & Wilkins, 95 Civ. 8597

CHURCHILL LIVINGSTONE, INC., Plaintiff,

-against-

WILLIAMS & WILKINS, a division of Waverly, Inc. and THOMAS W. SADLER, Defendants.

95 Civ. 8597 (MBM)

UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF NEW YORK

1996 U.S. Dist. LEXIS 18720

December 16, 1996, Decided

December 17, 1996, FILED

DISPOSITION: [\*1] Plaintiff's motion for summary judgment on the issue of substantial similarity denied. Defendants' cross-motion granted, and the complaint dismissed.

COUNSEL: APPEARANCES:

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JUDGES: Michael B. Mukasey, U.S. District Judge

OPINIONBY: Michael B. Mukasey

OPINION: OPINION AND ORDER

MICHAEL B. MUKASEY, U.S.D.J.

Plaintiff Churchill Livingstone, Inc., sues defendants Williams & Wilkins and Thomas W. Sadler for copyright infringement. Plaintiff moves and defendants cross-move for summary judgment on the issue of substantial similarity. For the reasons stated below, defendants' motion is granted and plaintiff's motion is denied.

I.

The following facts are drawn from the pleadings, affidavits and Local Rule 3(g) statements submitted with the parties' motion papers and are construed in the light most favorable to the

[\*2] non-movant in each instance:

### A. Human Embryology

Churchill Livingstone, Inc. is a book publisher, incorporated in the state of Delaware with its principal place of business in New York, New York. (Compl. P 2) In 1993, Churchill published a medical textbook entitled Human Embryology written by Dr. William J. Larsen ("Larsen's"). n1 Larsen assigned Larsen's copyright to Churchill when it was registered in 1993. (Compl. PP 5-6) Larsen is a professor in the Department of Anatomy and Cell Biology at the University of Cincinnati, and a faculty member of the Developmental Biology Graduate Program at the University of Cincinnati College of Medicine. (3/29/96 Larsen Aff. P 2-3)

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n1 Because the titles of the books are similar, I will refer to plaintiff's book as Larsen's and defendants' book as Langman's 7th.

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Larsen began writing his book in 1988. Each of the chapters in the textbook contains three sections: descriptive medical embryology; clinical applications; and experimental principles. (Id. P 12) [\*3] Larsen describes the textbook as follows:

The textbook I envisioned, and ultimately wrote and designed, used a variety of different kinds of illustrations to assist students in learning and recalling information they were being taught. I paid special attention to avoiding gaps in the embryo's developmental processes . . .

(Id. P 6) The illustrations Larsen used included three-dimensional, air-brushed drawings ("3-D drawings"), scanning electron micrographs ("SEMS") and photographs. (Id. P 18) Larsen claims that the 3-D drawings "showed the asymmetrical bilateral nature of embryological development" and presented sophisticated topics that had not previously been addressed in embryology textbooks. (Id. P 19-20) According to Larsen, SEMS, which are high resolution photographs of anatomic surfaces, showed the "actual shape and appearance of the subject." (Id. P 24) Photographs illustrated developmental malformations. (Id. P 27) Larsen included also tables to present various information, and new topics that had not previously been included in embryology texts. (Id. P 29)

Larsen's was published in 1993 and was "hailed as a major advancement in embryology [\*4] textbooks." (Id. P 30) Reviewers praised the illustrations and the inclusion of clinical material. Larsen's won the 1993 Award of Excellence of the Association of Medical Illustrators. (Id. PP 31-32) In addition, according to plaintiff, Larsen's was a great commercial success. (Id. P 33)

### B. Medical Embryology

In 1995, Williams & Wilkins, a division of Waverly, Inc. and a book publisher incorporated in the state of Maryland, published the seventh edition of Langman's Medical Embryology

("Langman's 7th"). (Compl. P 3) Dr. Thomas W. Sadler edited the volume, which he has edited since the fifth edition in 1985. (5/28/96 Sadler Aff. P 2-4). Sadler has been a professor of embryology since 1976 and now teaches at the University of North Carolina at Chapel Hill. (Id. P 9) Sadler has considerable expertise in teratology, the study of birth defects and congenital malformations. Since 1992 he has been the Director of the Birth Defects Center at the University of North Carolina and since 1993 the editor of the Teratology Journal of Abnormal Development. (Id. P 10)

According to Sadler, Langman's 7th is concise and confines the study of embryology to "what [\*5] students need to know in terms of what is taught in the classroom and what is covered by the national exams." (Id. P 27) Sadler claims that Langman's always has been well illustrated and every edition has included ample drawings and photos. Sadler claims also that Langman's always has included 3-D drawings, and that in 1985 Sadler added SEMS to the fifth edition to complement drawings already in the book. (Id. P 29) Langman's 7th competes with Larsen's in the medical school textbook market. (Pl. 3(g) P 10)

### C. Plaintiff's Claims

Plaintiff claims that in revising Langman's 7th, defendants copied plaintiff's selection and arrangement of illustrations, tables and topics. Plaintiff claims defendants copied Larsen's: 1) in the selection of which embryological topics to illustrate with 3-D drawings, SEMS and photographs; 2) in the selection of what topics to present in tabular form; and 3) in the choice of which new topics to add to Langman's 7th. (Pl. Reply Mem. at 5) Plaintiff does not claim literal infringement -- i.e., plaintiff does not claim that any particular illustration or text in Larsen's was copied directly in Langman's 7th. (Id. at 16)

To support its [\*6] copyright infringement claim, plaintiff makes six distinct factual claims relating to defendants' book. First, plaintiff claims that 40 of the 46 new 3-D drawings added to Langman's 7th illustrate the same subjects illustrated by 3-D drawings in Larsen's. (3/29/96 Larsen Aff. P 38) Second, plaintiff claims that 36 of the 65 new SEMS added to Langman's 7th illustrate topics illustrated with SEMS in Larsen's. (3/29/96 Larsen Aff. P 39) n2 Third, plaintiff claims that 14 of the 39 new photographs added to Langman's 7th illustrate topics illustrated with photographs in Larsen's. (3/29/96 Larsen Aff. P 39) Fourth, plaintiff claims that the three new tables added to Langman's 7th -- treating lung development, cranial nerves and neural crest cells -- are the subjects of similar tables in Larsen's. (Id. P 41) Fifth, plaintiff claims that two-thirds -- 33 -- of the new topics added to Langman's 7th were topics addressed in Larsen's. (Id. P 42; Ex. 7) Sixth, plaintiff claims that Langman's 7th was revised to resemble Larsen's in that clinical material was added to Langman's 7th and set apart in chapter sections called "Clinical Correlates" which copied Larsen's use of separate clinical [\*7] applications sections. (Id. P 40) Finally, plaintiff claims that defendants copied not only plaintiff's method of illustrating specific facts, but also its "strategy" for illustrating difficult embryological concepts with series of drawings. n3 (Id. P 43)

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n2 However, in an exhibit and in its comparison book, plaintiff lists only 31, not 36, SEMS from

Langman's 7th which it claims copy SEMS in Larsen's. (Id., Ex. 6; Pl. Comparison Bk.)

n3 Plaintiff cites as examples defendants' illustrations of the formation and folding of the heart tube and the development of the membranous ventricular septum of the heart. (Id.) Plaintiff argues that eight out of the 11 illustrations in Langman's 7th showing the formation of the heart tube, eight of the 13 illustrations showing heart folding in Langman's 7th, and three of the six illustrations showing the development of the ventricular septum in Langman's 7th are similar to illustrations in Larsen's depicting the same processes. (Id. P 48, 49, 53) These illustrations are included in plaintiff's total count of drawings (40) and SEMS (36) which it claims are similar to ones found in its book.

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[\*8]

Defendants admit that they reviewed Larsen's prior to revising Langman's 7th. Defendants claim that any author of a medical textbook, "out of concern for the professional and scientific integrity" of the book, must consider other medical textbooks. (5/28/96 Sadler Aff. P 35) However, defendants claim that they copied nothing from Larsen's, that all editorial decisions, including "what to illustrate, how to illustrate it, and where to place it," were made independent of Larsen's. (Id. P 35)

Defendants explain each of the additions to Langman's 7th. First, defendants claim that the addition of 3-D drawings stemmed from Sadler's access to his sister's, Susan Sadler-Redmond's, computer generated art, and that most of the 3-D art added to Langman's 7th is merely stylized drawings of two-dimensional art which appeared in Langman's 6th and which relate to fundamental concepts and stages of embryological development. (Id. PP 67, 72, 77, 79) Second, defendants claim that the increased use of SEMS was planned before Larsen's was published, in part because Sadler had access to a collection of SEMS owned by his colleague and co-teacher of embryology, Dr. Kathleen Sulik. (Id. P 48) [\*9] Third, defendants claim that the photographs selected for inclusion in Langman's 7th relate to common abnormalities or birth defects, or fundamental embryological concepts or phenomena, which are routinely taught in medical school with the use of photographs. (Id. PP 105-107) Fourth, defendants claim that the use of tables in medical textbooks is a convention and that in selecting and arranging their tables defendants did not copy Larsen's. (Id. P 118) Fifth, defendants claim that the new topics added to Langman's 7th were either found in Langman's 6th or in other embryology textbooks, or were subjects that had received increased emphasis or attention in the field and warranted inclusion in Langman's 7th. (Id. PP 142-144) Finally, defendants argue that the clinical correlates section is different from the clinical applications section in Larsen's because it is set off in pink and included within the chapter, rather than appearing at the end. (Id. P 164)

Defendants have submitted an enormous and extensive filtration and comparison book, comprising seven volumes, which compares the allegedly infringing drawings, SEMS, photographs and topics from Langman's 7th with other [\*10] embryology textbooks including Larsen's. Defendants' filtration book establishes essentially that 3-D drawings, SEMS and photographs have been used to illustrate embryology textbooks prior to Larsen's, and that Larsen's was not the first to illustrate certain subjects.

Plaintiff filed suit on October 10, 1995. As noted, the parties cross-move for summary judgment on substantial similarity.

## II.

To prove copyright infringement, a plaintiff must prove ownership of a valid copyright and defendant's infringement by unauthorized copying. *Laureyssens v. Idea Group, Inc.*, 964 F.2d 131, 139 (2d Cir. 1992). Here, there is no dispute that plaintiff owns a valid copyright in both the text of Larsen's and the selection and arrangement of illustrations. (5/30/96 Moran Aff., Exs. 1, 2) A plaintiff can prove unauthorized copying if he can prove access and a substantial similarity between the protected or original elements of the works. *Feist Pubs., Inc. v. Rural Telephone Serv. Co.*, 499 U.S. 340, 361, 113 L. Ed. 2d 358, 111 S. Ct. 1282 (1991). The substantial similarity tends to prove actual copying. Here, defendants do not dispute that they had access to plaintiff's book. (5/28/96 [\*11] Sadler Aff. P 35) The sole issue on this motion, then, is whether there is a substantial similarity between defendant's book and the protected elements of plaintiff's book.

Although substantial similarity is often a fact issue for jury resolution, a court may "determine non-infringement as a matter of law on a motion for summary judgment, either because the similarity between two works concerns only non-copyrightable elements of plaintiff's work or because no reasonable jury, properly instructed could find the two works are substantially similar." *Warner Bros. Inc. v. American Broadcasting Cos.*, 720 F.2d 231, 239-40 (2d Cir. 1983). Thus, if the similarity between plaintiff's and defendants' books concerns non-copyrightable material, or if the substantiality of the similarity between the copyrightable elements is or is not "so clear as to fall outside the range of reasonably disputed fact questions requiring resolution by a jury," summary judgment is appropriate. *Id.* at 239. However, as long as reasonable minds could differ on the issue of substantial similarity, summary judgment is inappropriate.

The determination of substantial similarity is necessarily fact intensive [\*12] and requires a detailed examination of both works. *Williams v. Crichton*, 84 F.3d 581, 583 (2d Cir. 1996). However, when a copyrighted work includes both protectible and unprotectible elements, a court must filter out all unprotectible elements and "take care to inquire only whether 'the protectible elements, standing alone, are substantially similar.'" *Id.* at 588 (citing *Knitwaves, Inc. v. Lollytogs Ltd*, 71 F.3d 996, 1002 (2d Cir. 1995)).

To evaluate claims of nonliteral infringement of a computer program, the Second Circuit in *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 706 (2d Cir. 1992), applied an abstraction-filtration-comparison test to decide the issue of substantial similarity. The Court stated that courts should first abstract the allegedly infringed work into its constituent parts, filter out non-copyrightable or unprotected elements, and then compare the "remaining kernel" of protected expression with the allegedly infringing program. *Id.* One prominent copyright scholar has called for the application of this test to all copyright cases. See 3 Melville B. Nimmer & David Nimmer, *Nimmer on Copyright* @ 13.03[F][1], [\*13] at 13-120 (1996). However, as the *Altai* Court itself noted, its abstraction-filtration-comparison test was nothing new. Rather, in creating the test the Court drew upon familiar copyright doctrines such as merger and scenes-a-

faire. *Altai*, 982 F.2d at 706. Indeed the abstraction component of the test was based on Judge Learned Hand's opinion in *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 121 (2d. Cir. 1930), cert. denied, 282 U.S. 902, 75 L. Ed. 795, 51 S. Ct. 216 (1931). An elaborate abstraction-filtration-comparison for each and every element of an alleged infringement, which may be helpful to deal with a complex computer program when the claim is nonliteral similarity, may not be necessary in a straightforward textual copyright case. In a case such as this, simply examining the relevant parts of a copyrighted work will allow a court to apply settled copyright principles and thereby filter out unprotected elements. n4

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n4 Indeed, in this case, I determined what may be protected expression -- plaintiff's original narration and expression of facts and ideas, and plaintiff's selection, coordination and arrangement of material -- and what was not protected expression -- facts, ideas, and the use of particular illustrative techniques. I then "abstracted" plaintiff's work to determine what constituted ideas and/or facts and what constituted expression. Finally, I examined both embryology textbooks in their totality, as judges have been doing for generations, to determine whether substantial similarity exists between the protected elements of plaintiff's and defendants' work. This was a tedious but not a particularly complex task.

-----End Footnotes-----

[\*14]

## A. Unprotected Elements

### 1. Facts are not copyrightable.

In *Feist Pubs., Inc. v. Rural Telephone Serv. Co.*, 499 U.S. 340, 357-58, 113 L. Ed. 2d 358, 111 S. Ct. 1282 (1991), the Supreme Court reaffirmed the fundamental copyright principle that facts are not copyrightable. The Court held, however, that the selection and arrangement of facts in a compilation is copyrightable if that selection and arrangement is original. *Id.* at 358. Although a medical textbook is not a pure compilation of facts in the same way a telephone book is, the facts in a medical textbook nevertheless are not copyrightable; the over-all selection and arrangement of these facts, if original, may be copyrightable. One commentator has labelled textbooks nonfiction narratives and stated that the copyright in textbooks stems from two sources:

(1) the author's original narration and expression of facts, ideas, theories, and research; and (2) the author's original selection, coordination, and arrangement of material.

William F. Patry, *Copyright Law and Practice* 185-87 (1994).

Accordingly, the facts underlying the science of embryology -- the nature of an embryo's development [\*15] and growth, and the scientific principles defining normal and abnormal embryological processes -- are not copyrightable. In addition, certain topics of embryology -- individual phenomena, phases or processes -- are not themselves copyrightable. One could not prevent others from discussing the effects of cocaine on embryo growth, for example, or the

topic of genomic printing. What is copyrightable and protectible in a medical textbook is the unique narration of facts, and what may be copyrightable is the selection and arrangement of facts or topics.

## 2. Ideas are not copyrightable.

Another fundamental copyright principle is that an idea is not copyrightable; only the expression of that idea is copyrightable. See, e.g., *Kregos v. Associated Press*, 937 F.2d 700, 705 (2d Cir. 1991) (citing *Mazer v. Stein*, 347 U.S. 201, 217, 98 L. Ed. 630, 74 S. Ct. 460 (1954)). In *Kregos*, the plaintiff had created a form to predict the winner of a baseball game. The form included nine statistics about each of the competing teams' starting pitchers. *Id.* at 702. Prior to the plaintiff's form, no baseball prediction form had listed the same nine items; however, some but [\*16] not all of the items had appeared in previous forms. Initially, the Court stated that although the statistics may have been used in previous forms, that "observation is largely irrelevant to the issue of whether *Kregos*' selection of statistics displays sufficient creativity to warrant a copyright," and held that the plaintiff's selection of nine particular statistics was sufficiently creative to warrant copyright protection. *Id.* at 705.

The *Kregos* Court then reaffirmed the principle that ideas are not copyrightable, and examined the applicability of the merger doctrine. That doctrine holds that "where there is only one or so few ways of expressing an idea that protection of the expression would effectively accord protection to the idea itself," then the expression of the idea is unprotected as well. *Id.* The Court noted the risk in applying the merger doctrine to selections of factual compilations: "If the merger doctrine is applied too readily, arguably alternative forms of expression will be precluded; if applied too sparingly, protection will be accorded to ideas." *Id.*

The key to applying the merger doctrine to factual information lies in correctly stating the idea [\*17] at issue. The *Kregos* Court noted that at one level, "every compiler of facts has the idea that his particular selection of facts is useful," but that if the idea is identified at such a low level of abstraction, then the merger doctrine would always apply: the idea would always merge into its expression. *Id.* at 706. The Court then characterized the plaintiff's idea as the publishing of "outcome predictive pitching forms." *Id.* Because the nine statistics the plaintiff chose to include in his form were not the only "sensible ones" and there was "a sufficient number of ways of expressing the idea of rating pitchers' performances," the Court held that the merger doctrine did not apply. *Id.* The plaintiff's choice of which statistics to include in his form, which was the original expression of the idea, was protectible.

Thus, when making the idea/expression distinction and applying the merger doctrine, a court must: 1) define the plaintiff's idea; and 2) determine whether there are enough ways to express that idea, such that the merger doctrine does not apply. Here, arguably, plaintiff's idea was to expand the use of 3-D drawings, SEMS, clinical photographs and tables to [\*18] describe embryological processes or stages of development. Plaintiff's arguably unique expression of that idea is the choice of which processes or stages of development to so illustrate. Given the large number of topics in the field of embryology, there are enough ways to express the idea of using of such illustrations so that the merger doctrine may not apply to the result of all the choices plaintiff made in deciding which processes to illustrate with which kinds of graphics -- 3-D

drawing, SEM, photograph or table.

The merger doctrine may apply, however, to illustrating a particular process with a particular type of graphic. Copyright does not protect the mere individual choice of a common type of illustration -- such as a 3-D drawing or a SEM. Barring any copyright or patent in the technique itself, the choice of a type of illustration is not copyrightable. Thus, the decision to illustrate heart formation with a 3-D drawing is not copyrightable. In the absence of direct copying, the idea of illustrating heart formation with a 3-D drawing merges into the expression. Indeed, if the use of 3-D drawings and SEMS for any particular process or stage of an embryo's development were copyrightable, [\*19] then the first person to use a 3-D drawing to illustrate heart folding would be able to foreclose the use of 3-D drawings on that topic in future medical textbooks. Rather, what may be the original expression and the protectible element in plaintiff's idea -- to expand the use of certain types of illustrations -- is the selection and arrangement of the processes or stages which plaintiff chose to illustrate with particular types of illustrations -- the net result of all of plaintiff's choices taken together. Here, in fact, plaintiff does not claim any right to the kinds or techniques of illustration, but claims the "personal choice of which elements to illustrate using these techniques." (Pl. Reply Mem. at 50)

### 3. Stock elements are not copyrightable.

Another fundamental principle of copyright law is that scenes-a-faire -- "incidents, characters or settings which are as a practical matter indispensable, or at least standard, in the treatment of a given topic" -- are unprotected. *Hoehling v. The Universal City Studios, Inc.*, 618 F.2d 972, 979 (2d Cir.), cert. denied, 449 U.S. 841, 66 L. Ed. 2d 49, 101 S. Ct. 121 (1980). In *Hoehling*, the defendant's movie about the [\*20] Hindenburg depicted scenes similar to those in plaintiff's historical interpretation of the destruction of the Hindenburg, including scenes in a German beer hall, common German greetings during the era and the German national anthem. The Court held that such similarities were scenes-a-faire, stock elements of a book about Germany during the period, and therefore not copyrightable. *Id.* at 979.

Thus, facts alone, ideas, particular illustrative techniques, and stock elements are not copyrightable and are unprotected elements of plaintiff's book. Also, particular embryological topics, standing alone, are not copyrightable. Thus examining these works for substantial similarity, I must filter out the facts, the use of particular types of illustration and the stock elements necessarily incident to an embryology textbook. In the absence of a claim of direct copying of plaintiff's unique expression, what I have assumed may be protectible in plaintiff's work is plaintiff's selection and arrangement of the facts and topics of embryology, and plaintiff's selection and arrangement of which processes to illustrate with particular types of illustrations. To find infringement, defendants' selection [\*21] and arrangement must be substantially similar to plaintiff's.

I am not convinced that the mere choice of topics to illustrate in an embryology textbook is itself protected. An embryology textbook is designed to teach embryology through a range of methods, including text and illustrations of various kinds. To single out from the over-all selection and arrangement of the book the topics chosen for illustration as a separate protectible element seems to me dubious. This is unlike ordinary factual compilations, where courts have protected the

organizing principle of the entire work. See *Key Pubs., Inc. v. Chinatown Today Pub. Ent., Inc.*, 945 F.2d 509 (2d Cir. 1991) (finding the division of information in a Chinese phonebook into categories original and finding the selection and arrangement of those categories protected). Plaintiff has not argued that defendants copied its over all selection and arrangement of the entire book. Rather, plaintiff argues that defendants copied the choice of topics to illustrate, a small part of plaintiff's work as a whole. However, even giving plaintiff the benefit of all of the *arguendos* and defining the protected element as plaintiff would, plaintiff [\*22] has failed to show substantial similarity.

### III.

Works are considered substantially similar if "the ordinary observer, unless he set out to detect the disparities, would be disposed to overlook them, and regard [the] aesthetic appeal [of the two works] as the same." *Arica Inst., Inc. v. Palmer*, 970 F.2d 1067, 1072 (2d Cir. 1992) (brackets in original) (quoting *Peter Pan Fabrics, Inc. v. Martin Weiner Corp.*, 274 F.2d 487, 489 (2d Cir. 1960)). This is the ordinary observer test.

In *Altai*, the Second Circuit left open the possibility that the ordinary observer test may not always apply in determining substantial similarity. *Altai*, 982 F.2d at 713-14. The Court stated that the ordinary observer approach was useful when the "material under scrutiny was limited to art forms readily comprehensible and generally familiar to the ordinary lay person." *Id.* In cases involving computer programs, which may be beyond the ordinary lay observer's ken, the Court held that the "trier of fact need not be limited by the strictures of its own lay perspective." *Id.*

Here, plaintiff argues that expert evidence rather than the lay observer test should be used to determine [\*23] substantial similarity. However, although the works at issue are medical textbooks, and contain discussions of complicated medical phenomena, plaintiff, as noted, does not allege literal infringement. Rather, plaintiff claims that defendants have copied Larsen's choice of which processes to illustrate in particular ways, and the choice of topics to include. To determine whether there is a substantial similarity between plaintiff's and defendants' choice of topics and processes to illustrate with particular illustrative techniques does not require expert evidence. Rather, this determination can be made using the lay observer test.

Finally, to determine substantiality of any portion found arguably to have been copied, a court must determine the copied "portion's relative importance with respect to the plaintiff's" over-all work. *Altai*, 982 F.2d at 710. In *Arica*, 970 F.2d at 102, the court found that the presence of words or phrases similar to those in plaintiff's book on 70 pages in the defendant's book, was insufficient to produce substantial similarity between the two works in the large. Thus, if the similar material in defendant's work is not a substantial part of plaintiff's [\*24] work, there is no substantial similarity and hence no infringement. The issue is whether that material in defendants' book which is similar to the protected elements in plaintiff's book, is substantial in relation to plaintiff's book as a whole. There is no magic formula to determine how substantial a similarity must be to constitute infringement. The problem, as one commentator has noted, is one of "line drawing." 3 *Nimmer on Copyright* @ 13.03[A], at 13-29. However, even if the amount copied is relatively small, as long as the "copied portion is qualitatively important, the finder of fact may properly find substantial similarity under copyright law." *Brooktree Corp. v. Advanced*

Micro Devices, Inc., 977 F.2d 1555, 1564-65 (Fed. Cir. 1992) (citations omitted).

Although the selection and arrangement of defendants' book -- the selection of topics to illustrate in particular ways or to discuss at all -- is similar to the selection and arrangement of plaintiff's book, that similarity is not substantial in relation to plaintiff's book's over-all selection and arrangement. First, defendants' choice of which processes to illustrate with 3-D drawings, SEMS, and photographs is [\*25] not substantially similar to plaintiff's choice of which processes to so illustrate. Second, the addition of new topics to Langman's 7th does not render that book's topics substantially similar to the over-all selection and arrangement of all of the topics in Larsen's. Third, defendants' choice of which topics to illustrate with tables is not substantially similar to plaintiff's over-all choice of which topics to illustrate with tables. Finally, the arrangement of the clinical correlates section in Langman's 7th is not similar to the arrangement of the clinical applications section in Larsen's.

#### A. Choice of Embryological Processes to Illustrate with 3-D Drawings, SEMS and Photographs

As noted, plaintiff argues that defendants copied Larsen's choice of which embryological phenomena to illustrate with 3-D drawings, SEMS, and photographs. According to plaintiff, the "actual issue" is Dr. Larsen's over-all selection. Plaintiff claims that Larsen did not illustrate "everything" with the illustrative techniques at issue but "made a personal judgment about what to use with which." (Pl. Reply Mem. at 56)

Defendants argue that plaintiff's selection of which phenomena to illustrate [\*26] in particular ways is protectible only if it "spring[s] from an original organizing principle or structural idea." (Def. Mem. at 39) Defendants rely on *Key Pubs., Inc. v. Chinatown Today Pub. Ent., Inc.*, 945 F.2d 509 (2d Cir. 1991) and *CCC Info. Servs. Inc. v. Maclean Hunter Market Reports, Inc.*, 44 F.3d 61 (2d Cir. 1994), cert. denied, 133 L. Ed. 2d 32, 116 S. Ct. 72 (1995) for that claim. Both *Key Pubs.* and *CCC Info.* involved compilations of facts and relied on the Supreme Court's *Feist* decision. In *Feist*, the Court made clear that the only requirement for copyright protection in a compilation of facts is that the selection and arrangement of the facts be original. *Feist*, 499 U.S. at 347. The Court stated that "these choices as to selection and arrangement, so long as they are made independently by the compiler and entail a minimal degree of creativity, are sufficiently original that Congress may protect such compilations through the copyright laws." *Id.* The Court clarified that the degree of creativity necessary to clothe the selection and arrangement of facts with copyright protection is minimal: "To be sure the requisite degree of [\*27] creativity is extremely low; even a slight amount will suffice." *Id.* at 345.

In *Lipton v. Nature Co.*, 71 F.3d 464, 470 (2d Cir. 1995), the Second Circuit held that the plaintiff's selection and arrangement of terms of ventry -- collective terms for identifying certain animal groups -- was sufficiently creative to reflect the originality required for copyright protection. The plaintiff claimed that his arrangement of the terms reflected his creative and aesthetic judgment. The defendants offered no proof to contradict that claim. *Id.* Accordingly, the Court held the plaintiff's compilation to be protectible. Thus, in the absence of proof that plaintiff's selection and arrangement is merely mechanical and does not display any creativity, plaintiff is not required to provide a rationale for his selection and arrangement.

Here, plaintiff claims that he used his judgment to decide which phenomena to illustrate with 3-D drawings, SEMS or photographs. Defendant offers no evidence that plaintiff did not use his aesthetic or scholarly judgment. Given the amount of material which could be illustrated in a medical embryology textbook, it is reasonable to conclude that plaintiff's [\*28] selection and arrangement of illustrations is creative and therefore original. Thus, plaintiff's selection and arrangement of which processes to illustrate in a particular manner is entitled to copyright protection without a precise recitation of plaintiff's organizing principle. See Key Pubs., 945 F.2d at 514, (finding "the de minimis thought needed to withstand the originality requirement" in the choosing and ordering of categories in a Chinese phonebook); CCC Info., 44 F.3d at 67, (finding the necessary originality in the plaintiff's choice and presentation of data regarding used cars). n5

-----Footnotes-----

n5 Defendant relies on *Fonar Corp. v. Magnetic Resonance Plus, Inc.*, 920 F. Supp. 508 (S.D.N.Y. 1996). *Fonar*, however, is inapposite. In *Fonar*, the Court granted the defendant summary judgment because the plaintiff there had failed to "set forth with any particularity the elements of the work or the originality or uniqueness of its functioning." *Id.* at 518. Here, plaintiff has alleged with particularity the elements of its book entitled to protection -- the selection and arrangement of illustrations.

-----End Footnotes-----

[\*29]

Plaintiff cites illustrations in *Langman's 7th* which plaintiff claims are similar to illustrations in *Larsen's* and which show the same processes or topics. However, the similarity in selection and arrangement between the processes defendants illustrate with a 3-D drawing, a SEM or a photograph and the processes plaintiff illustrates with the same technique is not substantial. I have examined *Larsen's* closely. I have charted every use of a 3-D drawing, SEM or photograph, whether or not an allegedly similar one was used in *Langman's*. Although the 90 illustrations in *Langman's 7th* which plaintiff claims are similar to corresponding illustrations in plaintiff's work are indeed apparently similar and depict similar phenomena, there are at least 244 3-D drawings, SEMS, or photographs in *Larsen's* which do not have a counterpart in *Langman's 7th*. (See attached Appendix 1) Thus, taking plaintiff's allegations to be true, 90 illustrations in defendants' book are similar to only 70 out of a total of 314 illustrations in *Larsen's*. n6 This amount of alleged copying is not enough to make the two works substantially similar.

-----Footnotes-----

n6 The reason that there are 90 allegedly infringing illustrations in *Langman's 7th* and only 70 allegedly infringed illustrations in *Larsen's* is that plaintiff often claims that more than one illustration in *Langman's 7th* copies a single illustration in *Larsen's*.

-----End Footnotes-----

[\*30]

However, even this view of the evidence is insufficient to resolve fully the key issue -- which is

whether defendants copied plaintiff's selection and arrangement of which topics or processes to illustrate with each particular technique. Plaintiff has not argued literal copying; thus, the number of similar illustrations is not the measure of infringement. The focus of inquiry should not be simply the number of allegedly copied illustrations, but the degree of similarity between the books in the choice of phenomena to so illustrate. The issue is how many topics, processes or phenomena plaintiff illustrated with each particular technique and how many of the same topics defendant illustrated in the same way, and whether the ordinary observer would find that defendants copied plaintiff's selection and arrangement of illustrations. Accordingly, plaintiff's claim that defendant copied its strategy of illustrating complex processes, such as formation and folding of the heart tube and the development of the membranous ventricular septum, with a series of illustrations is included within the following count. No matter how many drawings were used by plaintiff and defendants to illustrate [\*31] those processes, they are merely two topics illustrated in similar ways. Again, the issue at this point is not the number of illustrations used, but the number topics similarly illustrated.

Larsen's illustrates a total of 81 topics with the 3-D drawings, defendants illustrate eight of the same topics with allegedly similar 3-D drawings. Larsen's illustrates 61 topics with SEMS; defendants illustrate 20 of the same topics with allegedly similar SEMS. Larsen's illustrates 50 topics with photographs; defendants illustrate 11 of the same topics with allegedly similar photographs. n7 (See attached Appendix 1) No reasonable jury could find, after being properly instructed, that there is a substantial similarity in the selection and arrangement of the illustrations in plaintiff's and defendants' books.

-----Footnotes-----

n7 Certain topics in Larsen's were illustrated with more than one type of illustration -- e.g., a SEM and a photograph.

-----End Footnotes-----

It is true that "no plagiarist can excuse the wrong by showing how much of his work he did not [\*32] pirate," *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2d 49, 56 (2d Cir.), cert. denied, 298 U.S. 669, 80 L. Ed. 1392, 56 S. Ct. 835 (1936), and "it is entirely immaterial that in many respects plaintiff's and defendant's works are dissimilar if in other respects similarity as to a substantial element of plaintiff's work can be shown." 3 *Nimmer on Copyright* @ 13.03[B] at 13-51. Thus, it is immaterial that the vast majority of material in defendants' book is not similar to plaintiff's book. (See Def. Mem. at 73) However, here, similarity in choice of topics to illustrate with particular techniques is the crux of plaintiff's claim: a failure to demonstrate that defendants' choice of the same topics as plaintiff is substantial in comparison to plaintiff's over-all choice of topics is fatal. I find that defendants' illustration of approximately 40 topics with the same type of illustrations plaintiff used for the same 40 topics, does not mean that defendants' selection and arrangement of illustrations over all is substantially similar to plaintiff's selection and arrangement of illustrations for approximately 180 topics, such that an "ordinary observer, unless he set [\*33] out to detect the disparities, would be disposed to overlook them, and regard [the] aesthetic appeal [of the two works] as the same." *Arica Inst., Inc. v. Palmer*, 970 F.2d 1067, 1072 (2d Cir. 1992).

Finally, the textbook cases on which plaintiff relies are not controlling and have been at least implicitly repudiated. First, each of the cases involved allegations of direct copying; second, each seemed to rely on the now rejected "sweat-of-the-brow" doctrine.

In *Colonial Book Co. v. Amsco School Pubs.*, 41 F. Supp. 156 (S.D.N.Y. 1941), the Court found copyright infringement in the defendant's direct copying of eleven diagrams from the plaintiff's chemistry textbook. In so holding, the Court relied upon *College Entrance Book Co. v. AMSCO Book Co.*, 119 F.2d 874 (2d Cir. 1941), in which the Second Circuit found copyright infringement when defendant directly copied word lists from plaintiff's French textbook, which constituted a mere 15 percent of the printed matter in plaintiff's book. Because the material was of "real importance," the court found the lists protectible. *Id.* at 876. However, the Court stated also that "both plaintiff's and defendant's books [\*34] met exactly the same demand on the same market, and defendant's copying was unquestionably to avoid the trouble or expense of independent work." *Id.* In reaching its decision in *Colonial Book Co.*, the district court quoted the latter statement. 41 F. Supp. at 159.

That both cases involved direct copying, coupled with the above statement, leads me to believe that the courts were relying on a "sweat-of-the-brow" theory of copyright protection which is no longer valid. That theory maintains that copyright protection is a reward for the hard work that goes into the compilation of facts. The Supreme Court has explicitly repudiated that theory. "Without a doubt, the 'sweat of the brow' doctrine flouted basic copyright principles." Feist, 499 U.S. at 354. Thus, the force of both *College Entrance Book Co.* and *Colonial Book Co.* is questionable.

In *Nikanov v. Simon & Schuster*, 246 F.2d 501 (2d Cir. 1957), the first three chapters of defendants' Russian language textbook copied plaintiff's copyrighted charts -- the "Russian Alphabet Guide" and the "Russian Language Chart." *Id.* at 502, 503. The Court in *Nikanov* stated that "while the material copied amounted [\*35] to a relatively small portion of the total text of [defendants' work] it constituted a much larger portion of the copyrighted chart." *Id.* at 503. The Court expressly held that a substantial portion of plaintiff's work had been copied -- which I have not found here. However, *Nikanov* also seemed to rely on the "sweat-of-the-brow" doctrine, which reliance undermines its precedential value: "What was copied was an integral part of and of real importance to the book, and unquestionable done to avoid the trouble and expense of independent work." 246 F.2d at 503-04.

Finally, in *Meredith Corp. v. Harper & Row, Publishers, Inc.*, 378 F. Supp. 686, 689-90 (S.D.N.Y.), *aff'd*, 500 F.2d 1221 (@d Cir. 1974) the Court stated that "this is not a case of insignificant copying . . . substantial amounts of [plaintiff's work] have been taken and paraphrased . . ." Thus, *Meredith Corp.* involved a substantial amount of copying. Plaintiff is correct in noting that the *Meredith* Court also said that "even a small usage may be unfair if it is of critical importance to the work as a whole and taken by the infringer in order to save the time and expense incurred by the copyright [\*36] owner." *Id.* at 690 n.12. However, that statement the Court embodies the "sweat-of-the-brow" doctrine, and indeed the Court cited to *College Entrance Book Co.* and *Colonial Book Co.* *Id.*

Plaintiff claims that the textbook cases stand for the proposition that "substantial copying of a protectible part of plaintiff's textbook is infringement, and that non-literal elements, such as underlying structure or design of a work are protectible." (Pl. Reply Mem. at 23) Plaintiff is correct, and I have assumed that the selection and arrangement of plaintiff's textbook is protectible. However, those Courts found infringement based even on a small amount of copying because the copying was direct, and they relied on a now-rejected theory. Here, I have found that defendants' book does not include a substantial part of plaintiff's selection and arrangement of material in light of current case law.

## B. Topics

Plaintiff claims also that two-thirds of the new topics added to Langman's 7th were topics that had been addressed in Larsen's but not in Langman's 6th. Again, plaintiff does not claim direct copying. Rather, plaintiff claims that defendants' choice of which topics to add to [\*37] its revised edition was based on the presence of the same topics in Larsen's. (3/29/96 Larsen Aff. P 42, Ex. 7) Plaintiff states that its claim "is only that defendants may not select the topics to be included . . . by copying [plaintiff's] selection of topics."

Topics -- such as infertility, the effects of maternal cocaine use on embryological development, or genomic printing -- are not copyrightable. Topics such as the ones plaintiff alleges defendants copied are themselves medical facts or phenomena. Because facts alone are not copyrightable, there is no copyright protection in the particular topics presented in a medical embryology textbook. See Feist, 499 U.S. at 357-58. Indeed, plaintiff acknowledges that "defendants are entitled to present significant embryological concepts or contemporary embryological issues." (Pl. Reply Mem. at 16)

In the absence of direct copying of the unique expression of a topic, the only copyrightable aspect of embryological topics is a unique selection and arrangement. Accordingly, any alleged similarity between plaintiff's book and the 33 topics added to defendants' book must be based on plaintiff's selection and arrangement of topics generally. [\*38]

Plaintiff alleges that 33 new topics added to Langman's 7th came from Larsen's. n8 Considering the vast number of topics discussed in Larsen's, which is a comprehensive medical textbook, I find that no reasonable jury could conclude that the addition of 33 new topics to Langman's 7th generates a substantial similarity between the selection and arrangement of topics in that book and the selection and arrangement of the hundreds of topics in Larsen's.

-----Footnotes-----

n8 However, plaintiff's own expert, Dr. Donald R. Cahill, found that the treatment of 14 of those topics was "different," more or less concise, or indeed "quite dissimilar" from the treatment of the same topics in Larsen's (3/26/96 Cahill Aff. Ex. 2) Thus, according to plaintiff's own expert, the treatment of 19 topics added to Langman's 7th is similar to the treatment of the same topics in Larsen's. However, for the purposes of this motion I assume that 33 new topics added to Langman's 7th are similar to topics already discussed in Larsen's and find the similarity to plaintiff's selection and arrangement not substantial.

-----End Footnotes-----

[\*39]

### C. Tables

Plaintiff argues next that defendants added three new tables to Langman's 7th, and that those tables covered topics illustrated with tables in Larsen's. The topics covered in tabular form were lung development, cranial nerves, and neural crest cells. (3/29/96 Larsen Aff. P 41) Defendant argues that defendants copied the tables from Larsen's, but does not allege literal infringement. Rather, plaintiff alleges that defendants copied its choice of topics to illustrate with tables.

The idea of using a table to illustrate a particular topic implicates the merger doctrine. Because the scientific terms used to describe stages of embryological development, and because the time corresponding to stages of development are both fixed (5/28/96 Sadler Aff. P 121-22), tables depicting the same embryological topics will invariably be similar. Indeed, the terms used in the science of embryology are analogous to stock phrases or scenes-a-faire, and are not copyrightable. Thus, the idea of depicting lung development, for example, in tabular form merges with its expression. In my view, because there are so few ways to list the scientific terms that describe the development of the [\*40] human lung, and because these terms are like scenes-a-faire and not copyrightable, the merger doctrine applies. Thus, even if plaintiff argued that the three tables at issue literally infringed the corresponding tables in Larsen's, I would find the tables not copyrightable.

However, the expression of the more general idea of using tables to depict information in a readily accessible way may be copyrightable. Thus, plaintiff's over-all selection and arrangement of which topics to present in tabular form -- like his selection and arrangement of 3-D drawings, SEMS and photographs -- may be protectible. The question becomes whether inclusion of the three tables makes the tabular roster of Langman's 7th substantially similar to plaintiff's over-all selection and arrangement of tables.

I have examined Larsen's in detail and found a total of 11 tables. (See attached Appendix 2) I find that no reasonable jury, properly instructed, could find that defendants' selection and arrangement of three tables is substantially similar to plaintiff's over-all selection and arrangement of 11 tables.

### D. Clinical Correlates

Plaintiff's final claim is that Langman's 7th was revised to resemble [\*41] Larsen's in that clinical material was added and set apart in chapter sections called "Clinical Correlates" which copied Larsen's use of a separate clinical applications section for each chapter. Set off from the main discussion in Larsen's is a clinical applications and experimental principles section. The clinical applications sections are from 2-3 pages to 8 pages in length. Langman's 7th includes a clinical correlates section within the main discussion in each chapter. These sections are short, usually a page or less, and are set off from the rest of the text by a pink background.

The inclusion of clinical topics in an embryology textbook is not new. (5/28/96 Sadler Aff. P 148) Plaintiff's arguably original idea was to set clinical information apart from the rest of the chapter. As noted, ideas are not copyrightable. Also as noted, the topics and facts included within plaintiff's clinical applications sections are not copyrightable. Plaintiff does not allege any direct copying of the clinical applications sections in Larsen's, and offers no evidence that defendants copied any part of the original expression in its clinical applications sections. I assume, therefore, that plaintiff [\*42] alleges defendants copied its design, layout or arrangement of the clinical applications section. However, after examining the sections, I find that no reasonable jury could conclude that defendants copied anything from plaintiff's clinical sections -- other than the idea of setting clinical information apart, which is not copyrightable.

In sum, factoring out all unprotected elements from plaintiff's book, I find that no reasonable jury, properly instructed, could find substantial similarity between plaintiff's book and defendants'.

\* \* \*

For the reasons stated above, plaintiff's motion for summary judgment on the issue of substantial similarity is denied. Defendants' cross-motion is granted, and the complaint is dismissed.

SO ORDERED:

Dated: New York, New York

December 16, 1996

Michael B. Mukasey

U.S. District Judge

Appendix 1

Illustrations and Topics From Larsen's With Corresponding Illustrations in Langman's 7th \*

-----Footnotes-----

\* There may be illustrations in Langman's 7th which correspond to more of these topics. However, many may have been used previously in Langman's 6th, and plaintiff's claims relate only to the revisions in Langman's 7th. This list includes all of the illustrations in defendants' book which plaintiff claims are similar to illustrations found in its book.

In deciding whether to include certain illustrations I have used the summary judgment standard: I took all reasonable inferences and construed all facts in favor of the non-movant, here, plaintiff. Accordingly, certain arguably 3-D drawings in Larsen's were not included on this list.

-----End Footnotes-----

[\*43]

3-D Drawings in Topic Illustrated with 3-D Alleged infringing Larsen's Drawing in Larsen's Drawing in Langman's 7th and Topic 3-D Fig. 1-1B Primordial germ cells None producing formation of genital ridges.

3-D Fig. 1-4A Spermatogenesis. None

3-D Fig. 1-10A Sperm penetration of cumulus None mass.

3-D Fig. 2-1 Beginning of implantation in None uterus.

3-D Fig. 2-2 Appearance of amniotic cavity None at 8 days.

3-D Fig. 2-3 9 day embryo completely None implanted with amniotic cavity expanding.

3-D(3) Figs. 2- Formation of the None 4A-C extraembryonic mesoderm.

3-D(3) Figs 2- Formation of secondary yolk None 5A-C sac.

3-D Fig. 2-6 End of second week definitive None yolk sac loses contact with primary yolk sac.

3-D Fig. 3-1 View of dorsal surface of Fig. 4-1A bilaminar germ disc. Schematic view of an implantation site at end of second week.

3-D(2) Fig. 3- Gastrulation of germ discs. Fig. 4-2B Cross 2A-B section through cranial region of streak at 15 days showing invagination of epiblast cells.

3-D Fig. 3-3 Paths of migration of None ingressing mesoderm.

3-D(3) Fig. 3- Formation of the notochordal None 6A-C process and prechordal plate mesoderm.

3-D(3) Fig. 3- Process by which hollow None 7A-C notochordal process transformed into solid notochord.

3-D(3) Fig. 3- 17-day embryo showing None 8A-C differentiation of the mesoderm.

3-D Fig. 3-10 Somitomeres and somites. None

3-D Fig. 4-1 Initial subdivision of the 1) 5.9A-D somitic mesoderm. Development of mesodermal germ layer.

2) 5.16 A-C Effect of lateral folding on the endoderm-lined cavity.

3) 5.15 A-D Cephalocaudal folding and its effect on endoderm-lined cavity

4)5.12A-B transverse section of 21 day embryo in region of mesonephros

5) 11.2A-C intraembryonic coelom

6) 12.3A-C Formation of single heart tube from paired primordia

7)14.2A-C Same as Fig. 11.2

3-D Fig. 4-6 Fate of the dermamyotome. Plaintiff argues Fig. 5.9A-D, although not obviously apparent.

3-D Fig. 4-9 Folding of lateral edges of None neural folds.

3-D Fig. 5-2 Ventral roots and formation of None dorsal root ganglia.

3-D Fig. 5-4A Association neurons in dorsal None column and neuronal cell bodies and neurofilaments.

3-D Fig. 5-5 Organization of spinal nerves None and associated chain ganglia.

3-D(3) Fig. 6- Cephalocaudal and lateral

1) 14.1A-D 1A-C folding that transforms embryo Cephalocaudal and to three-dimensional lateral flexion vertebrate form.

2) 12.2A-D Drawings to show rapid growth of brain vesicles on the pericardial cavity and developing heart tube

3) 5-15A-D Cephalocaudal folding. Exact copy of 14.1A-D

3-D Fig. 6-9 Development of the lung buds. None

3-D Fig. 6-10 Maturation of lung tissue. None

3-D Fig. 7-3D Formation of embryonic None vessels.

3-D Fig. 7-6 Early heart chambers. None

3-D Fig. 7-7A Differentiation of the heart None wall.

3-D Fig. 7-8 Formation of transverse and None oblique coronary sinuses.

3-D(3) Fig. 7-9 Folding of the heart tube. None

3-D(3) Fig. 7- Realignment of the heart. None 17A-C

3-D(4) Fig. 7- Septation of the cardiac

3-D(3) 12.22 A-C 20A-D outflow and final septation of Development of the ventricles. conotruncal ridges and closure of interventricular foramen.

3-D Fig. 8-2 Schematic view of the None bronchial arch system of a shark.

3-D(3) Fig. 8- Development of the aortic arch None 3A-C system.

3-D(2) Fig. 8- Development of ventral aortic 14.22 Embryo - 6th 5A-B branches. week showing blood supply to gut.

3-D(3) Fig. 8- Development of the lateral None 6A-C branches of abdominal aorta.

3-D Fig. 8-8 Development of arterial supply None to body wall.

3-D(4) Fig. 8- Fate of the vitelline and None 11A-D umbilical veins.

3-D(5) Fig. 8- Development of the systemic None 12A-E venous system from the four bilaterally symmetrical cardinal vein systems.

3-D(4) Fig. 8- Development of the lymphatic None 14A-D system.

3-D(2) Fig 8- Conversion of circulation from None 15A-B fetal to air breathing pattern.

3-D Fig. 9-2 Structure of the gut tube. None

3-D(5) Fig. 9- Rotations of the stomach. None 3A-D, 9-4

3-D(3) Fig. 9-5 Development of the greater None omentum and lesser sac.

3-D Fig. 9-6 Development of the digestive None glands.

3-D Fig. 9-7 Ventral pancreas. None

3-D Fig. 9-8 Formation of the liver and None associated membranes.

3-D(5) Fig. 9- Herniation and rotation of the

3-D(2) 14.25D-E 9A-E intestine. Intestinal loops.

3-D Fig. 9-10 Mechanism by which portions of None gut tube become secondarily retroperitoneal.

3-D Fig. 9-11 Intraperitoneal, None retroperitoneal organs of abdominal gastrointestinal tract.

3-D Fig. 9-13 Lower third of anorectal None canal.

3-D Fig. 9-14 Formation of definitive gut None lumen.

3-D Fig. 10-1 Paired, segmentally organized None nephrotomes from cervical to sacral region.

3-D(4) Fig. 10- Development of cervical None 2A-D nephrotomes and mesonephros.

3-D Fig. 10-7 Definitive renal architecture None of metanephros.

3-D Fig. 10-8A- Normal and abnormal ascent of None D the kidneys.

3-D Fig. 10-9 Development of the primitive None urogenital sinus.

3-D(3) Fig. 10- Formation of the genital None 11A-C ridges.

3-D(3) Fig. 10- Formation of the uterus and None 17A-C vagina.

3-D(3) Fig. 10- Descent of the testes. None 19A-C

3-D Fig. 10-21 Three extruded layers of None abdominal wall.

3-D(4) Fig. 12- Evolutionary origin of human None 1A-D skull from primitive vertebrates.

3-D Fig. 12-2 Derivation of base of skull. None

3-D Fig. 12-3 Unfused structures of cranium None postnatal.

3-D(2) Fig. 12- Fate of pharyngeal arch None 6 arteries.

3-D Fig. 12-7 Fate of pharyngeal arch None musculature.

3-D Fig. 12-17 Development of pharyngeal None pouch derivatives.

3-D(3) Fig. 12- Fate of pharyngeal clefts. None 13A-C

3-D(3) Fig. 12- Formation of the optic vesicle None 19B,C,E and optic cup.

3-D Fig. 12-22A Vascularization of the lens None and retina.

3-D Fig. 12-25C Formation of otic vesicle. None

3-D(4) Fig. 13- Early development of the None 1A-D brain.

3-D Fig. 13-2 Early differentiation of the None rhombencephalon.

3-D Fig. 13-5C Definitive arrangement of cranial nerves.

3-D(6) Fig. 13- Development of the cerebellum and choroid plexus of the fourth ventricle.

3-D(3) Fig. 13- Development of mesencephalon.

3-D(3) Fig. 13- Development of diencephalon.

3-D Fig. 13-12B Development of cerebral hemispheres and lateral ventricles.

3-D Fig. 13-15 Cerebral ventricles.

3-D(2) Fig. 13- Formation of commissures.

3-D Fig. 14-4 Definitive organization of dermis and epidermis.

[\*44]

Total 3-D drawings in Larsen's - 159 Total corresponding 3-D drawings in Langman's 7th - 31

Topics in Larsen's illustrated with 3-D drawings - 81

Topics in Langman's 7th with corresponding 3-D drawings - 8

SEMS in Topic Illustrated with SEMS in Alleged Infringing Larsen's Larsen's SEMS in Langman's

7th and Topic SEM Fig. 1-6B Responding Preovulatory follicle.

SEMS(2) Fig. 1- Zona pellucida after removal of the cumulus cells and oocyte surface and cumulus oophorus with zona pellucida digested away.

SEM Fig. 1-8B Preovulatory oocyte at the first meiotic metaphase.

SEM Fig. 1-10B Human sperm fusing with hamster oocyte. binding to zona pellucida.

SEM Fig. 3-4 Ectodermal surface of a trilaminar germ disc.

SEM Fig. 3-9A Somitomere.

SEM Fig. 3-11 Somitomere formation.

SEM Fig. 3-12 Somite and intermediate mesoderm.

SEM Fig. 3-14 20-day embryo showing neural Fig. 5.2C Mouse plate and major subdivisions embryo showing of brain. neural groove stage.

SEM Fig. 4-7 Anlage of central nervous None system - the neural tube.

SEMS(5) Fig. 4- Neurulation. Fig. 4.3F showing 8A-E notochord in close proximity to the neural tube alleged to copy 4- 8E.

SEM Fig. 4-10 Open cranial and caudal None neuropores on a 22-23 day human embryo.

SEMS(2) Fig. 4- Craniocaudal release of neural 5.3F migrating 13A-B crest cells and migrating neural crest cells neural crest cells on surface moving down neural of somite. tube to somites.

SEM 4-16B Cytodifferentiation of the 20.6B Dividing neural tube. cells in a neural tube.

SEM Fig. 5-1. Axonal growth cone. None

SEM Fig. 5-3 Immunocytochemical preparation None showing the pattern of outgrowth of ventral root axons.

SEM Fig. 5-4B Association neurons in dorsal None column and neuronal cell bodies and neurofilaments.

SEMS(2) Fig. 6- 4-week and 5-week old embryo None 2A-B just after folding.

SEMS(2) Fig. 7- Formation of lateral None 1B-C endocardial tubes.

SEM Fig. 7-2C Cephalocaudal and lateral None folding at the end of the third week.

SEMS(3) Fig. 7- Formation of embryonic None 3A-C vessels.

SEMS(3) Fig. 7- Cephalic flexion translocates

1) 12.1D 4 developing endocardial tubes Coalescence of the from neural plates to thoracic angiogenic cells region. into horseshoe- shaped heart tube in the primitive pericardial cavity under the cranial neural folds.

2) 12.4A-B Formation of heart tube on days 19,20,21,22.

SEM Fig. 7-7B Differentiation of the heart None wall. SEMS(2) Fig. 7- Folding of the heart tube.

1) 12.4C (SEM) 9 Fusion of the caudal regions

2) 12.4D (SEM) Fusion of caudal regions

- 3) 12.6D (SEM) formation of cardiac loop
- 4) 12.6E (SEM) formation of cardiac loop
- 5) 12.7C (SEM) heart of approx. 28 day embryo.

SEMS(2) Fig. 7- Initial septation of the

- 1) 12.11B 14B-C atria.
- 2) 12.11D - development of venous valves.

SEM Fig. 7-15 Development of the ostium Secundum.

SEMS(2) Fig. 7- Formation of semilunar valves. None 21A,C

SEMS(4) Fig. 8- Sampling of methods used to study embryonic blood vessels.

SEMS(2) Fig. 8- Views of the aortic arch system.

SEM Fig. 8-7 Intersegmental arteries. None

SEM Fig. 8-13 Cast of embryonic aorta showing the coronary arteries sprouting from aortic sinuses.

SEM Fig. 7-25 Ventricular septal defect. None

SEM Fig. 10-3 Growing mesonephric duct adjacent to somites.

SEM Fig. 10-12 Relationship between genital ridges and mesonephroi.

SEMS(4) Fig. Development of limb buds. None 11-1A-D

SEM Fig. 11-4B Appearance of tactile pads at 9-11C Digit 8 weeks. formation at 56 days.

SEM Fig. 11-8 Axons entering the limb bud 10.5 Spinal nerves area. entering the limb.

SEMS(3) Fig. Formation of pharyngeal arches.

SEMS(2) Fig. Origin of human face and 16.5C formation of 12-9 mouth. frontal nasal prominence.

SEMS(2) Fig. Development of face.

- 1) 16.5C see above 12-10A,C

2) 16.20C Frontal aspects of face.

SEM Fig. 12-11D Formation of the nasal cavity. 16.23D Palatal shelves.

SEM Fig. 12-12B Formation of secondary palate 16.23C Palatal and nasal septum. shelves

SEM Fig. 12-15C Development of tongue mucosa. 16.15C Development of tongue.

SEMS(3) Fig. Formation of the optic vesicle

1) 18.1D Optic 12-19A,D,F, and optic cup. vesicle formation

2) 20.4brain vesicle development.

SEMS(2) Fig. Formation of lens placode and None 12-20A-B lens vesicle.

SEM Fig. 12-24B Development of anterior and None posterior chambers, eyelids and coverings of optic globe. SEMS(2) Fig. Formation of the otic vesicle.

1) 17.2D formation 12-25A,F of otic vesicles

2) 17.3F Development of otocyst.

SEM Fig. 12-28 Differentiation of the 17.9E Six auricle. auricular hillocks.

SEM Fig. 12-35 Mouse embryo treated with None isotretinoin.

SEMS(2) Fig. Expression of Hox 2.1 and Hox None 12-37A-B 3.1.

SEM Fig. 13-4 Neural crest cells migrating

1) 5.4A-B over the surface of neural Migrating fold. cranialneural crest cells.

2) 16.2A same

SEM Fig. 13-13G Development of pituitary 20.25D Rathke's showing opening to Rathke's pouch. pouch.

SEMS(2) Fig. Comparison of growth cone with None 13-21A-B relatively simple morphology.

SEMS(2) Fig. Tract-tracing technique to None 13-22A-B show projection of secondary retinal neurons to optic tract.

SEMS(2) Fig. Differentiation of the None 14-1A-B ectoderm.

SEMS(3) Fig. Differentiation of mature None 14-2 epidermis.

SEMS(2) Fig. Specialized cells of the None 14-3A-B epidermis.

SEMS(7) Fig. Development of hair follicle. None 14-5A-G

SEMS(3) Fig. Development of nails. None 14-8A-C

SEM Fig. 15-3 Development of placenta. None

SEM Fig. 15-5A Cystic hygroma. None

[\*45]

Total SEMS in Larsen's - 105 Total corresponding SEMS in Langman's 7th - 30 Topics in Larsen's illustrated with SEMS - 61 Topics in Langman's 7th with corresponding SEMS - 20

Photographs in Topic Illustrated with Photos Alleged Infringing Larsen's in Larsen's Photos in Langman's 7th and Topic Photo

Fig. 1- Karyotype of male with trisomy

Fig. 1-5 Karyotype 13B 21. of individual with trisomy 21.

Photo Fig. 1-14 Karyotype of male with Down

Fig. 1-6B syndrome. Karyotype of individual with Down syndrome.

Photos(5) Fig. Injection of genetically None 1-15 modified embryonic stem cells into a blastocyst.

Photo Fig. 1-16 Litter of transgenic mice bred None from chimeric parent

Photo Fig. 2-9 Triploid newborn. None

Photo Fig. 3-15 Sirenomelia. Fig. 4.6 Sirenomelia

Photo Fig. 4- Meningomyelocele. 20.15A 18C Meningomyelocele

Photo Fig. 4-19 Meningoencephalocele. None

Photos(2) Fig. Anomalies from failure of None 4-20A-B neurulation.

Photos(3) Fig. Contrasting effects of activin None 4-22A-C and fibroblast growth factor in body axis induction.

Photo Fig. 5-10 Constricted inferior None gastrointestinal tract of indiv. with Hirschsprung's disease.

Photo Fig. 5-12 Dorsal and lateral view of None transgenic mice that express bacterial lacZ gene.

Photo 6-14 Eventration of the diaphragm. None

Photo Fig. 7-22 Acardia. None

Photo Fig. 7-23 Dextrocardia. None

Photo Fig. 7-24 Infant heart with atrial None septal defect.

Photo Fig. 7- Transposition of the great None 26C arteries -- failure of truncoconal septae to spiral.

Photo Fig. 7- Tetralogy of Fallot. None 27B

Photos(2) Fig. Coarctation of the aorta. None 8-19A-B

Photo Fig. 8-20 Lymphedema in a fetus with None Turner Syndrome.

Photos(2) Fig. Congenital defects of anterior 11.13A Ectopia 9-15A-B abdominal wall closure -- cordis omphalocele and Ectopia cordis

Photo Fig. 9-16 Severe gastroschisis.

1) 11.3D gastroschisis

2) 14.29C Same photo.

Photo Fig. 9-17 Cloacal exstrophy.

Photos(2) 15.15B Exstrophy, cloacal exstrophy.

Photo Fig. 10- Testicular hydrocele. None 20D

Photo Fig. 10- Hypospadias. None 30

Photo Fig. 11- 7 Week old digit formation. None 4A

Photo Fig. 11-1 Meromelia. None

Photo Fig. Amelia. None 11.12

Photo Fig. 11- Polydactyly. 9.13A Polydactyly 13

Photo Fig. 11- Syndactyly. None 14

Photo Fig. 11- Lobster claw hand or foot. None 15

Photo Fig. 11- Phocomelia. None 17

Photo Fig. 11- Amniotic band syndrome. 7.10 Limb 18 amputation from amniotic bands

Photo Fig. 12- Meckel syndrome. None 29 P

Photos(4) Fig. Examples of holoprosencephaly. 18.10 - 12-30A-D Synophthalmia.

Photo Fig. 12- Apert syndrome. None 31

Photo Fig. 12- Bilateral cleft lip. None 32

Photo Fig. 12- Goldenhar syndrome. 16.14D Goldenhar 34 syndrome.

Photo Fig. 13- Hydrocephaly. 20.32 10 Hydrocephalus

Photo Fig. 15- Stillborn fetus. None 5B

[\*46]

Total Photos in Larsen's - 50

Total corresponding Photos in Langman's 7th - 14

Topics in Larsen's illustrated with Photos - 39

Topics in Langman's 7th with corresponding Photos - 11

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Total 3-D drawings, SEMS or photographs in Larsen's: 314

Total illustrations in Larsen's with no counterpart in Langman's 7th: 244

Topics in Larsen's illustrated with 3-D drawings, SEMS or photographs: 181

Topics illustrated in Larsen's with 3-D drawings, SEMS or photographs with no counterpart in Langman's 7th: 142

Appendix 2

Tables in Larsen's With Corresponding Alleged Similar Tables In Langman's 7th

Table in Topic Covered in Larsen's Corresponding

Larsen's Table

Langman's 7th 1-1 Event during mitotic and None meiotic cell division.

6-1 Stages of human lung 13.1 Maturation of development. the lungs

9-1 Derivatives of the primitive None gut tube.

9-2 Derivatives of the Septum None Transversum.

10-1 Development of the male and None female external genitalia.

11-1 Muscles derived from the None ventral and dorsal muscle masses of the limb buds.

11-2 Some common terms for limb None deformations.

12-1 The derivatives of the None pharyngeal arches and their tissues of origin.

12-2 Development of the tongue from None pharyngeal arches one through four and the occipital somites.

13-1 Location of the cranial nerve 20.1 Origins of nuclei. cranial nerves and their composition.

13-2 Origins of the neurons in the 20.2 Contributions cranial nerve ganglia. of neural crest cells and placodes to ganglia of the cranial nerves.

[\*47]